

Acknowledging the “Primitive Origins of Human Ecological Dysfunction”: A View Toward Efficacy and Global Ecological Integrity

Marc E. Pratarelli and Connie M. Aragon

Colorado State University-Pueblo

Recently, William Rees (2002), best known as the innovator of ecological footprint analysis (EFA), suggested that “sustainability requires that we acknowledge the primitive origins of human ecological dysfunction and seize conscious control of our collective destiny.” (p.249) In this present article, we explore beyond the rhetorical in order to operationally (i.e., in practical terms) examine what might be meant by (1) an acknowledgment of the primitive origins of our destructive consumption habits, and (2) the seizing of conscious control with regard to a future for the human species. Our principal contention with regard to item (1) is that dealing with the popular mythology that unlimited growth and the opportunity for Western levels of material wealth is possible for everyone should be understood as a case of mass self-deception (psychological denial). Our main contention with regard to item (2) will be that the historical record reveals another popular mythology. Dissecting that mythology reveals that humans are not characteristically proactive in dealing with environmental problems. Instead, environmental pressures in the form of imminent catastrophic ecological and/or economic collapse on a scale not seen in recorded human history are likely to compel humans to adapt their value systems to focus on conservation practices and sustainable economic policies.

A small amount of evidence suggests that the mainstream environmental and sustainable development institutions that are advocates for change (most notably, the Intergovernmental Panel for Climate Change—IPCC) appreciate Rees’ comment that was introduced above. This suggests to us presently that such institutions see his comments as a matter of practical concern. Yet, there remains a rift between rhetoric and action. This can be gleaned from small sections within the vast collection of publications and documents issued on the subject of sustainability (cf., Sathaye & Bouille, 2001). Consider the coverage in the preface (below) of one section (5.3.8) on the subject. In discussions about human causes and effects of climate change or global

warming, there is no evidence that the concepts of human innateness, unconscious motivations or drives, etc., have been considered. These biological factors are the basis of understanding Rees' "primitive origins" of human consumptive behavior. Sathaye and Bouille suggest the following with regard to that aspect of human behavior.

Perhaps the most significant barriers to GHG (greenhouse gas) mitigation, and yet the greatest opportunities, are linked to social, cultural, and behavioral norms and aspirations. In particular, success in GHG mitigation may well depend on understanding the social, cultural, and psychological forces that shape consumption patterns. (p. 367)

This quotation demonstrates that there is at least an appreciation that many effects collectively labeled "climate change" or "global warming" are attributable to "...social, cultural and behavioral norms and aspirations"..."that shape consumptive patterns." Nonetheless, one is compelled to wonder and ask why so little interest and effort is directed toward studying such factors. Collectively, psychological factors that allegedly impact environmental decay have been labeled or referred to as *root causes* (cf., Wilson, 2002). At the very least there exists an acknowledgment that some form of emergent consumptive human behavior is the root cause of environmental decay ("ecological dysfunction"). However, this quotation does not suggest whether there is any appreciation for the fact that human consumptive behavior is partially attributable to innate biological, i.e., unconscious motives and drives. Readers and especially policymakers receive no guidance when they freely speculate whether human consumption patterns are driven solely by cultural factors (e.g., media and advertising, increasing economic status or the maintenance of cultural norms [keeping up with the Jones'], etc.), or by innate biological forces that insure one's metabolic needs are met along with safety and other first order survival needs. It cannot be discounted that some combination of the two forces (culture and biology/nature and nurture) may be driving consumption as well. Therefore, an understanding of human consumption patterns demands that the source or motivation(s) that drive them be illuminated.

When he uses the term “primitive origins”, Rees (2002) is specifically referring to the unconscious motive to consume and to seek out resources for survival without concern for limits. Pratarelli (2003; 2007) has noted that for both the environment and ourselves, the problem of unconscious motives driving consumption patterns was mute when the total human population was operating below the maximum or optimal level of our planet’s carrying-capacity. Carrying-capacity refers to the upper-level limit where the planet’s ability to absorb human consumption and waste through renewal and assimilation are in balance with the net consumption by the global population. It is important to note, however, that balance does not imply a static condition. Instead, because of changing cultural norms in all non-Western societies—which are continually shifting in the direction of American/Western standards of consumption—balance is functionally an irrelevant concept because even a stable/unchanging population is constantly increasing its energy and material demands. *Balance* is an essential element of environmental sustainability, however. Without it, the ability of the global human population to live within its means (in modern vernacular: sustainability) is not feasible.

