# Round 5 Binghamton Neg v Iowa CP

## Off

### 1nc – k

#### The Anthropocene epoch has accelerated beyond the control of Civilization – ecological crisis is a routine disturbance at the back of the modern subject’s mind, a buried reminder of the destruction of Earth – life as we know it has become unsustainable, and the aff’s obsession with the redemption of the human narrative ensures that we will never even notice as the non-events that comprise the imminent collapse of the biosphere accumulate around us

Cohen 12, (Tom, Professor of Literary, Cultural, and Media Studies at Albany State University of New York, Ph.D. in Comparative Literature from Yale University, Introduction, “Murmurations—Climate Change and the Defacement of Theory” in Telemorphosis: Theory in the Era of Climate Change, Vol. 1) NGW

The point is, today everyone can see that the system is deeply unjust and careening out of control. Unfettered greed has trashed the global economy. And we are trashing the natural world. We are overfishing our oceans, polluting our water with fracking and deepwater drilling, turning to the dirtiest forms of energy on the planet, like the Alberta tar sands. The atmosphere can’t absorb the amount of carbon we are putting into it, creating dangerous warming. The new normal is serial disasters: economic and ecological. —Naomi Klein, “The fight against climate change is down to us—the 99%” [2011] Carbon pollution and over-use of Earth’s natural resources have become so critical that, on current trends, we will need a second planet to meet our needs by 2030, the WWF said on Wednesday. —Agence France-Presse, “Time to find a second Earth, WWF says” [2010] 1. Warnings regarding the planet earth’s imminent depletion of reserves or “life as we know it” arrive today more as routine tweets than events that might give us pause, particularly as the current wars over global “sovereign debt” and economic “crises” swamp attention. The intensifying specter of megadebt—at a time of “peak everything” (peak water, peak oil, peak humans)—dumped into a future despoiled of reserves and earning capacity has a specific relation to this white-out—the “economical” and “ecological” tandem shifts all attention to the first term (or first “eco”). In a post-global present consolidating what is routinely remarked as a neo-feudal order, the titanic shift of hyperwealth to the corporatist few (the so-called 1 %) sets the stage for a shift to control societies anticipating social disruption and the implications of “Occupy” style eruptions—concerning which the U.S. congress hastily passed new unconstitutional rules to apprehend citizens or take down websites. The Ponzi scheme logics of twenty-first century earthscapes portray an array of time-bubbles, catastrophic deferrals, telecratic capture, and a voracious present that seems to practice a sort of tempophagy on itself corresponding with its structural premise of hyper-consumption and perpetual “growth.” The supposed urgencies of threatened economic and monetary “collapse” occlude and defer any attention to the imperatives of the biosphere, but this apparent pause or deferral of attention covers over an irreversible mutation. **A new phase of unsustainability appears in which a faux status quo ante appears to will to sustain itself as long as possible and at whatever cost; the event of the twenty-first century is that there will be no event, that no crisis will disturb the expansion of consumption beyond all supposed limits or peaks**. In such an environment other materialities emerge, reference systems default, and the legacies of anthropo-narcissm go into overdrive in mechanical ways. Supposedly advanced or post-theory theory is no exception—claiming on the one hand ever more verdant comings together of redemptive communities, and discretely restoring many phenomenological tropes that 20th century thought had displaced. This has been characterized as an unfolding eco-eco disaster—a complex at once economic and ecological. [1] The logics of the double oikos appear, today, caught in a self-feeding default. The present volume, in diverse ways, reclaims a certain violence that has seemed occluded or anaesthetized (it is a “present,” after all, palpably beyond “tipping points” yet shy of their fully arrived implications—hence the pop proliferation of “zombie” metaphors: zombie banks, zombie politics, zombie “theory”). It departs from a problem inherent in the “eco” as a metaphoric complex, that of the home (oikos), and the suicidal fashion in which this supposed proper ground recuperates itself from a non-existent position. **The figure of an ecology that is ours and that must be saved precludes us from confronting the displacement and dispossession which conditions all production, including the production of homelands.** Memory regimes have insistently, silently and anonymously prolonged and defended the construct of “homeland security” (both in its political sense, and in the epistemological sense of being secure in our modes of cognition), but **these systems of security have in fact accelerated the vortices of ecocatastrophic imaginaries.** This leads to what can be called the zone of telemorphosis: that is, how and whether **conceptual practices and cognitive rituals**, including those of critical theory, **have participated in the production of these horizons**, and what, today, breaks with that. If a double logic of eco-eco disaster overlaps with the epoch in deep time geologists now refer to as the “anthropocene,” what critical re-orientations, today, contest what has been characterized as a collective blind or psychotic foreclosure? Nor can one place the blame at the feet alone of an accidental and evil ‘1%’ of corporate culture alone, since an old style revolutionary model does not emerge from this exitless network of systems. More interesting is the way that ‘theory’, with its nostalgic agendas for a properly political world of genuine praxis or feeling has been complicit in its fashion. How might one read the implicit, unseen collaboration that critical agendas coming out of twentieth century master-texts unwittingly maintained with the accelerated trajectories in question? The mesmerizing fixation with cultural histories, the ethics of “others,” the enhancement of subjectivities, “human rights” and institutions of power not only partook of this occlusion but ‘we theorists’ have deferred addressing biospheric collapse, mass extinction events, or the implications of resource wars and “population” culling. It is our sense of justified propriety—our defense of cultures, affects, bodies and others—that allows us to remain secure in our homeland, unaware of all the ruses that maintain that spurious home. The rapacious present places the hidden metaphoric levers of the eco or oikos in an unsustainable exponential curve, compounding megadebt upon itself, and consuming futures in what has been portrayed as a sort of psychotic trance—what Hillis Miller calls, in this volume, a suicidal “auto-co-immunity” track. [2] Yet the “Sovereign debt crisis” corresponds to a credibility crisis as well. The latter applies not only to the political classes of the post-democratic klepto-telecracies of the West but seems to taint the critical concepts, agendas, and terms received from twentieth-century itineraries that accompanied the last decades and that persist as currency. Far from opening beyond the propriety of the oikos theories of affect, living labor and critical legacies have doubled down on their investments, created guilds as reluctant as Wall St. to give up cognitive capital. All the while there is attention paid to ‘saving’ the humanities or a critical industry that might be extended for a while longer (as if with “sovereignty” itself). Bruno Latour [2010] presumes to call this recent and ongoing episode the “Modernist parenthesis” of thought. In his conjecture, the very pre-occupation with human on human histories, culturalism, archivism, and the institutions of power were complicit with a larger blind that, in his view, the ecological crisis belatedly discloses. [3]

#### The 1AC’s use of Sustainability rhetoric just further entrenches the “sustainababble” that created the ecological crisis in the first place – talks of sustainability become coopted into neoliberal greenwashing that redeems the human narrative without changing anything – That makes their impacts inevitable

Engleman 13 (Robert Engleman is President of the World Watch Institute. “Beyond Sustainababble” Worldwatch Institute, State of the World 2013: Is Sustainability Still Possible?, Chapter 1. Pages 3-4. <https://www.e-education.psu.edu/emsc240/sites/www.e-education.psu.edu.emsc240/files/images/chp%253A10.5822%252F978-1-61091-458-1_1.pdf>; Published 2013; Accessed 8-1-19; NGW)

We live today in an age of sustainababble, a cacophonous profusion of uses of the word sustainable to mean anything from environmentally better to cool. The original adjective—meaning capable of being maintained in existence without interruption or diminution—goes back to the ancient Romans. Its use in the environmental field exploded with the 1987 release of Our Common Future, the report of the World Commission on Environment and Development. Sustainable development, Norwegian Prime Minister Gro Harlem Brundtland and the other commissioners declared, “meets the needs of the present without compromising the ability of future generations to meet their own needs.”1 For many years after the release of the Brundtland Commission’s report, environmental analysts debated the value of such complex terms as sustainable, sustainability, and sustainable development. By the turn of the millennium, however, the terms gained a life of their own—with no assurance that this was based on the Commission’s definition. Through increasingly frequent vernacular use, it seemed, **the word sustainable became a synonym for the equally vague and unquantifiable adjective green, suggesting some undefined environmental value**, as in green growth or green jobs. Today the term sustainable more typically lends itself to the corporate behavior often called **greenwashing**. Phrases like sustainable design, sustainable cars, even sustainable underwear litter the media. One airline assures passengers that “the cardboard we use is taken from a sustainable source,” while another informs them that its new in-flight “sustainability effort” saved enough aluminum in 2011 “to build three new airplanes.” **Neither use sheds any light on whether the airlines’ overall operations—or commercial aviation itself—can long be sustained on today’s scale**.2 The United Kingdom was said to be aiming for “the first sustainable Olympics” in 2012, perhaps implying an infinitely long future for the quadrennial event no matter what else happens to humanity and the planet. (If environmental impact is indeed the operable standard, the Olympics games in classical Greece or even during the twentieth century were far more sustainable than today’s.) The upward trend line of the use of this increasingly meaningless word led one cartoonist to suggest that in 100 years sustainable will be the only word uttered by anyone speaking American English. (See Figure 1–1.)3 By some metrics this might be considered success. **To find sustainable in such common use indicates that a key environmental concept now enjoys general currency in popular culture. But sustainababble has a high cost**. Through overuse, **the words sustainable and sustainability lose meaning and impact**. Worse, frequent and inappropriate use lulls us into dreamy belief that all of us—and everything we do, everything we buy, everything we use—are now able to go on forever, world without end, amen. This is hardly the case. The question of whether civilization can continue on its current path without undermining prospects for future well-being is at the core of the world’s current environmental predicament. In the wake of failed international environmental and climate summits, when national governments take no actions commensurate with the risk of catastrophic environmental change, are there ways humanity might still alter current behaviors to make them sustainable? Is sustainability still possible? If humanity fails to achieve sustainability, when—and how—will unsustainable trends end? And how will we live through and beyond such endings? Whatever words we use, we need to ask these tough questions. If we fail to do so, we risk self-destruction. This year’s State of the World aims to expand and deepen discussion of the overused and misunderstood adjective sustainable, which in recent years has morphed from its original meaning into something like “a little better for the environment than the alternative.” Simply doing “better” environmentally will not stop the unraveling of ecological relationships we depend on for food and health. **Improving our act will not stabilize the atmosphere. It will not slow the falling of aquifers or the rising of oceans. Nor will it return Arctic ice, among Earth’s most visible natural features from space, to its preindustrial extent**. In order to alter these trends, vastly larger changes are needed than we have seen so far. **It is essential that we take stock, soberly and in scientifically measurable ways, of where we are headed.** We desperately need—and are running out of time—to learn how to shift direction toward safety for ourselves, our descendants, and the other species that are our only known companions in the universe. And while we take on these hard tasks, we also need to prepare the social sphere for a future that may well offer hardships and challenges unlike any that human beings have previously experienced. While it is a subset of the biosphere, the social sphere is shaped as well by human capacities with few known limits. We can take at least some hope in that.

