



Ecological economics in 2049: Getting beyond the argument culture to the world we all want



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ABSTRACT

Ecological economics (EE) was originally envisioned as a transdiscipline with the following core characteristics and goals: (1) a focus on the primary goal of sustainable wellbeing of both humans and the rest of nature; (2) three broad sub-goals of sustainable scale, fair distribution, and efficient allocation; (3) intelligent pluralism and integration across disciplines, rather than territorial disciplinary differentiation; (4) concern with the functioning of the interdependent system of humans embedded in the rest of nature from an evolutionary, whole systems perspective; (5) an emphasis on the development of valuation techniques that build on a broad understanding of the interaction of built, human, social and natural capital to produce sustainable wellbeing. These characteristics and goals make ecological economics applicable to some of the major problems facing humanity today, and especially to the problem of improving humanity's wellbeing and assuring its survival within the biosphere. Going forward EE must move further beyond the argument culture to finally become the meta-paradigm that it was originally envisioned to be. It can use its tools and vision to enable society to overcome its addiction to the current unsustainable growth paradigm and make the transition to the world we all want.

1. Introduction

Ecological Economics (EE) as a formal, transdisciplinary, field of study began in 1989 with the first issue of this journal. Of course, its roots go much further back (Røpke, 2004, 2005). Here, I explore the influence that EE has had over the 30 years since 1989, and the potential to influence the next 30 years out to 2049.

It is, of course, difficult to trace the influence of ideas on individuals and societies, and this assessment is necessarily subjective, but backed up with the data I can bring to bear and informed by my personal experience of being associated with the journal and the society from its inception.

First a bit about the historical roots of EE and its original intentions.

2. Pre -1989

Ecological economics has historical roots as long and deep as any field in economics or the natural sciences, going back to at least the seventeenth century (Costanza et al., 2014). Nevertheless, its immediate roots lie in work done in the 1960s and 1970s. Kenneth Boulding's classic *The Economics of the Coming Spaceship Earth* (Boulding, 1966) set the stage for ecological economics with its description of the transition from the 'frontier economics' of the past, where growth in human welfare

implied growth in material consumption, to the 'spaceship economics' of the future, where growth in welfare can no longer be fueled by growth in material consumption but must focus on the sustainable wellbeing of the entire spaceship. This fundamental difference in vision and worldview was elaborated further by Herman Daly (Daly, 1968), who recast economics as a life science, akin to biology and especially ecology, rather than a physical science like chemistry or physics. The importance of this shift in 'preanalytic vision' cannot be overemphasized. It implies a fundamental change in the perception of resource allocation, human and other species' wellbeing, and the interdependent nature of the global ecosystem. More particularly, it implies that the focus of analysis should shift from market-based production and consumption to interdependent ecological and economic systems and their coevolution over time.

3. 1989–2019

Ecology and economics share the same Greek root, *oikos*, meaning 'house'. Ecology literally means the 'study of the house', while economics means the 'management of the house', where the house is taken to be the world. Thus ecological economics (EE) implies studying and managing the world in an integrated way, taking full advantage of our accumulated knowledge and understanding of both the natural and the social parts of the system.

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EE was thus conceived as an integration and synthesis of economics and ecology – not the disciplines as they existed at the time, which were seen as too narrow in their conceptions of the issues – but of the study of economic and social systems embedded in and interdependent with their ecological life support systems. As the first sentence on the first page of this journal’s inaugural issue put it:

“Ecological Economics addresses the relationships between ecosystems and economic systems in the broadest sense. These relationships are the locus of many of our most pressing current problems (i.e. sustainability, acid rain, global warming, species extinction, wealth distribution) but they are not well covered by any existing discipline” (Costanza, 1989).

After 30 years, these problems are, unfortunately, still current and (except perhaps for acid rain) are getting more pressing with each passing day. They are, however, much higher on the political and policy agenda now than they were in 1989, and EE may have had some role in raising that awareness. More on this later.