Global population demand and the myth of unlimited supply-

During the last few centuries—and the last five decades in particular—global population has risen exponentially refueling support for the classic Malthusian dilemma (Pratarelli, 2005). With 6.8 billion people all seeking to survive by securing the resources believed to be necessary for a comfortable survival in a modern 21st century, the planet’s finite natural resources and its ecology have suffered tremendously (WorldWatch Institute, 2008). This has given rise to accelerated species extinction rates (Wilson, 2002); depletion of critical renewable and non-renewable resources; and both economic and social-political instability as countries compete to secure rights to procure and develop the remaining resources (Klare, 2001). In addition, pollution has increased and technology has failed to keep up with corrective measures to mitigate the damage (IPCC, 2007). Voluntary compliance with mitigation efforts has failed to deliver thus far. Nevertheless, both a Nobel Prize and an Oscar were awarded during 2007 for pointing out the obvious and offering no new solutions whatsoever. In this latter case of rhetoric minus action and practical solutions (Gore, 2006), the public was misled into believing a new myth that environmental decay was solely the fault of multinational corporations and a neoconservative

government administration. Gore avoided the politically sensitive subject of addressing the global public demand for resources to support increasing material wealth.

The myriad of problems that arise when overpopulation compromises the availability of resources are not recent discoveries. Aldo Leopold, Garrett Hardin, Paul Ehrlich, Rachel Carson, Van Rensselaer Potter and many other students of consumption or population growth have addressed the footprint dilemma since Thomas Malthus and Henry David Thoreau introduced us to it two centuries ago. What we understand much better today—owing to the new sciences of evolutionary psychology and anthropology—is the evidence for a biological basis of a human mental/cognitive architecture of the mind that creates these problems (presently) as a byproduct of 6.8 billion individuals all seeking prosperity simultaneously.

When the alternative to prosperity is placing oneself and one's kin at a much higher risk of death or compromising their health and livelihood, few individuals give more than passing consideration to thoughts of consuming in moderation, living within their means, and having smaller-sustainable families. Minor economic adjustments have been noted when environmental pressure is brought to bear (e.g., high oil prices temporarily affect driving habits and public demand for smaller vehicles, etc.). These minor adjustments, however, have been found historically to be temporary and insufficient at mitigating the effects on the environment (e.g., climate change).

Competition between individuals as well as between species, an inherent and essential element of all biological systems operating under natural selection pressures, creates a profoundly volatile condition when the total population (demand) outstrips the limited supply. Economic adjustments, normally used by economists to distract attention from the Malthusian dilemma (or to invalidate its merits), only serve to slow and postpone the inevitable crash or collapse (Mcneil, 2008). In the past, collapses have been limited to particular ecosystems or social-political societies, cultures or empires. The principal culprit in all cases is the global human population that subscribes to the apparent irrational belief/myth in unlimited supply of resources and unlimited growth (cf., Lomborg, 2001; Simon, 1990; 1998; Rees, 2002). The purpose of this

present article is not to legitimize, but rather to provide a biological justification for the “apparently irrational belief/myth in unlimited supply of resources and unlimited growth.” Such an understanding may facilitate the process of developing appropriate policies because they would be anchored in realistic human behavior terms.

In the earlier quote from Rees (2002), the critical points we wish to expand upon here concerns his use of the words “acknowledge” and “seize[ing] conscious control” of the problems we have created through unrestricted population growth and over-consumption. Rees’ focus is predictably the outcome, for which his footprint analysis technique has revolutionized our ability to assess environmental impact. A necessary precondition to both acknowledging and “seiz[ing] conscious control” of our human caused problems is in fact our ability to measure damage to help us perceive the extent of the destruction and destabilization of the global ecosystem. Of the many variables that exist, our species is the major one that negatively impacts the planet. Therefore, an *understanding of human motivation* and how to approach curbing our excessive growth and consumption may very well be the single most important endeavor facing our species today. This assumes there is actually an interest in survival and the avoidance of catastrophic collapse with the ever present possibility of biological extinction (Rees, 2002; Pratarelli, 2007).