#### The impact is a global war waged against the inhuman. Their reshoring of hope in biopolitical management makes environmental destruction, international lash-out, and necropolitical violence an inevitability as we become invested in a racialized project to eliminate the outside.

Ahuja 16 (Neel, Associate Professor of English, Comparative Literature, and Geography at the University of North Carolina, Chapel Hill, ‘BIOINSECURITIES: Disease Interventions, Empire, and the Government of Species,” Duke University Press Durham and London, preface)

An account of the government of species thus explains that empire can be understood as a project in the management of affective relations—embodied forms of communication and sensation that may occur independently of or in tandem with sentient forms of thought and discourse. These affective relations cross the divisions of life and death, human and animal, media and bodies, and immune and environmental systems. In the process of forming the human out of cacophonous biosocial relations, empire often persists—even after the formal conclusion of colonial occupation or settlement—in part because it invests public hope in the management of bodily vulnerability and orients reproductive futures against horizons of impending risk, a phenomenon I call dread life. In such processes by which bodily vulnerability is transmuted into political urgency, techniques proliferate for managing the relations of populations and the living structures of species (human, animal, viral). As such, empire involves the control of life through accumulation of territory and capital, which may be securitized by activating life’s relational potential. Lauren Berlant describes a “lateral agency” that moves across bodies and populations rather than in the top-down fashion of sovereign power; it may, then, be possible to understand empire’s force of securitization not only through conventional dramas of domination and resistance, **but rather through embodied processes of coasting, differentiating, adapting, withering, transition, and movement**.7 These are processes that subtly determine how bodies take form, and to what extent they are able to reproduce themselves in space-time relation. They also more radically stretch the body beyond the organic lifetime and into evolutionary, environmental, and informational domains where life/ death distinctions blur. However, the intimate connection between the governmental imperatives to make live and to make die, which Jasbir Puar names “the bio-necro collaboration,” has long been obscured in social and political theories.8 It thus remains commonplace for biopolitical analyses to view power as either repressive or productive in essence. In his classic work on the topic, French philosopher and social theorist Michel Foucault argued that by the eighteenth century, a political form had emerged in Europe targeting the human as biological species as the central object of power. Power was no longer simply about the repressive force of the state and its controlling interests wielding the right to kill. Power was increasingly vested in the productive reshaping of the biological life of human organisms by institutions such as clinics, prisons, and asylums and their related forms of scientific knowledge; power meant letting live, albeit in constrained form.9 Foucault recognized **the embedding of biopower across species**, calling for a social history that incorporated “the evolution of relations between humanity, the bacillary or viral field, and the interventions of hygiene, medicine, and the different therapeutic techniques.” In the notes to his late lectures, he even speculated that neoliberalism involved a **governmentality that can “act on the environment and systematically modify its variables**.”10 Foucault’s description of the rise of biopower is the inspiration for a number of studies in sociology and anthropology that assess new biopolitical shifts involving advanced biomedical technologies.11 Given that these biopolitical studies focus largely on the United States, western Europe, China, and India— states that have built biotechnology sectors as engines of unequal neoliberal growth—it is perhaps not surprising that a concomitant line of critique has emerged acknowledging vast and growing world sectors of biological and economic precarity. Building on a number of key postcolonial/feminist studies of the 1990s exploring Foucault’s theory beyond European borders, these necropolitical critiques announce that politics today often emerges as the specter of death.**12 The world’s poor**, as well as a growing “precariat” carved from shrinking national bourgeoisies, **appear less often as the objects of technological uplift than as the human surplus of the political order of things, populations at risk for displacement, dispossession, captivity, and premature death**. The precaritization of sweated labor, the subjection of agrarian populations to the twin scourges of neoliberal structural adjustment and environmental devastation, the proliferation of deterritorialized war and ethnic cleansing, and the growth of predatory industries and rents to recycle capital from surplus populations all reveal that those humans targeted for biopolitical optimization constitute a shrinking population who reproduce through the cannibalistic appropriation of life elsewhere. But necropower is not simply about the distribution of death; it is also about the accumulation of social or economic capital through death and precarity. For example, when suicide passes on social force through the deathly body, or when life insurance capitalizes death, death itself thus gives form to life. The most compelling of these studies undermine normative divisions between life and death. In the process, these two emphases within biopolitical analysis—productive forces marshaled through remaking life and deploying death—have invigorated critiques of neoliberal globalization, tracking the transnational shaping of the human by the inhuman forces of sovereignty and capital. What would it mean, then, to think these bio-necro coordinates as materialized in interspecies processes of empire building? What would it mean to assert not simply that life, death, and politics have become inextricably linked, nor that life is an effect of politics, but that life gives form to the political? This question—of how power could be materialized through processes of interspecies exchange and affective transit that work through yet leak beyond structural organization of human agency and cognition—is a question that Foucault never fully articulated in his late studies following the description of biopower in the first volume of The History of Sexuality. Disappointed in the late 1970s by, on the one hand, the failures of the Iranian and Vietnamese revolutions to provide a challenge to US empire, and, on the other, the rise of neoliberal free trade agendas, Foucault famously made an ethical turn and sought radical modes of living in the histories of ancient Greece and early Christian Europe. In his reporting on Iran, he even embraced a “political spirituality” idealizing religious ethical conducts occluded by the rise of liberal secularism.13 If biopower was a description of how the human was produced through inhuman biosocial forces, it is possible that Foucault’s turn to masculinist visions of pastoral and spiritual life in these late writings reflected a nostalgia for a time before biopower had been captured by the conjoined forces of neoliberal capital and US imperial militarism that appeared increasingly dominant at the end of the Cold War. There has been much debate since on whether Foucault in the process abandoned his earlier critiques of the subject in the name of an individuated (even humanist) sense of ethical self-constitution. Yet I wish to pursue a different set of questions, exploring in this book whether Foucault’s theorization of biopower could have been extended to explain how empire’s racial government of the human as species approached the interspecies horizons of planetary life and death.14 This preface suggests that we might, as an alternative to Foucault’s or the posthumanists’ attempts to transcend politics through ethics, draw out biopolitical critique into the material arenas of life and planet that empire takes as its space of intervention.15 What understandings of the political, of embodiment, of state, of war, and of life itself emerge by tracking animal and viral transits through the splintered figure of the human? Postcolonial theory has contributed to a critique of the human by tracing empire’s compression of life into raced and gendered figures of self-possession. Lisa Lowe thus characterizes the liberal human subject as an empty formalism abstracted from transcolonial intimacies of slavery, indenture, and revolution.16 It may, then, be possible to track the intimate relations, violences, and exchanges that emanate from interspecies projects to reproduce colonial forms of property in life against the tandem proliferation of dispossession, captivity, and waste. Such work follows on a history of work on nature, embodiment, technology, affect, and animals within feminist science studies, which guides my critiques of posthumanist and new-materialist metanarratives.17 This work has developed in tandem with animal and environmental movements since the 1970s, as well as with the rapid expansion of new biotechnologies. Yet more work remains to be done to explore the crossings of feminist and postcolonial perspectives on such phenomena. Little has been written on the colonial genealogies of the posthumanist turn. The racialized form of posthumanist knowledge projects is particularly evident when environments or animals are rendered through tropes of wilderness external to the human or when turns to animals, environments, and things rely on a figure of unmarked whiteness in the form of the universal human. Such notions may dovetail with the efforts of the racial security state to conceal its forms of containment aimed against “surplus populations” whose bodies and homes are rendered as sites for the dumping of risk.18 Furthermore, posthumanism evolves through state and capital forces that turn to the plasticity of life to find what Melinda Cooper calls “vital fixes” for the reconfiguration of war and the recycling of surplus into capital. Biological life itself—down to the informational bodies of DNA—is being remade as a privileged locus of property and surplus.19 Contrary to idealist descriptions of hybridity, difference, and queerness as inherently liberatory, Nicole Shukin claims that we “inhabit an anthropocentric order of capitalism whose means and effects can be all too posthuman, that is, one that ideologically grants and materially invests in a world in which species boundaries can be radically crossed.”20 Moving beyond Foucault’s conception of a biopower that constituted the human as species, today empire technologizes the mutable borders of species as one horizon of accumulation. The mobilization of fear and anxiety concerning “the outside” of the human subject emerges from Euro-American empire’s history of racial engulfment.21 The post-Enlightenment fashioning of the human always incorporated a racialized indeterminacy which posited that feminized and colonized **bodies—enmeshed in the inhuman worlds of nature—were particularly affectable,** were **defined by their physical exteriority rather than interiorized by the human subject’s universal capacities for reason, language, and sentiment**.22 Yet at the same time, the practical administration of colonial settlement has been preoccupied by the mundane problems of reproducing the settler bodies through which this universal human political subject could emerge. Thus contemporary tropes of networks, systems, complexity, assemblage, and vitality that work through the affectable matter of bodies carry ambivalent traces of colonial subject and settlement fashioning that extracted the figure of the human from immanent ecologies of transcolonial production and consumption. One effect of this situation is a risky intimacy of posthumanist and new-materialist critical tropes with exoticist and orientalist attempts to turn from the Cartesian subject to insurgent matter, from sovereign human to subaltern nature. Donna Haraway once insightfully called the field of primatology a form of “simian orientalism” for this very reason: in the speculative engineering of primate bodies we may find not just a corrective to empire’s compression of life into the immaterial container of the human, but also a scene of universal origins and a material for the projection and modeling of racial and sexual difference.23 Twenty-five years after its publication, Haraway’s magnum opus, Primate Visions, remains the only booklength postcolonial critical account of the emergence of systems theory. Since its publication, the posthuman turn and, more specifically, the metaphorics of systems and complexity have become central to critiques of anthropocentric distinctions between society and environment, but these trends have largely obscured Haraway’s insistence on systems theories’ enmeshment in histories of colonial warfare and racialization. The systems-theory tradition, extending from the cybernetics of Ludwig von Bertalanffy and the sociology of Talcott Parsons and Gregory Bateson to the neostructuralism of Niklas Luhmann and the biomysticism of Humberto Maturana and Francisco Varela, appears to oppose complexity and holism to various forms of scientific and social reductionism; however, the tropes of the system-environment relation oddly introduce their own reductionism by systematizing everything, putting everything into relation despite the possibilities of segregation, expulsion, individuation, or dimensional phase shifts which this book argues are significant elements of bio-necro collaboration. Settler-colonial conditions furthermore enabled thinking ecologically as antidote to high-modernist rationality. For example, early systems theorist Talcott Parsons’s statement of American exceptionalism emphasizes the apparently unique social, psychic, and ecological complexity of Puritan networking in the colonial settlement of North America, an argument that oddly complements Gilles Deleuze and Félix Guattari’s orientalist romance of American Indians as privileged site of rhizomatic becoming.24

#### The alternative is a dark ecology that speculates on the impossibility of a future for us. Rejecting their optimistic investments in the market in favor of a becoming-zombie unsettles the comfortable narrative of progress that transforms the globe into an object of manipulation. Only an affective pessimism confronts humanity with the horrific reality of a toxic world.