To address these issues, EE was conceived as a different approach to science and management. Rather than conceiving it as a single new discipline or paradigm based on shared assumptions and theory, it was instead conceived as a transdiscipline that integrated and synthesized tools, theories and ideas from across the spectrum of existing disciplines and also welcomed new ideas that had no disciplinary home. It was conceived as a pluralistic ‘metaparadigm’. Rather than creating and defending a single new discipline or paradigm, it sought to allow a broad, pluralistic range of viewpoints and models to be represented, compared, and synthesized into a richer understanding of the inherently complex systems it sought to understand and manage (Norgaard, 1989). It represented a commitment among academics and practitioners to learn from each other, to explore new patterns of thinking, and to facilitate the derivation and implementation of effective economic, social, and environmental policies. Within this pluralistic metaparadigm, traditional disciplinary perspectives are all useful inputs. Ecological economics therefore includes some aspects of neoclassical economics, traditional ecology, psychology, environmental impact studies, and other disciplinary perspectives as components. It also encourages completely new, more integrated ways to think about the linkages between ecological and economic systems. It facilitates the integration and synthesis of new and emerging fields of study like behavioral economics, positive psychology, earth systems science, multi-level selection theory, and many more. It is based on pluralism, but recognizes that “all models are wrong – but some are useful” as George Box famously said (Box, 1976). It thus aims for ‘intelligent pluralism’ – recognizing the limits of all paradigms but also recognizing what ideas and perspectives are most useful for the task at hand – to build a world that can deliver sustainable wellbeing for humans and the rest of nature.

Ecological economics has also developed a solid institutional base. After numerous experiments with joint meetings between economists and ecologists, the International Society for Ecological Economics (ISEE) was formed in 1988 and currently has over 2000 members worldwide. The journal of the society, *Ecological Economics*, published its first issue in February 1989 and currently publishes 12 issues per year, with an impact factor taking it to the top one-fifth of all economics and all environmental journals. The first major international conference was held in 1990 at the World Bank in Washington, DC. Following that conference, a workshop was held that resulted in an edited book laying the groundwork for the field (Costanza, 1991). The first chapter of the 1991 book synthesized the “Goals, agenda, and policy recommendations for ecological economics” (Costanza et al., 1991). Much has changed, but much is the same – in particular the basic transdisciplinary, co-evolutionary, intelligently pluralistic worldview of ecological economics. We need it now more than ever.

4. Basic principles

What does it mean that EE is a *transdiscipline*? It is not a sub-discipline of economics or ecology or any other academic discipline. It

recognizes that any one discipline is not enough to understand or manage the complex, highly interdependent system we now inhabit. This requires the transcendence of disciplinary boundaries and a collaboration between disciplines to solve complex problems and build a shared vision of the world we all want.

It requires the recognition that humans are a part of nature, not apart from it. It requires understanding the world as a complex, interdependent whole system, not as a series of lightly connected or disconnected pieces. It requires the recognition that the economy is embedded within society, which is embedded within the rest of nature.

It also requires a better understanding of wellbeing and sustainability. What really contributes to wellbeing? What are the relative contributions of material standard of living, social, cultural, and community interactions and institutions, and ecological life-support systems? How can we assess the wellbeing of the whole, interconnected system of humans and the rest of nature? How sustainable are various configurations of the system? How do we define, assess, and measure wellbeing and sustainability?

5. Integrated vision, analysis, and implementation

To solve these problems requires the integration of three basic elements (Fig. 1):

- (1) **Vision:** developing an adequate understanding of how the world is (our scientific understanding of how the complex system of humans and the rest of nature functions) and a vision of how we would like the world to be (our shared vision of a desirable future);
- (2) **Tools and analysis:** analytical tools and techniques capable of creating and deepening this understanding (e.g. systems analysis and modelling); and
- (3) **Implementation:** developing new institutions (e.g. common asset trusts), policies, and strategies (e.g. societal therapy)

To achieve a transdisciplinary synthesis, EE must go beyond the tendency in modern industrial culture to cast every problem as a dichotomous choice between right and wrong, us and them.

6. Beyond the argument culture

We live in what Deborah Tannen has called “the argument culture” (Tannen 1998). In this culture, even the most complex, problems are cast as polar opposites. All discussions are cast as debates between two extremes in which one side is correct while the other is wrong. The media, law, politics, and especially academia are all caught in the argument culture and it is getting worse. While there is nothing inherently wrong with debate and direct confrontation on some topics, the problem is that this does not work for all topics. The complex problems that ecological economics focuses on require a more multifaceted, complex approach—one that encourages real dialogue and does not cast every discussion as a zero-sum, win-lose, either-or dichotomy.

The argument culture encourages creating and protecting disciplinary boundaries on the intellectual landscape. Sharp boundaries between disciplines, unique languages and cultures within disciplines, and lack of whole-system perspectives makes problems that cross disciplinary boundaries very difficult, if not impossible, to solve. There are also large gaps in the landscapes that are not covered by any discipline.