Others have attempted to explain our biological predisposition to overexploit our environment (e.g., Seidel, Brown & Laszlo, 2001), but have focused entirely on cognitive operations that do not differ substantively from those found in other species. While there are many behavioral elements we share in common, we differ in the technological and sociological factors that amplify our exploitation. The result is that such explanations fail to adequately spell out where human motivations to consume originate in the mind and brain. In the next section, our working logic is that the belief that humans will be motivated to avoid catastrophic collapse is valid for most people most of the time because of our innate motivation toward self-interest. Naturally, we share self-interest motivation with all living organisms, but ours differs because it is enhanced by an abstract ability to conceive of a future.

Acknowledging that environmental problems exist-

To see a Nobel Peace Prize awarded as it was in 2007 jointly to former Vice President of the United States Albert Gore and the IPCC might suggest that indeed there is public recognition of the gravity of the environmental problems facing the planet and our species. Similarly, the awarding of a prestigious Oscar for the feature film based on Gore's book "An Inconvenient Truth" (2006) similarly suggests there is ample public and private recognition of environmental problems. That might be the end of this story were it not for the fact that a schism exists between the apparent recognition of environmental problems and consumers' actual behaviors (Rees, 2002; Pratarelli, 2003). What people say and what they do are often at odds with one another. Consumption indices, e.g., oil supply and public demand, are still on the rise despite the putative awareness, recognition and acknowledgment that this and all other forms of consumption are creating irreversible damage to the global ecosystem. The schism between attitudes/beliefs and actual behaviors/actions have been investigated for more than 30 years. One recent study found that people were statistically more likely to hold environmental or "green" attitudes and beliefs, but their actual environmentally friendly behavior was not consistent with those stated beliefs (Pratarelli, Mize & Browne, 2007). Basic human logic tells us that if one recognizes a problem, one works to correct it, provided there exists an understanding about causation, i.e., the cause and effect relationship operating in a real and physical universe.

We propose that there can simultaneously exist an acknowledgment of environmental damage (and even an understanding of the causal nature that creates it) with an absence of volition to correct the problems. This begs the question "how can two seemingly incompatible conditions coexist in a single mind? Not long ago citizens living in New Orleans experienced first hand the liability of living below sea level, and yet a majority refuses to address it by leaving the area for higher and safer ground. Similarly, the burning of fossil fuels is the primary agent in climate change, yet demand and consumption continues to grow annually. Again, why does this ubiquitous, yet peculiar and irrational behavior exist? The answer, we suggest, is contained in a form of universal human behavior we will label denial or self-deception (Goleman, 1996; Jensen, 2006; Rees, 2002; Pratarelli, 2003; Trivers, 1991; 2000; 2002).

Self-deception is defined in behavioral science as the ability to hold or maintain simultaneously in one's mind a true but unpleasant proposition along with its opposite, a falsehood that normally is more appealing and causes less distress. The successful act of living in denial occurs when the individual forces the true but unpleasant thought/belief out of their consciousness and awareness by substituting in its place a false but more comforting thought, belief, or idea. The motivation to self-deceive (denial) is either (1) avoidance of the painful truth and its consequences/ramifications should they in fact come to pass, (2) a tendency toward irrational-wishful thinking, (3) a strong need or desire to exist (for the sake of convenience) in a blissful state of seemingly harmless ignorance, or (4) the need to deceive others by not revealing one's intentions to deceive them. All four have been shown in recent research to motivate self-deception (cf., Bermúdez, 2000; Mele, 2001; Trivers, 1991). The cognitive tools available to help generate and sustain self-deception/denial exist both within the individual and in various institutionalized forms in greater society. As Rees (2002) has pointed out, the telling and retelling of modern myths that support the false believe that our planet's natural resources are endless is one such case. The implicit value in such mythology is that it allows consumers to continue exploiting their environment without the inconvenience of having to take responsibility for its health and integrity.

In contemporary New Orleans mythology, people who return to live in a hurricane prone region must believe that they are protected either by an ultimate deity, their government, luck, or through the more terrestrial notion of human ingenuity; that is, a false belief that a levy keeps them out of harm's way. Rees' (2002) focus is on the content of the modern mythologies. These are used to support consumption that rapidly exploits a limited natural resource base. It also compromises the sinks used to contain and recycle the accumulated waste products of human consumption activity. We agree entirely with Rees when he states that the mythologies themselves need to be exposed for all consumers to see and understand. Clearly, this is a necessary precondition to "acknowledging the primitive origins of human ecological dysfunction." However, we suggest that including the universal human tendency to use self-deception and denial in the first place is a better approach to convincing the global consumer why they have a tendency to believe in convenient myths. This is what we consider to be the truly

“inconvenient truth” about Al Gore’s purportedly inconvenient truth. This would allow both the consumer and the policymaker to understand what “*primitive origins*” actually means in terms of the daily consumptive and overexploiting activities they engage in.