Wallin 2015 (Jason, Professor of Education at University of Alberta. “Dark Posthumanism, Unthinking Education, and Ecology at the End of the Anthropocene,” Routledge International Studies in the Philosophy of Education : Posthumanism and Educational Research, 2015, pages 138-140)

From its modern reconceptualization, the zombie has often figured in special relationship with a decaying Earth. Across a litany of films, including Romero’s seminal Night of the Living Dead (1968), Zombi 2 (1979), and Resident Evil: Apocalypse (2004), zombies burrow from their hidden subterranean internment into the terrestrial world, producing an anexact relation to the inhuman life of invertebrates, microbial life, and the unfathomable inhuman movements of Chthon. The emergence of the zombie’s contaminated and putrefied body might hence be delinked from the allegory of Christian resurrection and **rethought as an indexical figure of the “shifting visage of the planet” beyond human history and biology** (MacKay 2012, 18). This is to say that the Earth to which the zombie has become an index is not the stable and homeostatic oasis of Earthrise apprehended from a human vantage 384,400 kilometers above and beyond this planet. Rather, **the unsettled ecology of the zombie portends to an unthought and inhuman world that soils the transcendent gaze of anthropos by drawing it back into material nuptials with the dark ecology of the planet** (Cohen 2012; Steel 2012). It is this immanent ecological fold that is diagrammed in Return of the Living Dead (1985), Mud Zombies (2008), and The Bay (2012), each of which articulates a rapidly decoding planet accelerated through molecular forces of contamination and decay. Herein, the image of the Earth as it is for us is confronted by a subterranean dark world closer to the “strange new Earth” of leachate-contaminated soil, toxic swamps, airborne poisons, and vitriolic viral life described by McKibben (2011). As an indexical figure of this planetary geotrauma, the zombie fulminates a diagram of inhuman affective life subtending the anthropocentric conceit that the face of man constitutes a horizon of planetary life. Against correlationism, zombie-life recedes from human comprehension in articulation of an alter-life born of the horrific plastic forces of planetary decoding and its triggering of a strange ecosophical unconsciousness unthinkable under anthropocentrism (MacKay 2012, 22). PLANETARY SCHIZOANALYSIS Zombie-life deterritorializes the anthropocentric facialization of the planet by diagramming an unthought dark ecology, or, rather, a malevolent assemblage of the dispersed life-and-death forms subtending the image of human life, its orders of arrangement and identitarian telos (Colebrook 2011, 12). Put differently, the subterranean ecology fabulated in zombie fiction questions not only how a life might go, but also what thinks and of what things might think where we are not. **The dark ecology of the zombie speculates on a posthuman “horde ontology” in which humans are divested of their presumed status as dominant planetary actants transcendent to material life** (Bennett 2012). Reterritorialized in intimate relation to dark ecology, the zombie is “triggered” through the conjoined actions of viroid transmission (Dawn of the Dead), molecular parasitism, accumulative chemical pollution (Mud Zombies), disavowed industrial effluent (The Bay), capitalist expansionism (Land of the Dead), and so on. This is to say that the zombie speculates on the obsolescence of the Anthropocene and the rise of an alter-Eaarth that no longer repeats in the narrative of anthropocentric dominion. Rather, the zombie produces speculative resources for thinking an ecosophy at the end of the humanity, figuring as a noir realist harbinger to what Thacker (2011) dubs the “anonymous, impersonal ‘in itself’ of the world” indifferent to the hopes and desires of human life (17). Breaking from the correlationist conceit of anthropocentrism, the dark ecology of which the zombie is an indexical figure commences a schizoanalytic program that brings both inhuman materialism and a dilated account of geological spatio-temporality into the purview of analysis (MacKay 2012). This is to follow Professor Challenger’s provocation that analysis must necessarily supplant history and biology in its detection of an unconscious that fails to repeat in the overcoded terrain of the human-all-too-human (Land 2011). Such a schizoanalytic account is nascently articulated in Morton’s (2010) The Ecological Thought, in which the bounded image of human life is superseded by massively distributed and nonlocalizable “hyperobjects” (global warming, radioactive plutonium, UV rays) with which life itself is always-already enfolded. **This schizoanalytic dilation of ecology produces an inherent challenge to contemporary education 8 insofar as it delinks the world from its givenness to human thought.** As Morton (2013) articulates, such redoubled in contemporary epigenetic research that suggests that human life is always-already being “thought” by the composite inhuman life of waste, chemical composites, radiation, and environmental mutation (Morton 2013; Thacker 2012). Breaking from both human history and biology by palpating the finitude of anthropocentric thought, the zombie’s horde-life is assembled upon an onto-ecological diagram divorced from the speciesist ordering of things, inverting the anthropocentric ideals of human perfectibility and progress in which schooling is “ought” to labor (Bennett 2012). That is, **the speculative world of the zombie breaks the humanist conceit of progress and perfection by actualizing the occulted unconscious background of horror and decay with which human life is imbricated.** This is to suggest that where schooling remains wedded to the correlationist idea that our understanding of the world is equal to the world, it negates an ethical account of material life without humans, hence reifying the implicate forms of violence and exploitation coextensive of thinking the world as always-already given to a human subject. Populated by the powers of nonhuman and differently abled “bodies,” the speculative world of the zombie proposes both an inhuman sensorium impossible to apprehend via human means and the expansion of spatiotemporal experience outside human thought (Bennett 2012). Such noir speculation marks an engagement with the inherent speciesism of contemporary education in its articulation of superabundant material realities unthinkable by humans. Here, the anti-correlationist dark ecology of the zombie functions to break from the epistemological question of what knowledge is of most worth insofar as it suggests both forms of life and realities to which humans have no access. To presume the correlationist unification of thought and being coextensive of education’s epistemological reverence for best knowledge, or, rather, the best correspondence of thought and reality, is to continue to found a denial of life that exceeds our ability to think it.

## Warming

### 1nc – wicked problem

#### Warming has become a Wicked Problem that is impossible for humanity to solve – Any attempt at action is meaningless and unverifiable – their fatalistic attempt to solve only gets caught in the manifold loops of the biosphere

Morton 2016 (Timothy Morton is Rita Shea Guffey Chair in English at Rice University. “ Dark ecology: for a logic of future coexistence,” Columbia University Press; Pages 35-38, Published 2016. NGW)

Thinking the human at Earth magnitude is utterly uncanny: strangely familiar and familiarly strange. It is as if I realize that I am a zombie—or, better, that I’m a component of a zombie **despite my will**. Again, every time I start my car I’m not meaning personally to destroy lifeforms—which is what “destroying Earth” actually means. **Nor does my action have any statistical meaning whatsoever. And yet, mysteriously and disturbingly, scaled up to Earth magnitude so that there are billions of hands that are turning billions of ignitions in billions of starting engines every few minutes, the Sixth Mass Extinction Event is precisely what is being caused**. And some members of the zombie have been aware that there is a problem with human carbon emissions for at least sixty years. The first global warming evidence was published in 1955.65 Humans have now ensured over 400 parts per million of carbon dioxide in Earth’s atmosphere. Arctic temperatures are at the highest they have been for 44,000 years.66 It doesn’t seem to matter whether I’m thinking about extinction or not, whether I mean to or not, even whether or not I start my own personal car! So, back to that question: am I conscious? Prove that I’m not better than the best of bees. Prove that my idea of consciousness, let alone individual free will, isn’t just the algorithm that my particular species has evolved to run. Stripped of its metaphysical, easy-to-identify, soothingly teleological content, the notion of species is an uncanny thought happening not in some universal or infinite realm but at Earth magnitude. It is strictly uncanny in the Freudian sense, if we recall that Freud argues that uncanny feelings in the end involve the repressed intimacy of the mother’s body, the uterus and the vagina out of which you came.67 This is significant because thinking this mother’s body at Earth magnitude means thinking ecological embodiment and interdependence. That uterus is not just a symbol of the biosphere, nor even an indexical sign of the biosphere, pointing to it like a footprint or a car indicator. The uterus is the biosphere in one of its manifold forms, just as me turning the key in the ignition is the human in one of its manifold forms. It is, and it isn’t, which is how you can tell it’s real. **To be real is to be contradictory, to be a member of a set that doesn’t include you. To be real is not to be easy to identify, easy to think, metaphysically constantly presen**t. When we think species this way, we see global warming as a wicked problem—or even as a super wicked problem.68 A wicked problem is **one you can rationally diagnose but to which there is no feasible rational solution.** There are four main aspects: (1) Wicked problems are unique and thus irreducible and difficult to conceptualize and anticipate. Likewise, **they are unverifiable. If we “solve” global warming, we will never be able to prove that it would have destroyed Earth** . . . (2) Wicked problems are uncertainly interminable: there is no way to predict when the problem will have ceased to function. (3) Wicked problems are alogical in the sense that solutions to them cannot be assessed as right or wrong, but rather as good or bad. There is a sharp division between ethics and ontology here, one that we think we like (“You can’t get an ought from an is”), **but that in practice we hate: we contemporary humanists usually want ideas about reality bundled with an easy to identify politics.** (4) Irreversibility—there are no trial runs, no reverse gears, no attempts to solve wicked problems, only actual solutions that drastically alter things. There appears to be no way to solve a wicked problem neatly and know that we have solved it. Like poems, **wicked problems entangle us in loops.** We know that our reading of a poem is provisional and that our thoughts about what poems are influence how we read them; the same goes for global warming. Wicked problems make the strange loop form of ecological beings obvious. As a matter of fact, **global warming is a “super wicked problem”: a wicked problem for which time is running out, for which there is no central authority; those seeking the solution are also creating it, and policies discount the future irrationally**.69 The superness has to do with how we are physically caught “in” the problem: the damaged biosphere. We are thus in an obvious looplike relationship with the problem. In a weird loopy not-quite inversion of the song, the whole world has got us in its hands—because **we became a geophysical force**. Wicked problems have uncertain boundaries because they are always symptoms of other problems. Global warming is a symptom of industrialization, and industrialization is a symptom of massively accelerated agriculture. Of what is this acceleration a symptom? We could say that it was capitalism, but that would be circular: accelerating agriculture and subsequent industrialization are symptoms of capitalism, not to mention existing forms of communism. So we are looking for the problem of which these things are symptoms.

## Growth

### Heg Turn — 1NC

#### The aff is based on a fantasy of perfecting liberal internationalism, which glosses over global class and racial inequalities. Maintaining US dominance over international law is terminally unsustainable and reproduces racial hierarchies on a global scale.

Parmar 18, Professor of International Politics @ University of London (Inderjeet, The US-led Liberal Order: Imperialism by Another Name? *International Affairs*, 151–172; DOI: 10.1093/ia/iix240)

While Wilsonian liberal internationalism is widely recognized as privileging a belief in the free movement of people, capital, goods and services, less attention has been given to its origins in a time when ‘international relations’ was overtly understood as ‘race relations’, and its consequent implication in managing overtly racialized imperial power after the First World War.14 The Wilson administration’s role in racially segregating the US federal government had its foreign policy counterpart in a belief in an eventual, but far distant, self-government of the colonies and opposition to a Japanese proposal for a racial equality clause in the charter of the fledgling League of Nations.15 The development of liberal internationalism, then, was symbiotically bound to Wilson’s conviction that US intervention in world affairs was essential, and to what were effectively parastatal organizations created both by the federal executive and by private foundations—the Carnegie Endowment for International Peace, among others. Wilsonian ‘theory’ was practical, idealistic and ideological from the very beginning. It is also the case that, long after overt racial discourses became politically damaging, subliminal racial thinking remained—and (unconsciously) remains—a significant element of liberal internationalism, affecting its analyses of the politics of domestic and global demographic power shifts.16

Nevertheless, liberal internationalists are cosmopolitans—opposed to narrow nationalism and trade protectionism, within a US-led international system. But its core ideas—rule of law, superiority of the western idea (however lightly worn), a rules-based institutional order open to all, in principle—are deeply embedded in US political-intellectual elite think-tanks, university public policy schools, corporate media and the leaderships of both main political parties,17 the core of the white Anglo-Saxon Protestant establishment.18 Importantly, however, there are influential voices in the emerging powers and regions that support the liberal international order by calling for internal reform to take account of the changing distribution of global power away from the West and towards the ‘rest’.19

The upshot is a broad consensus around certain core ideas: that the post-1945 rules-based world order, whatever its weaknesses, serves the world well by spreading prosperity and maintaining peace; and that, although it cannot continue unreformed, the US-led system draws on deep resources—economic, military, systemic and ‘soft’—that bestow upon it continuing strengths to contain, engage, manage and socialize emerging powers. Charles Kupchan lists a range of problems requiring US leadership, even if only within a suitably reformed international system reflecting ‘the real distribution of power’.20

John Ikenberry of Princeton University, the leading proponent of this school of thought, makes significant claims as well as several unquestioned assumptions, undeveloped allusions to core powers’ violent and other connections with the periphery, and a number of significant silences. He claims, for example, that the United States is a fully functioning democracy, yet fails to acknowledge evidence of the power of racialized, class-based elites. For critical theorists, such as Robert Cox, Stephen Gill and Craig Murphy,21 the international relations of elites across states and societies operate to reproduce extant patterns of power and manage or engineer change to the benefit of elites in a generally zero-sum game in which broad masses and lower classes lose out. This is clearly a far cry from liberal internationalist claims associated with the benefits of globalization, notwithstanding proposed ameliorative remedies against the harshest effects. Likewise, claims about the centrality of the rule of law occlude consideration of significant violations in practice. The question of imperial power is hardly addressed, and there is a general Eurocentric neglect of the significance of global areas beyond the core to the ‘welfare’ and cohesion of the core itself. There is a clear link between Ikenberry’s overt theory of American democracy and its liberal-hegemonic world role. The United States, and the western order it built, is characterized as a pluralistic liberal market democracy that is broadly inclusive and tolerant of ethnic diversity. The US-built security community exhibits its leading state’s internal character as a plural one and, very significantly, one in which the United States is bound by rules.22 Yet liberal internationalists’ underlying assumptions effectively deny the findings of numerous well-researched studies challenging American democracy’s principal claims.23

As far as Ikenberry and Deudney (and many others) are concerned, the ‘western idea’ is a significant part of the strength of the US-led order.24 The West, a spectacularly successful ‘civilizational heritage’, was underpinned by America’s New Deal liberalism, and extended globally via Bretton Woods, the Marshall Plan and NATO. In effect, this vision and programme aimed to defuse domestic class conflict and the threat of war through ‘activist government, political democracy, and international alliance’. That system is in principle capable of assimilating emerging powers, given the universalism of its values and its tolerance of ethnic differences, although others joining this privileged grouping are expected to conform to its rules and accept US leadership. Western order is exclusive also because special rules apply within its zone of peace. Beyond it, conversely, other rules apply—cruder, neo-imperial and violent, although the implications of this contrast are left unaddressed.25 By drawing a line around the West, Ikenberry cuts off the rest of the world while addressing questions about the sources of world order which, empirically, lie in a symbiotic relationship between core and periphery. Yet, even within the ‘greater’ West, Japan and South Korea were not accorded the same treatment as western Europe.26 The LIO really was conceived and developed as a system of the West and the rest, in a zero-sum game. As Donald Tusk, President of the European Council, noted on Twitter in May 2017, the whole point of ‘Euro-Atlanticism’ was to ‘prevent post-West world order’.27

Yet the claim persists that this is no empire, despite America’s privileged place at the top of the ‘hierarchical political order’, because its hegemony is built on ‘consent’ and bounded by law. Power, which was necessary at the creation, faded away as consensual hegemony developed. This interpretation, of course, elides America’s overwhelming military superiority, including in and over Europe. Beyond Europe, however, Ikenberry concedes that American hegemony remained hierarchical, ‘with much fainter liberal characteristics’,28 again closing off an avenue of analytical and empirical analysis that might threaten the intellectual edifice of the LIO.

The (unconsciously) racialized world-view of Ikenberry’s Eurocentrism is subtly buttressed by Walter Russell Mead’s exploration of the significance of superior Anglo-Saxons who win wars, build world structures, and govern efficiently owing to ethno-cultural, not biological, characteristics.29 Mead’s interpretation of Anglo-Saxonism makes it appear benign, assimilative and universal— a scaffolding to support Ikenberry’s more overtly institutional analysis.

Assimilating minorities, however, is not embracing diversity—learning from other cultures and creating something new; it is maintaining conformity to the cultures of the powerful, dominant group.30 Looking to the future, as new global powers emerge, Mead advises America to both embrace and contain them, retaining military superiority should ‘rising’ powers become ‘opponents’.31 Mead complements the prescriptions of other liberal-realist internationalists, all seeking to incorporate, assimilate and mobilize emerging powers to absorb difference and produce conformity.

The liberal view is challenged by scholars who argue that the New Deal order effectively represented a political compromise, made in order to attain class peace and greater productivity, that mainly benefited major corporations while incorporating organized labour and thereby drawing its teeth. The postwar settlement was a narrow one—excluding racial minorities, unskilled and unorganized labour, and women—and relied on war and a heavily militarized economy that arose with the war in Korea and led directly to that in Vietnam.32 Liberal internationalists’ accounts elide the class, gendered and racial bases of the order, both at home and abroad. Ikenberry paints an appealing picture of a liberal order that delivered material benefits and security to all, while also raising some doubts about the operation of the system, especially with regard to the inequality of rewards generated by globalization and its potential political consequences. Those consequences are regarded by Ikenberry as posing the greatest threats to the stability of the liberal order, laying bare a central mechanism and dynamic of the system itself: market-driven class inequality, exacerbated in a society in which racialized class politics is salient.33 Yet Ikenberry never mentions class, race or gender—an omission central to critical theories of the making of the LIO.34

The other key omission is the role played in building the order by violence and outright war—not just the Second World War but also the Korean War, the ‘hot’ war at the birth of the order that propelled the formation of NATO, the rearmament of Germany, the security alliance with Japan and indeed the US military–industrial complex.35 Accordingly, a key focus of consideration here is wartime planning for a new world order and the manner of its foundation as a direct result of military violence that violated the UN Charter, international law, the lessons of the Nuremberg and Tokyo war crimes trials, and the 1949 Geneva Conventions. Wars ‘out there’ secured the core ‘over here’.36

And, of course, what is referred to as benign ‘liberal internationalism’ is what Mark Mazower refers to as ‘imperial internationalism’—trying to maintain a global hierarchy established by centuries of colonial and semi-colonial rule over what is now called the global South.37

Finally, the construction of the postwar western order was constitutive of a political, social, economic and ideological ‘vital center’, as Schlesinger terms it38—opposed to both right-wing nationalists and left-wing anti-imperialists. This entailed the acceptance by core forces of the ‘New Deal order’ that the price of class harmony, stability and mobility at home was the export and continuation of inequality,39 and therefore military violence, on the periphery; and that the removal of vast quantities of raw materials required a global military basing strategy, both to protect allied trade and to deny it to adversaries.40 Ikenberry accurately notes that the internal character of the leading state in the liberal order has an impact on the international system it built; but I diverge from his presentation of this impact as the externalization of a democratic regime. He elides the racial, class and gendered character of American historical, economic and political development—including that of Wilsonianism itself.41 His conclusion, however, is accurate, even if he fails to recognize its significance in the building and maintenance of the liberal order: ‘Access to resources and markets, socioeconomic stability, political pluralism, and American security interests—all were inextricably linked.’42

The framework that may best fit the actual underlying engine of liberal orderbuilding and maintenance, however, must also incorporate understanding of the ‘soft’ processes of socialization or incorporation. Violence is a powerful tool, but always and everywhere it is connected with the processes of non-violent elite socialization and alliance-building. It is one of the great strengths of Ikenberry’s analysis of international order that elite socialization is considered so significant.43 Yet a critical view of elite socialization in the building and perpetuation of hegemony views it not as a reflection of a democratic and benign foreign policy, but as incorporation into hegemonic agendas or ‘domestication’.44 In the Gramscian perspective, capitalist Great Powers, including the United States, are deeply unequal at home and imperialistic abroad, ultimately pursuing the interests of their ruling classes and elites, whether embedded in private, public or state– private realms.45 Their hegemony is a combination of persuasion and coercion involving a ‘state–society complex’.46 Admittedly, liberalism gives an account of elite socialization processes that overlaps with Gramscian approaches. However, liberal approaches see it as relatively benign, politically neutral or representative of democracy/popular sovereignty.