We subtly differ with Rees on one point, however. We suggest that the mythological construction is itself a case of self-deception because it provides an individual with a convenient and more pleasant substitute view of reality. In fact, nearly 50 years of environmental activism designed to shed light on these modern destructive myths has not resonated with the typical consumer (Pratarelli, 2007). Had it been successful, both environmentalism as a movement and green party candidates as political instruments of change would not be marginalized as they continue to be. In fact, most people surveyed in a recent study with over 1000 respondents report that they are aware and believe environmental damage has occurred (Pratarelli et al., 2007). Moreover, this study and several others over the last 40 years have reported that more than 50 percent of survey respondents identify themselves as environmentalists or supporters of environmentalism (cf., Arbuthnot, 1977; Arcury, 1990; Gutfield, 1991; Krause, 1993; Milbrath, 1985). Yet, their environmentally friendly “green” behaviors are not part of a daily routine for most of them. If we are to achieve Rees’ call to “acknowledge” the primitive origins of our exploitative tendencies, then we will have to address head-on (expose) the thorny and politically unattractive issue of mass self-deception.

As a final note on the issue of self-deception, a small but substantial percentage of Americans sampled hold defeatist or nihilistic attitudes with regard to environmental damage (Pratarelli et al., 2007). There is no reason to believe that a similar component is absent in other modern societies as well. Reluctance to change their exploitative activity for some is justified because they believe there is no hope that change will make a significant difference in the final outcome involving climate-change. Although they are not a majority by any means, the nature of their self-deception is that their belief that a substantive change is not achievable is potentially false. The source of such a belief may be that there is an absence of compassion for the human race in general. Some people with this attitude claim to be aware of environmental damage and understand the causal relationship, but actively choose to pursue self-interest because they are

genuinely indifferent to human survival. Therefore, their logic is that there is no point to trying in the first place.

“Seiz[ing] conscious control of our collective destiny”

We turn now to the second of the two issues identified at the outset; taking control of our future by achieving environmental sustainability—balancing the inputs and outputs—so that no resources are depleted below replacement levels. This has been identified recently by the United Nations as one of the most pressing problems facing modern civilization (United Nations, 2002). Rees (2002) and many other environmentalist writers have argued the same point for nearly a century (Leopold, 1933; Carson, 1962; Ehrlich, 1968; Hardin & Baden, 1977; Pratarelli, 2003; Rees, 2002; WorldWatch Institute, 2008).

In this last section, we will try to outline how modern humans living in a global community might take control of their collective destiny. If we presuppose that failing to “[acknowledge] the primitive origins of human ecological dysfunction” acts as a roadblock to “seiz[ing] conscious control of our collective destiny”, then we must similarly make the assumption that achieving sustainability means global citizens and their collective governments accept that human nature and our need to consume must be brought under control. In shorthand: if human nature is our problem, then human nature must be brought under control. Yet, how has human nature been controlled in the past?

Clearly, the consequences to ourselves, other species, and the global ecosystem as a whole—should we not achieve balance sooner than later—is beyond science’s ability to predict. While no one can accurately forecast the future, there are ample indicators in the environmental and earth sciences literature of conditions that are worsening. Therefore, the question that needs to be asked of any program to achieve sustainability through “seiz[ing] conscious control of our collective destiny”, is how do we (1) identify those actions (behaviors) that lead to a better and sustainable future, and (2) put into place the mechanisms that will actualize those behaviors by capitalizing on globalization or other tools to help legislate the necessary policy changes. This is where the political roles of government, democracy, diplomacy and a spirit of mutual cooperation

and respect for human dignity as well as global ecological integrity will be needed most. To their credit, several people have pointed out that the most exploitative societies/countries must lead by example (Biriwasha, 2008; Gore, 2006; Jensen, 2006). Yet, the problem is that greater wealth and opportunity and individualism generates more motivation to protect what one already has; hence the reluctance of Americans to sign on to the Kyoto Protocol and similar international attempts to mitigate climate change.