### 1nc – turn

#### Economic decline doesn’t cause war – interdependence.

Christina L. Davis & Krzysztof J. Pelc 17, Christina L. Davis is a Professor of Politics and International Affairs at Princeton; Krzysztof J. Pelc is an Associate Professor of Political Science at McGill University, “Cooperation in Hard Times: Self-restraint of Trade Protection,” Journal of Conflict Resolution, 61(2): 398-429

Political economy theory would lead us to expect rising trade protection during hard times. Yet empirical evidence on this count has been mixed. Some studies find a correlation between poor macroeconomic conditions and protection, but the worst recession since the Great Depression has generated surprisingly moderate levels of protection. We explain this apparent contradiction. Our statistical findings show that under conditions of pervasive economic crisis at the international level, states exercise more restraint than they would when facing crisis alone. These results throw light on behavior not only during the crisis, but throughout the WTO period, from 1995 to the present. One concern may be that the restraint we observe during widespread crises is actually the result of a decrease in aggregate demand and that domestic pressure for import relief is lessened by the decline of world trade. By controlling for product-level imports, we show that the restraint on remedy use is not a byproduct of declining imports. We also take into account the ability of some countries to manipulate their currency and demonstrate that the relationship between crisis and trade protection holds independent of exchange rate policies. Government decisions to impose costs on their trade partners by taking advantage of their legal right to use flexibility measures are driven not only by the domestic situation but also by circumstances abroad. This can give rise to an individual incentive for strategic self-restraint toward trade partners in similar economic trouble. Under conditions of widespread crisis, government leaders fear the repercussions that their own use of trade protection may have on the behavior of trade partners at a time when they cannot afford the economic cost of a trade war. Institutions provide monitoring and a venue for leader interaction that facilitates coordination among states. Here the key function is to reinforce expectations that any move to protect industries will trigger similar moves in other countries. Such coordination often draws on shared historical analogies, such as the Smoot–Hawley lesson, which form a focal point to shape beliefs about appropriate state behavior. Much of the literature has focused on the more visible action of legal enforcement through dispute settlement, but this only captures part of the story. Our research suggests that tools of informal governance such as leader pledges, guidance from the Director General, trade policy reviews, and plenary meetings play a real role within the trade regime. In the absence of sufficiently stringent rules over flexibility measures, compliance alone is insufficient during a global economic crisis. These circumstances trigger informal mechanisms that complement legal rules to support cooperation. During widespread crisis, legal enforcement would be inadequate, and informal governance helps to bolster the system. Informal coordination is by nature difficult to observe, and we are unable to directly measure this process. Instead, we examine the variation in responses across crises of varying severity, within the context of the same formal setting of the WTO. Yet by focusing on discretionary tools of protection—trade remedies and tariff hikes within the bound rate—we can offer conclusions about how systemic crises shape country restraint independent of formal institutional constraints. Insofar as institutions are generating such restraint, we offer that it is by facilitating informal coordination, since all these instruments of trade protection fall within the letter of the law. Future research should explore trade policy at the micro level to identify which pathway is the most important for coordination. Research at a more macro-historical scope could compare how countries respond to crises under fundamentally different institutional contexts. In sum, the determinants of protection include economic downturns not only at home but also abroad. Rather than reinforcing pressure for protection, pervasive crisis in the global economy is shown to generate countervailing pressure for restraint in response to domestic crisis. In some cases, hard times bring more, not less, international cooperation.

#### The era of sustainable growth is over. attempting to maintain growth through existing mechanisms only ensures widespread *ecological* and *economic* crises. Accepting a de-growth consensus solves

Jackson 19 (Tim Jackson, Professor of Sustainable Development at the University of Surrey and Director of the Centre for the Understanding of Sustainable Prosperity (CUSP), “The Post-growth Challenge: Secular Stagnation, Inequality and the Limits to Growth”, Ecological Economics, 156, 236–246, February 2019, doi:10.1016/j.ecolecon.2018.10.010)

A decade after the financial crisis, growth rates in advanced economies have still not returned to those experienced in the pre-crisis era. A long-term decline in the rate of labour productivity growth is one of the underlying factors contributing to this situation. Understanding that long-term decline is clearly vital. Debt overhang, shifting patterns of demand and the geo-politics of resource supply all play some contributing role. Perhaps the most troubling possibility is that the wide-spread technological advances facilitated by ready abundance of high-quality energy resources in the first seventy years of the 20th century are no longer available to advanced economies in the 21st. Evidence of a decline in the quality of some physical resources already exists. Sooner or later further declines are inevitable. As they arrive, they are likely to depress labour productivity growth still further.

The critical question is how policy should respond to this not-so-new reality. The conventional response has been to look for conditions – technological, fiscal, monetary – to keep growth going, whatever the cost. The prevalent ‘rescue narrative’ relies on an assumption that with appropriate policy incentives, new technological breakthroughs will emerge and productivity growth will recover. Candidate ‘saviours’ in this rescue narrative are various. For some (NCE 2014 2017), innovation will arrive from investment in the same clean, low-carbon technologies that are needed to tackle climate change and offset resource depletion. For others (Ford, 2015; Avent, 2016), innovation will come from the emerging digital revolution: increased automation, robotisation, artificial intelligence. But to date, none of the productivity gains foreseen by these technologies have been manifest at the macroeconomic level and this latter world could lead to the ‘immiseration’ of labour (Susskind, 2017) and levels of inequality reminiscent of the worst scenarios outlined in the previous section.

In historical perspective, it is clear that the advanced economies now stand at a distinct, and uncomfortable cross-roads. Two competing theories about how to maintain growth (Keynesianism and monetarism) have dominated macroeconomics over the last half century. Neither is adequate to the challenge of resolving current conditions. Developed in response to the Great Depression in the 1930's, John Maynard Keynes' macroeconomics saw a critical role for government in maintaining economic stability (Keynes, 1936). If supply potential was not enough to keep growth going (as Says had argued), governments could not rely on households and firms simply to go on spending during the hard times. They must play an active role in stimulating the economy to ‘kick-start’ growth again. The strategy worked, up to a point. It was exemplified in particular by Franklin D Roosevelt's ‘New Deal’ in the States.

The subsequent ‘failure’ of Keynesianism to solve the problems of ‘stagflation’ during the oil crises led to a temporary disillusionment with the idea and in the early 1980s, western governments (predominantly led by the anglo-centric nations) abandoned Keynes and turned instead to monetarism – the brainchild of Chicago school economist Milton Friedman. Built on a neoliberal philosophy with a strong belief in the free market as the best regulator of human affairs, monetarism had no time for fiscal stimulus (or indeed with government intervention generally) and argued instead that the route out of low growth was to reduce the cost of money, so that firms would more easily invest in the productive capacity of the economy and households could fund any temporary constraints on spending through debt. These mechanisms for financial liquidity would free up the economy to grow again, allowing prices to fall and employment to bounce back.

At first these policies seemed to be successful. In the wake of the oil crises, conditions improved. Greater liquidity spurred investment, restored levels of consumer demand and even (arguably) stimulated innovation in the energy sector which brought down the price of oil, for almost two decades. In the long run, however, things were not so simple. Loose monetary policy and tight fiscal policy were slowly creating increasing fragility in financial markets. Though they facilitated a continued reduction in public debt burdens, this only proved possible by transferring debt to the private sector. While interest rates were low and debt burdens were not too high, this didn't seem to matter much. But as more and more households accumulated more and more debt, the conditions for instability were accumulating. By the early 2000s, firms, banks and households had become ‘overleveraged’. The policy response was to pump more and more money into the system by lowering interest rates again and relaxing financial regulations even further. All it needed was a change in the rate of defaults on ‘subprime’ loans and the bubble would have to burst. This was the era of ‘easy money’, the ‘age of irresponsibility’ as then Prime Minister Gordon Brown called it, and it led inexorably to the financial crisis.8

‘The question then arises,’ wrote Summers (2014, p68) ‘can we identify any stretch [in the last decades] during which the economy grew satisfactorily under conditions that were financially sustainable?.’ His answer, and indeed the answer of a number of other mainstream economists, was: no. Chasing growth through loose monetary policy in the face of challenging underlying fundamentals had led to financial bubbles which destabilised finance and culminated in crisis.

Perhaps the most pernicious impact of this period of loose monetary policy – and indeed of the crisis itself – was the steady rise in inequality within advanced nations. There were several channels through which this acceleration occurred. In the first place, cheap money led to financial speculation. Those with access to capital could achieve substantial capital gains as asset prices rose. When wealth is already unequally distributed, this tendency leads directly to higher income inequality. As income inequality increases, it leads to excessive investment funds, because richer households tend to have a high propensity to save than poorer ones. This excess of savings leads to more speculation, pushing asset prices up again and accelerating inequality further. It is also likely to depresses growth, partly through the reduced spending power of poorer households and partly through the crowding out of investment in the real economy. Policy responses which attempt to stimulate investment by reducing the interest rate, end up making money cheaper and incentivising more speculation, fuelling a vicious cycle of rising inequality (Credit Suisse, 2014, p34).

But this cycle of rising inequality was by no means inevitable. Nor is it inevitable in the future. More correct would be to argue that rising instability (both social and financial) is the result of our persistent attempts to breathe new life into capitalism, in the face of underlying fundamentals that are now beginning to point in the opposite direction. Reversing the trend by raising the labour productivity growth rate through selective technologies is a highly uncertain strategy that may well intensify the environmental and social problems of the 21st century. By privileging the interests of the owners of capital over the interests of those employed in wage labour in the economy, it may be possible for short time to keep a certain kind of economic growth going. But the end result is a somewhat frightening sense that, as the Institute for Public Policy Research (IPPR, 2018) recently pointed out, when the next crisis hits there will be neither fiscal nor monetary room for manoeuvre.

Reaching beyond these potentially destructive conditions is clearly challenging, but by no means impossible. There is an emerging (and increasingly timely) interest in ideas around de-growth (D'Alisa et al., 2014; Kallis, 2015; Van den Bergh, 2015) and in the economics of a ‘post-growth’ society (Cassiers et al., 2017; Blewitt and Cunningham, 2014; Jackson, 2009, 2017). These approaches tend to accept that beyond a certain point, and for a variety of reasons, relentless economic growth may be neither desirable nor indeed feasible. Whether for secular reasons, or from a decline in resource quality, or from the need to curtail damaging environmental impact, proponents of these ideas attempt to envision the social conditions (and economic implications) of a world in which, for the advanced economies at least, it is necessary to ‘manage without growth’ (Victor, 2008/2018).

Perhaps the most interesting avenue that emerges from this exploration relates to the fundamental challenge which lies at the heart of it, the decline in labour productivity growth. Amongst the potential causes of such a decline lies one which carries the seeds of a new way of thinking about the role of enterprise and work in a post-growth society. Structural changes from primary (extractive) and secondary (manufacturing) towards tertiary (service) sector industries may be partially responsible for the transition towards a lower productivity growth (Nordhaus, 2006). Though often presented in conventional economics as a problem – for instance as the source of Baumol's (2012) ‘cost disease’ – there are certain service-based sectors which are both lighter (more sustainable) in material terms and contribute particular benefits in terms of the quality of life. These human services – particularly those based around care, craft and creativity – might well provide the clue to a lighter (more sustainable) economy capable of delivering a lasting prosperity without the need for economic growth.9

The US writer Wendell Berry (2008) once remarked that ‘human and earthly limits, properly understood, are not confinements, but rather inducements… to fullness of relationship and meaning’. Nowhere is this observation more true than in the context of the post-growth challenge facing the advanced economies in the 21st Century. That challenge, properly conceived, is not to pursue ever more desperate policies to regain the lost footings of a fossil-fuel driven hyper-productivity, but rather to create the conditions for an economy that works for everyone, within the constraints of a finite planet. As I have argued extensively elsewhere (Jackson, 2017), that task is precise, definable, pragmatic and achievable.

#### The global economy is entering total ecological overshoot – causes extinction from ecosystem collapse. Contradictions in growth mean no offense.

Ghebremichael 16 (Asghedom, Research Economist, The Environment and Natural Resources, Department of Natural Resources, Government of Canada, “Frontiers of the Biosphere Inhibit Perpetual Economic Growth: Exploring Pathways to Genuine Sustainable Development”, Journal of Environmental and Social Sciences, Volume 3, Issue 2 – 2016, http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/38034.pdf)

Nature has its own set of rules, solidly grounded in laws of physics and chemistry, and emergent principles of geology and biology, which are not artificial constructs. The natural rules are real, and they govern human well-being. Earthquakes, tsunamis, volcanic eruptions, hurricanes, tornadoes, floods, droughts, famines, civil conflicts, wildfires, poverty, and disease epidemics demonstrate dramatically that our planet Earth is at risk. Moreover, the outbreak of novel diseases, such as Ebola and AIDS, in socially, economically, and ecologically impoverished regions is a clear signal of the global predicaments of inequality and poverty. These natural and anthropogenic disasters are clear indicators of ecological overshoot, meaning anthropogenic disturbances beyond the carrying capacity of ecosystems that lead to ecological crash, causing an eventual die-off, hence environmental disasters [3]. The frequency, scale, and adverse effects of these challenges must be of great concern to humanity.

“Human alteration of the Earth was substantial and growing, transforming between one-third and one-half of the global land surface; CO2 concentration in the atmosphere increased by nearly 30% since the beginning of the Industrial Revolution; more atmospheric nitrogen was fixed by humanity than by all natural terrestrial sources combined; humanity consumed more than half of all accessible surface-freshwater; and about one-quarter of the bird species on Earth were driven to extinction” [4]. The UN’s Millennium Ecosystem Assessment [5], a global landmark study, which involved more than 1,360 scientists, technical experts, and policy makers from around the globe, summarized its findings as follows (paraphrased): (i) although living standards of “the few” have improved over the past two centuries, human activity is putting such strain on nature, undermining the Earth’s capacity to support current and future generations; (ii) we are living beyond our means: the current gains in enhanced quality of life have come at a considerable cost to health and integrity of ecosystems on which human well-being depends; (iii) if we act now, we can avoid irreversible damage to ecosystems and to our well-being; and (iv) we can no longer treat Nature’s bounty as free and limitless.

The information summarized in Table 1(Ecological Foundations section below) makes it all clear that human well-being depends on the life sustaining multiple services of ecosystems. Furthermore, a team of renowned scientists from N. America, Europe, Australia and the Scandinavian countries identified the following nine ecological thresholds, which define “the safe operating space for humanity”: (i) climate change, (ii) rate of terrestrial and marine biodiversity loss, (iii) human interference with the natural cycles of nitrogen and phosphorus, (iv) stratospheric ozone depletion, (v) ocean acidification, (vi) global freshwater consumption rate, (vii) land-use-change, (viii) chemical pollution, and (ix) atmospheric aerosol loading. The team concluded that humanity was approaching to the boundaries for freshwater consumption, land-use-change, ocean acidification, and interference with the global phosphorus cycle, while the boundaries for climate change, biodiversity loss, and interference with the nitrogen cycle have already been transgressed [6]. An urgent call for an anthropogenic balancing act not to transgress ecological thresholds is in order. Halting short-sighted excessive anthropocentric activities that lead to overexploitation of natural resources is imperative. The naturally imposed limiting frontiers, the ecological thresholds, must be respected and protected.

Rooted in the doctrine of laissez-faire, neoliberalism promotes perpetual economic growth (PEG), which means unfettered expansion of an economy’s productive capacity realized through enabling institutional arrangements. But, PEG is inherently not compatible with ecological integrity, environmental quality, and genuine sustainable development (GSD). Drawing on the findings , conclusions, and recommendations of Rockström’s team [6], I define GSD as a dynamic process by which human well-being is improved in an inclusive, a just, and an environmentally safe operating space, achieved through inventions, innovations, diffusion, and adoption of appropriate technologies as well as learning-by-doing.

GSD is in a stark contrast with the highly publicized and politicized concept of sustainable development (SD) of the UN’s Brundtland Commission, which is also known as World Commission on Environment and Development (WCED) (1987) [7]. The highly generalized and vague definition of SD is: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: (1) the concept of “needs”, in particular the essential needs of the world’s poor, to which overwhelming priority should be given; and (2) the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs”. Our Common Future, p.143. Given all its good intentions, the WECD failed to explain the consequences of PEG strongly. Unfortunately, SD’s exact definition continues to be globally politicized and linked always to strategic policy goals and objectives one would like to talk about. SD does not give any specific guidelines pertinent to alleviation of the human predicaments associated with inequality, poverty, perversely globalized markets, destruction of the health and integrity of ecosystems, and climate change. Research questions, goal, and organization of the paper What are the theoretical and practical foundations of the PEG doctrine? Are PEG and GSD compatible? Addressing these questions has become a persistent challenge to both social and natural scientists. The overarching goal of this article is to demonstrate the incompatibility of PEG with GSD. Rooted in neoclassical microeconomic theory, neoliberalism advocates for PEG, which is unfettered expansion of an economy’s productive capacity in the finite, materially closed (except the constant inflow of solar energy), and non-growing biosphere [8]. For this doctrine to be realized, neoliberal economists prescribe globalized perfectly competitive markets, where multinational corporations play the dominant economic games against all policies and strategic practices of GSD. Let me be clear at the outset. As a trained economist, who went through the grueling processes of acquiring a PhD, I understand the importance of all the fundamentals of microeconomic and macroeconomic theories. My argument is against the misuse and, in some case, abuse of these scientific theories to promote personal ideological perceptions. I am motivated to add my “voice” to those voices of many preeminent scholars, whose extensively published works inspired me to learn more on the adverse effects of neoliberalism on ecological integrity and human well-being [6, 8-12]. The paper is organized into six sections: this introduction, ecological foundations for GSD, the fallacies of the PEG doctrine, anthropogenic effects on ecological integrity, selected pathways to GSD, and concluding remarks and policy recommendations, in that order. Ecological Foundations of Genuine Sustainable Development In this section, I summarize the ecological foundations of GSD, using taxonomy of the following key scientific terms: ecological principles of holism, biodiversity loss, sustainability, resilience, ecological integrity, biogeochemical processes, carrying capacity, and overshoot. Principles of holism Ecological principles of holism mean that everything is interconnected with everything. This can be summarized by the dictum: “A whole is more than the sum of its parts or members”. The totality of the whole of any living system-biological, social, or economic-is not fully embodied in its individual parts or members. Wholes have properties that are not present in any of their separate parts; they emerge only when the parts are combined together, forming mutually reinforcing synergistic nexus, in a coherent whole; and the specific properties of individual parts disappear when they are part of the whole. Thus, relationships among the parts of wholes matter; when relationships change, the whole is changed. For example, water, air, and soil are polluted with chemical and biological waste, because we humans fail to appreciate the importance of their holistic relationship with Nature and thereby with our well-being. Respiratory problems, cancer, food poisoning, and general poor health as well as the cost of healthcare are some of the consequences of ignoring the imperatives of holism. Government policies that influence agriculture, forestry, mining, manufacturing, labor relations, capital investments, employment, economic growth, all have direct and indirect impacts on the natural environment-locally, nationally, and globally. We have no way of knowing how large or small our individual or collective adverse effects may be, but understanding the ecological principles of holism is necessary condition to preserve ecological integrity and foster human well-being.