There are too many approaches proffered thus far to changing human consumptive attitudes, so our goal is not to list and assess the efficacy of each one. Clearly, if any published proposal had been successfully implemented, some measurable change in human activity or environmental decay would have been noted over the last 50 years. Instead, we are more concerned with examining the principal assumption needed for success and then operationalizing the method of selecting what works and what does not from the countless solutions that might be available. In contrast to many popular environmentalist authors, we suggest that foremost among the assumptions required to seize conscious-control of human destiny is accepting that the *artificiality of modern life*—that which is most often cited as the cause of environmental decay (cf., Orr, 1992, 2004; Louv, 2005; McKibben, 1989; Wilson, 2002; Gore, 1993; 2006; Jensen, 2006)—is in fact the natural and direct product of our biological motives to survive. In other words, everything that is happening IS in fact natural. It is not the fault of our modern educational system as some suggest (Orr, 1992, 2004; Louv, 2005), nor is it the fault of capitalist greed and corporate misinformation (Ehrlich & Ehrlich, 1998). Similarly, it is not the fault of a failed human spirit or mischievous politicians (Gore, 2006; McKibben, 1989), nor is it the fault of conventional religions or governments reluctant to support or legislate measures to control overpopulation. The artificiality of modern human life, as many popular writers claim in their diatribes, is in fact not artificial at all, but the predictable result of a large innovative brain set free in a planet-sized petri dish with no restrictions or regulatory mechanisms to control its overexploitative tendencies (Pratarelli, 2003).

Thus, we disagree entirely with Mr. Al Gore that the true culprits of the climate-change debacle are multinational corporations and corrupt neoconservative politicians. They are indeed one of a

multitude of elements that have collectively contributed to climate-change and other environmental decay, but they are neither the sole or principal culprits. Instead, the totality of human consumptive activity (which includes that of the commercial interests and governments who act on behalf of public consumers) must be seen and recognized as being wholly responsible for climate-change. Individual consumers globally—6.8 billion of them—must recognize their personal and individual contribution rather than conveniently assigning blame to easy and convenient institutional targets.

Provided that such an assumption were taken seriously through re-education and public information campaigns, how might members of social and political institutions, or voters themselves assess the efficacy of policy changes that affect consumption? The answer has actually been available for quite some time, but the instruments have not been readily available to the public. Moreover, their value has been disputed or denounced entirely by corporate detractors. Several instruments, such as Rees' Ecological Footprint Analysis (EFA) and others were designed with a single purpose in mind; to quickly estimate the input and output values of resources being consumed. Additionally, they compute the sinks that absorb the waste products of human consumption activity (Wackernagel & Rees, 1996). Tools such as EFA are sufficiently general that they have been applied to an individual, a family, an institution, community or a whole nation-state. Willingness to apply them with forethought means that an individual accepts (1) that there is a problem with overexploitation, and (2) that they have become educated to understand that their resistance to accepting change is a natural product of a predisposition to self-deceive; that is, everyone is prone to denial. "Seizing conscious control" of our human destiny is simply reduced to a practical/operational matter involving program evaluation and/or taking personal inventory of one's lifestyle, values and attitudes. EFA and similar assessment tools can be made readily available through public information campaigns as some European Union members have already attempted to do. Such public information methods can be institutionalized as a part of the globalization efforts of governments, private enterprise and non-governmental organizations. They await only the political will to do so, which brings us full circle back to the acknowledging of a need to do so as we addressed in an earlier section.

Conclusions

Human problem-solving and decision-making cognitive processes reveal to us that most people are quick to take appropriate action to change future outcomes when they comprehend and thus justify the need to do so. They do this almost reflexively after they appreciate the causal nature of their choices and actions. Human nature alone is the root cause of poor environmental decision-making and destructive behavior. Thus, if human beings can accept this truth, then they can begin the process of understanding/justifying why there is a genuine need to take control of their future. With that understanding firmly in hand, the methods of “seizing conscious-control” will arise just as naturally because the (human) cause and (environmental) effects relationships will become transparent. Presently, the extant research on human behavior and attitudes regarding the environment clearly show that the links between cause and effects are not understood nor appreciated by the majority of the public. Part of the infrastructure that can positively impact such an appreciation of cause and effect relationships with regard to the environment, has to involve globalization. The transfer of knowledge can and must be expanded to include a “common” knowledge or culture of change shared in common among all global consumers.