Consequences of biodiversity loss

Biodiversity (i.e., biological diversity) is the number, variety and variability of genes, populations, species, communities, ecosystems, and ecological processes. Biodiversity underpins the multiple services of ecosystems that sustain human well-being; is the foundation of resilience of life on Earth; and an integral part of the fabric of all the world‘s cultures. It is a common knowledge of the science of ecology that no feature of Earth is more complex, dynamic, and varied than the layer of organisms that occupy its surfaces and its seas; and no feature is experiencing more dramatic changes at the hands of humans than this extraordinary, singularly unique and beautiful feature of the Earth, biodiversity. Critical ecological processes (i.e., ecosystem functions) that depend on prevailing scale of biodiversity at the ecosystem level influence plant productivity, soil fertility, water quality, atmospheric chemistry, and many other local and global environmental conditions that ultimately affect human welfare.

Substantial changes have already occurred, especially local and global losses of biodiversity. The primary cause has been widespread human transformation of once highly diverse natural ecosystems into relatively species-poor managed ecosystems. Recent studies suggest that such reductions in biodiversity can alter both the magnitude and the stability of ecosystem processes, especially when biodiversity is reduced to the low levels typical of many managed natural systems. We humans ought to remind ourselves that barren deserts are capable of supporting very little life (if any), because they lack biological diversity. Ecosystems that completely lack diversity have no high quality, low entropy, energy left to support life.

Diversity enables living systems to adapt and evolve to accommodate their ever-changing natural environment. Even if we do not understand fully the specific nature of a threat, it should be clear that loss of biodiversity represents a growing threat to the future of human life on Earth. There is no way of knowing how many more species can be lost before the ecological balance is tipped toward extinction of all species.

Sustainability What does this revered-modern term, sustainability, mean? It means the capacity to endure natural and/or human-induced adversities and remain in existence. Ecologically, it is how biological systems remain diverse and productive in perpetuity. Long-lived and healthy wetlands and forest ecosystems are examples of sustainable biological systems. In more general terms, sustainability is the endurance of systems and processes. For the purpose of this paper, the unifying concept I have chosen for the science of sustainability is GSD. It is a process by which human well-being is improved in an inclusive, a just, and an environmentally safe operating space, achieved through inventions, innovations, diffusion, and adoption of appropriate technologies as well as learningby-doing. In other words, GSD integrates five domains: social, ecological, economic, environmental, and institutional. However, despite its importance, the possibilities that human societies will achieve GSD is getting harder and harder with time, because of environmental degradation, climate change, overproduction, overconsumption, rapid growth of the human population, and the pursuit multinational corporations for PEG at any cost, through full support of neoliberalism’s institutions that create a globalized-free market economy. Thus, it is imperative to direct orientation of human behavior toward planetary endurance and sustainability over time. This behavioral orientation provokes reflection on the manner and purposes of global human society. Problems like biodiversity loss and climate change point to the global reach of humanity’s powers and the scale of its risk. Mitigating their impact and risk require reform across many human systems-financial, political, production, consumption, energy, transportation, and even communication and education. Yet those reforms could complicate other goals of the international community, such as overcoming extreme poverty and protecting human rights. How can these overlapping interests be prioritized? At local and global levels, sustainability directs practical attention to the complex mutuality of human and ecological systems. Economic health, ecological integrity, social justice, and responsibility to the future must be integrated to address multiple global problems within a coherent, durable, and moral social vision. That inclusive scope and prospective vision makes sustainability ideologically absorptive and socially and politically viable. Resilience and resistance An ecosystem’s resilience refers to its ability to recover from disturbances (e.g., wildfires, diseases, insect infestations, climatic extremes, overgrazing, and overexploitation of natural resources) that exceed its resistance capacity. Resistance is the capacity of an ecosystem to tolerate and mitigate disturbances. Linked to sustainability, resilience in ecology is the capacity of an ecosystem to absorb disturbance and still retain its basic structure, functions, and viability. Resilience-thinking evolved from the need to manage interactions between human-constructed systems and natural ecosystems in a sustainable way, despite the fact that the definition remains elusive to policymakers. Resilience-thinking addresses how much planetary ecological systems can withstand assault from human disturbances and still deliver the services current and future generations need from them. It is also concerned with commitment from geopolitical policymakers to promote and manage essential planetary ecological resources in order to promote resilience and achieve sustainability of these essential resources. Resiliency of an ecosystem, and thereby, its sustainability, can be reasonably measured at junctures or events where the combination of naturally occurring regenerative forces (solar energy, water, soil, atmosphere, vegetation, and biomass) interact with the energy released into the ecosystem from disturbances. Integrity An ecosystem is an assemblage of organisms (biotic) interacting among themselves and the physical environment (abiotic), including air, light, soils, heat, and water, at a specific location. Ecological integrity encompasses attributes of a healthy ecosystem, which include: abundance of biodiversity, resistance and resilience, sustainability, naturalness, wilderness, beauty, wholeness, and natural-maximum carrying capacity. Integrity of an ecosystem is manifested through its self-sustaining intact natural processes; it evolves naturally; its capacity for self-renewal is maintained; the biodiversity is ensured; and is free of human and natural disturbances. Using these and other attributes, ecologists develop indexes that capture current condition of a given ecosystem. Biogeochemical processes in ecosystems Biogeochemical processes in ecosystems are referred to ecosystem functions. These are ecological processes that control the fluxes of solar energy, nutrients, water, and organic matter throughout of a given natural environment. Examples include: (a) primary production, the process by which plants use solar energy to convert matter into new biological tissues through photosynthetic chemical reactions; (b) nutrient cycling, the process by which biologically essential nutrients are captured, used, released, and then recaptured; and (c) decomposition, the process by which organic waste, such as dead plants and animals, is broken-down, assimilated, and recycled. These functions are controlled by both the diversity and identity of the plant, animal, and microbial species living within a given community of living things. Human modifications to the living community in an ecosystem as well as to the collective biodiversity of the Earth can, therefore, alter ecological functions and sustainable supply of the life sustaining multiple services of ecosystems (Table 1). Life sustaining multiple services of ecosystems What are ecosystem services? They are fluxes of services and the stocks that they (the fluxes) produce for all living things to enjoy and survive (Table 1). Sustainable supply of these life sustaining services is a function of ecological integrity. The lack of a universally accepted single definition implies diversity of the services, ecological complexity, and degree of their importance for humanity. Development of human societies has been a story of changing the natural systems of planet Earth to sustain ever more sophisticated and excessively comfortable ways of living. “Human activities have taken the planet to the edge of a massive wave of species extinction, further threatening our own well-being” [5].

Carrying capacity and overshoot

Ecologists define ecological carrying capacity as the maximum population of a given species that a particular ecosystem can support in perpetuity [13]. For the purposes of this article, the concept of carrying capacity is defined as the maximum level of human population size and its anthropogenic activities that a particular ecosystem can sustain under existing technologies, institutional configurations, demographic structure, and governance system. Overshoot, in contrast, is a condition where human population size and its anthropogenic activities have exceeded the carrying capacity of a given ecosystem [3]. In this situation, the ecosystem does not have the capacity to regenerate life-sustaining services or to absorb, detoxify, or neutralize wastes of economic growth. The theoretical and practical perspectives of ecological carrying capacity are elaborated in the fourth section, diagrammatically and mathematically, after the next section on the fallacies of the PEG doctrine.

Fallacies of the Neoliberal Doctrine of Perpetual Economic Growth

The previous sections have established the ecological foundations for GSD on which more elaborations will follow this section. Incompatibilities of the perpetual economic growth (PEG) doctrine with health and integrity of the biosphere and with the conditions necessary for GSD are explored here. The following features of neoclassical microeconomic theory, the mother of neoliberalism, are elaborated: (a) the economy as an open subsystem of the biosphere, (b) the limitations of the competitive general equilibrium model of microeconomic theory, (c) the causes and consequences of the functional failures of the competitive market structure, (d) the unrealistic nature of the assumed conditions where the neoclassical economic model of laissez-faire market economy is expected to work, and (e) the wrong metrics of human well-being.

The economy as an open subsystem of the biosphere

To argue for PEG, neoliberal economists invoke the theoretical fundamentals of neoclassical macroeconomic models. That is, PEG promotes growth of gross domestic product (GDP) through an unfettered expansion of an economy’s productive capacity within the biosphere, which is finite, non-growing, materially closed (except for the constant input of solar energy), and constrained by the laws of thermodynamics (Figure 1). Note that a closed system is one in which matter neither enters nor exits, but energy enters as low entropy (high quality) and exits as high entropy (low quality). It is this throughput of energy that powers the material biogeochemical cycles on which life depends [8-9].

An economy is a socially constructed and legally and politically mediated an open subsystem within the biosphere (Figure 1). To be sustainable, it must be designed, organized, and function as a societal living system in accordance with the ecological and social paradigm of interconnectedness of living organisms. Sustainability of life on Earth depends on the inflow of solar energy; and only living organisms are capable of capturing, organizing, concentrating, and storing solar energy in diverse forms necessary to support life on Earth.

Low entropy (high quality) solar energy and materials, along with generated energy and human capitaland information embedded in machinery, equipment, and information and communication technologies, flow from the biosphere through the open economic subsystem (Figure 1). Subsequent to all socioeconomic activities, high entropy, i.e., degraded and dissipating energy and waste material that pollute the natural environment flow back to the biosphere. It might be possible to minimize the magnitude of pollution, if effective policy for recovering, reusing, and recycling (3Rs) is implemented. But, as the Second Law of Thermodynamics (aka Entropy Law) teaches us, most of the degraded material and energy dissipates as waste during the economic processes irrevocably [9].

Observe Figure 1 The sustainable level of energy throughput is a function of the biosphere to sequester low entropy (useful) solar energy and the capacity of the natural environment to absorb, detoxify, or neutralize wastes. Unsustainable economic growth, the PEG, can be compared to growth of a malignant cancer, because it devours its own support system, the Earth’s ecosystem services (Table 1). Like an animal does, the economy lives on devouring all low entropy (useful energy contents) natural capital assets, such as fish, timber, arable land, water, metals and minerals, and fossil fuels, given back waste materials. This outcome, of course, diminishes the productive, regenerative, absorptive, decompositive, and assimilative capacities of the biosphere. Many fear that unless overexploitation of natural resources is checked, modern civilization will follow the path of ancient civilizations that collapsed because they overexploited their natural resources [3,9].