The task of policymakers who claim to be environmental advocates is to convince citizens of the causal nature of excessive consumption and overexploitation. Environmental education and ecological literacy are most often cited as the principal means of changing people’s attitudes and behaviors. Yet, these movements have thus far been largely ineffective because their proponents generally fail to appreciate the social and cultural barriers facing individual citizens when they return to home or work. The marketplace is inundated with messages to enhance prosperity, social status, and material wealth. These messages tend to cohere with evolutionary motives that resonate loudly in the global consumer’s psyche. Common evolutionary motives include using signs of prosperity, social status, and material wealth to compete successfully for mates, to protect and develop cooperative alliances or warn potential rivals. It may also include strengthening or protecting one’s personal or communal territory (Taylor, 1988).

Excessive consumption, therefore, is buttressed by the human evolutionary predisposition toward self-interest. In the current capitalist global climate, the war between messages that promote

consumption and those promoting conservation and sustainability is being won by the corporations whose main interest is wealth accumulation in a finite environment. *Get it while it lasts...* is a business ethic that has proven resilient to change. Our ancestors never had any guarantees that resources would last forever. Thus, hominids evolved to be naturally opportunistic because surviving the moment was ultimately more important than making long range forecasts.

With an adaptive predisposition to act/plan for short term material gain, “seizing conscious-control” means transforming humans’ temporal focus from the short to long term. But again, this is not a natural mode of processing for our species. To do so requires considerable cultural adaptation and training to temporarily trump our biological drives. Long term planning is the underlying theme of developing sustainable economic and environmental policies, but it is essential that they factor-in the impact of biological principles such as self-interest, social competition, mate selection, etc.

While it is clear that a minority of individuals have adopted voluntarily simplistic and/or sustainable lifestyles, there is no compelling evidence yet found that suggests the practice can or will be adopted globally. This is because of the power and influence of the barriers noted earlier. The corporate/institutional forces working against individual citizens and their communities are committed to maintaining their financial profitability, but these can be overcome with policy changes provided the political will exists to do so. As Garrett Hardin pointed out years ago (1968), this is because corporations reap all of the benefits for themselves, yet distribute the costs/wastes/decay across all members of the population. The public, therefore, must simply become better informed about their contribution and relationship with commercial interests that serve them. In the end, “seizing conscious control of our collective destiny” may involve little more than seizing control over the corporate and institutional interests that control and abuse the privilege of using media and advertising over humanity and the global ecosystem.

Countless popular books on environmental issues and environmental governance (cf., Jensen, 2006; 2007; Brown 2007; Orr, 2004; Ehrlich, 2000; Gore, 1993, 2006; Wilson, 2002) are fond of

telling readers that the solution to global warming, climate-change and other environmental “effects” of human activity is to reduce consumption and waste, while controlling overpopulation. None of these ever address the *root causes* of human overconsumption and overpopulation. This is because it is far easier to write and photograph the many effects of consumption while avoiding the complex and thorny issue of human nature (Pratarelli, 2007). Showing image after image of melting glaciers, burning equatorial rainforests or mountains of accumulated toxic waste are comparatively easy and depersonalized. In contrast, a hard evidence-based examination of the biology of human motives forces individuals to look at themselves and their personal decision-making. This is not the way to earn money selling one’s books, movies, or running for public office.

Avoidance of the root causes is, by the operational definitions in the extant psychological and philosophical literature, one of many forms of self-deception. We suggest that the global avoidance of understanding the root causes of human overexploitation of the planet should be viewed as a case of mass self-deception and denial. Ultimately, a frank discussion of environmental problems facing the planet and our species will have to deal head-on with the role of globalization in accelerating the process of environmental decay. We propose that consciously and deliberately injecting the effects of mass self-deception into the fundamentals of globalization is immediately necessary to redirect the focus of public discussion away from the safety and popularity of environmental effects. This might open the door to discussing research and policy that impacts the root causes of consumption, waste, and overpopulation. Together, one hopes that such an approach leads to a public “acknowledgment” of the “primitive origins” of our overexploitation of natural resources, which ultimately nurtures our ability to “seize conscious-control of our collective destiny” (Rees, 2002, p.249).

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