A bit more elaboration on the physics of the First and the Second laws of thermodynamics is warranted. According to the First Law of Thermodynamics, also referred to as the Law of Energy/Material Conservation, material inputs to economic processes are not “consumed”, because they return as wastes to the natural environment from where they were extracted. This means that, during a physical or chemical change, energy is neither created nor destroyed, although it may change from one form to another; and it may move from one place to another. When one form of energy is converted to another form in any physical or chemical change process, energy input equals energy output- we cannot get something for nothing is the dictum.

By contrast, the Second Law of Thermodynamics states that with each change in a form of energy some energy is degraded to a less useful form and given off to the surroundings, usually as low quality heat. That is, in the process of performing work, low entropy energy is converted into high entropy, which is waste energy characterized by dispersed, dissipated, and molecularly chaotic state. This is an index of irrevocably dissipated energy [9].

Economic implications of the Second Law, however, are far subtle and are very important. Economic processes utilize low entropy energy and raw materials (e.g., fossil fuels and high grade metal ores) and discard high entropy wastes. This process imposes constraints on economic growth. That is, anthropocentric economic processes transform valuable (low entropy) matter and energy into irrevocable waste. For example, when coal is burned to generate electricity, only about 35% of the total energy embedded in the coal is converted into electrical energy, the rest becoming waste heat, various gases (e.g., CO2 ), various chemicals, such as sulfuric acid, particulates, and ash; and even the electricity dissipates into the natural environment as waste heat once it has done its job [14]. The physicist may argue that the “books are balanced” - there is just as much matter and energy in the overall system as before in accordance with the First Law of Thermodynamics. But, the Second Law refutes The First: whatever remains is very significantly lower in quality. The upshot is that for every unit of good product that a human being creates, using a given technology, he manufactures two units of bad product - and even usefulness of the good product is ephemeral [14]. In short, the idea that technology will allow us to do ever more with ever less in perpetuity is a delusion.

Keep in mind, there is always diminishing returns to happiness. Naturally, under the constraints of the biosphere the Law of Diminishing Returns dictates that once the basic human needs, such as food, clothing, shelter, health, education, and clean water are met quality of life becomes dependent more on social capital and on one’s general purpose of life than on additional material wealth. That is, the materialistic doctrine of PEG does not enhance happiness in life. Unravelling limitations of the competitive general equilibrium model The theoretical foundations of the neoclassical competitive general equilibrium model of microeconomics are examined here. For the sake of clarity, I start with a virtuous cycle framework for positive feedback to illustrate the intricacies of the economic growth paradigm, which advances the PEG doctrine (Figure 2). Positive feedback, also referred to as cumulative causation, is a loop system in which the system responds to a perturbation, such as financial stimulus within the economic system. For example, let us assume that exogenously designed, enabling macroeconomic policies, such as: reduced corporate income tax, increased corporate investment credits, reduced royalties to extract a given natural resource (e.g., fish, timber, oil, or gas), and enabling institutional configurations and coordination, motivate corporations to enhance investments in R&D (Stage 1). This leads to technological progress through inventions, innovations, diffusion, and adoption of new technologies (Stage 2). Then, the following sequence sets in: total factor productivity growth (Stage 3), reduced costs of production (Stage 4), competitively reduced market prices (Stage 5), boosted market demand for goods and services (Stage 6), enhanced competitiveness (Stage 7), and maximized profits, accumulated capital, enhanced investments, and economic growth (Stage 8), pushing forward the original conditions (Stage 1) to enhanced economic climate through positive feedback effects. These sequences push the production possibilities frontier (PPF), also referred to as transformation possibilities frontier, outwards (Figure 3). Because human desires and wants, which are both unlimited, exceed our basic needs due to scarcity, trade-off decisions must be made in production, consumption, and investment under given technology, factors of production, preferences and tastes, expectations, and institutional configurations. Effective and efficient allocation of scarce resources is possible only along the PPF of the economy in question (Figure 3). Neither investment in natural capital nor production of current consumption goods is viable at points, such as P1 , where inefficiency prevails, and point P2 , where both investment and production are unattainable. Possibilities for optimality in production of current consumption goods and investments in sustainable management of natural capital can be attained at points, such as point E, on PPF2 , after technological progress. Take, example, point E as a point that establishes optimality, where slope of PPF2 can be expressed as a negative value: dK MRTGK dG − = (1) where MRTGK is marginal rate of transformation of G (production of current consumption goods) for K (investments in natural capital). This is a measure of the rate at which investments in K have to be given up to get an additional unit of G. It is interpreted as an opportunity cost, a relative marginal cost of G in terms of given up amount of K. That is, MOCGK MCG MRTGK MCK = = (2) where: MOCGK = marginal opportunity cost of the benefits gained from G in terms of K; MCG = marginal cost of G in consumption; MCK = marginal cost of K in production; and MRTGK is as defined above, under Equation (1). In a freely competitive market economy, profit maximizing firms produce at output level where marginal cost (MC) is equal to the ratio of product prices; and consumers, who maximize utility, purchase goods and services by equating their marginal rates of substitution (MRS) to the ratio of product prices. At point E (Figure 3), the competitive general equilibrium in production, exchange, and consumption is established, expressed as: MC P G G MRS MRT GK GK MC P K K = = = (3) where: PG = price of a given product for current consumption; and PK = price of a given natural capital asset for future consumption (e.g., timber to be harvested through sustainable forest ecosystem management); and MRSGK = marginal rate of substitution of product G for product K in consumption. Close observation of the situations in Figure 3 reveals that, if society chooses to invest at point A2 , post technological progress, future generation will enjoy the benefits of reduced current production of consumer goods; but, if society chooses to give up investing in natural capital by choosing B2 to produce more current consumption goods, future generations will be worse-off, because their opportunities to enjoy the benefits of ecosystem services are depleted, while current generation will be better-off. Furthermore, one has to keep in mind the potential for unintended consequences of the positive feedback outcomes (cumulatively increasing causations) of technological progress as elaborated in Figure 2. There exists likelihood for excessive positive feedbacks to encounter negative feedbacks that can throw a system out of its equilibrium position (point E, Figure 3) into a chaotic transformation. To complicate matters further, the neoclassical economic model is expected to work under presumed very stringent assumptions, which are summarized as follows: Assumed necessary conditions for a perfectly competitive market structure

Neoclassical welfare economic theory asserts that the market mechanism is an effective device for allocating scarce resources through the Adam Smith’s “invisible hand” maxim, which allegedly creates demand and supply equilibrium, mediated by rational behaviors of economic agents of production and consumption, who are profit and utility maximizers, respectively.

The so called perfectly competitive market structure is assumed to function under the following stringent conditions: (i) a national government, relegated to the duties of macroeconomic stabilization, protection of economic and political freedoms and private property rights and leaving the domestic marketplace wide open for competition in order to foster free market economic globalization; (ii) government ownership of productive sectors of the economy results in market distortions, hence not permitted; (iii) in a freemarket economy, economic agents possess complete knowledge of the marketplace, i.e., no information asymmetry exists; (iv) rational producers and consumers, maximizing profits and utilities, respectively, allocate scarce resources effectively and efficiently; (v) positive or negative externalities are ruled out; (vi) firms are free to either enter or exit industries; (vii) collusive strategies of producers to create oligopolies and/or monopolies to erect market barriers that enable them to earn supernormal profits (net earnings that exceed all opportunity costs) compared to normal profits (minimum net earnings that cover opportunity costs to induce the firm to remain in operation) are not expected to exist; (viii) numerous producers and consumers of a given product operate in the marketplace, where neither of them is capable to influence workings of the demand and supply market forces; (ix)individual persons, firms, and households are price takers, i.e., neither has power to influence market prices; (x) homogeneous technologies produce homogeneous products (e.g., fish, oil, gas, lumber, paper, computers, guns, etc.) for the marketplace; and (xi) human ingenuity creates national wealth in perpetuity, through inventions, innovations, diffusion, and adoption as well as learning-by-doing of new technologies.

Relying on these unrealistic assumptions, neoclassical economics, the mother of neoliberalism, neglects the adverse effects of risk and uncertainties on the workings of a given economy; and of large scale production, distribution, exchange, consumption of market commodities on quality of the natural environment, i.e., human well-being. Most importantly, the inevitable failure of the so called competitive market and the predicaments of inequality are not the concern of neoliberalism [16].

Governed by these preconditions, neoclassical economic growth models are constructed and applied to generate empirical results used for policy making. It is very disquieting to understand that some of the economists who adhere to the intricacies of the neoclassical economic growth model sare winners of the Nobel Prize for Economic Sciences [18,20,21].

For good or for worse, depending where one stands ideologically, these economists, revered by their disciples, influenced economic and political spheres of many developed and developing countries over the 20th century. For instance, Milton Friedman [21], who won the Nobel Prize for Economic Sciences in 1976, when he was a guru of neoliberal economic theory at the Chicago University School of Economics, was an advisor to the Chilean dictator, General Augusto Pinochet [22]. In his book, Capitalism and Freedom, which is extensively read and translated into several languages, Friedman asserts that, under perfectly market competitive capitalism, free-innate human nature determines economic outcomes, which are necessary conditions for political freedom, and thereby well-being of humanity. This is the crux of the true neoliberalism, which Milton Friedman prescribed for General Augusto Pinochet’s Chile (1973-1990), an era of the Chilean tragedy [22].

Keep in mind that the norms of neoliberalism are privatization, deregulation, and liberalization of national economies by implementing enabling institutions that establish a freely competitive marketplace, where multinational corporations play the dominant economic games. Notice, reviewing the above highlighted assumed necessary conditions should be enough to convince ourselves that the so called perfectly competitive market structure is an absolute abstraction that cannot exist under any circumstances. In the real world we live in an ideal-perfectly competitive market structure that benefits all members of a society cannot exist.

A caveat on the limitations of technological progress is also in order here. No doubt, technological progress, revealed through an outward shift of the PPF and total factor productivity growth, reduces costs; increases productive efficiency; conserves on the use of scarceproductive factors, including natural resources, human capital, and produced capital; and, hence, contributes to human well-being. But, the Second Law of Thermodynamics forbids perpetual technological progress; and it is subject to the constraints of diminishing returns, i.e., an additional input quantity of a productive factor, ceteris paribus, results in a marginal increase in output up to a certain point, beyond which diminishing returns, measured in terms of declining marginal productivity, set in. Furthermore, all technological transformations cause energy and matter to be degraded and dissipated.