Ecological economics, as a pluralistic transdiscipline, encourages moving beyond the argument culture. It tries to create an intellectual culture where the boundaries between disciplines move to the background and the problems and questions are seen as the defining landscape. This transdisciplinary perspective provides an overarching coherence that ties disciplinary knowledge together. It addresses the increasingly complex problems that cannot be addressed within the disciplinary structure. In this sense, ecological economics is not an alternative to any of the existing disciplines. Rather it is a different way of

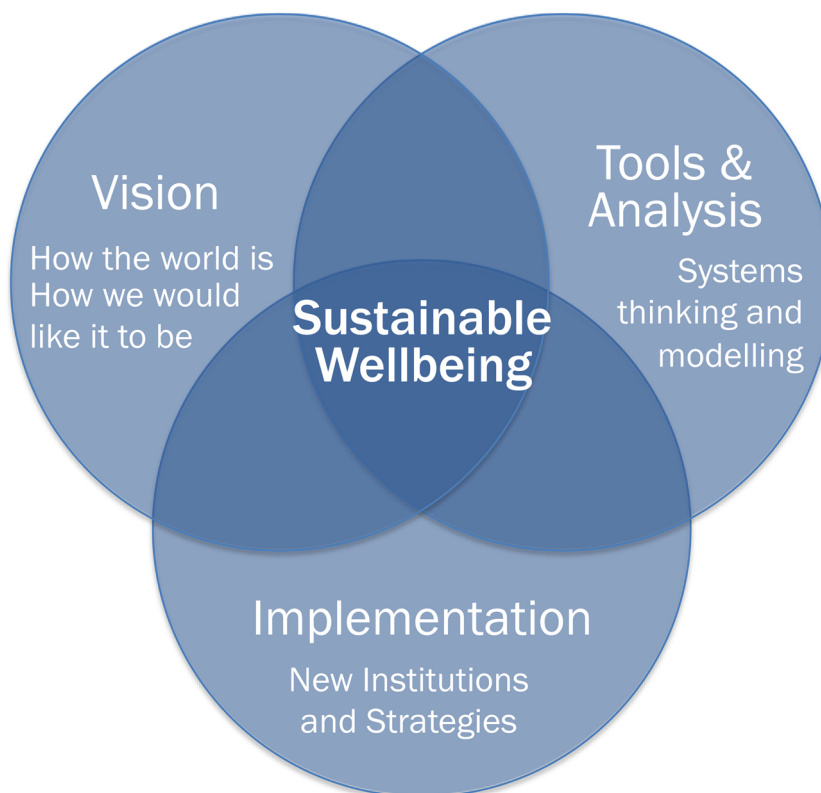


Fig. 1. Three elements that must be integrated to achieve sustainable wellbeing.

looking at a problem that adds value to the existing approaches and address some of their fundamental deficiencies. It is not a question of ‘conventional economics’ versus ‘ecological economics’ in the typical dichotomy of the argument culture. It is rather conventional economics as one input (among many) to a broader and richer transdisciplinary synthesis, which is ecological economics. While disciplinary tools may be appropriate at some scales for some problems, transdisciplinary approaches are needed to help determine where, when, and for what they are appropriate and how to apply other tools when needed. This transdisciplinary way of looking at the world is essential if we are to achieve the goals of a sustainable wellbeing society.

7. Worldview and goals

Ecological economics starts with the observation that the human economy is a subsystem of society, which in turn is a subsystem of the larger ecological life support system. It recognizes that humans are a part of this larger ecological system and not apart from it. Humans have shaped and modified their supporting ecosystems since the time of their appearance as a species, sometimes sustainably, sometimes not (Costanza et al., 2007). In the past, this human presence (the economic subsystem) was relatively small in scale compared to the size of the rest of the supporting ecosystem. In the last century, due largely to the utilization of fossil fuels, the human subsystem has expanded so dramatically that it is now a major component of the overall system. Unlike the situation in the majority of human history, we now live in a relatively ‘full’ world and have entered a new geologic epoch some have called the “Anthropocene” (Daly, 2005; Steffen et al., 2007). This changes everything. In a full world context, the goal of the economic subsystem can no longer be simply expansion and growth with little regard to the rest of the system. We must now consider the whole system and the goal must shift from economic growth to a truly sustainable development of the entire “spaceship earth”. Growth implies increasing in quantity or size, while development implies improvement

in quality without necessarily increasing in size (Daly, 2005). In a full world context, the goal must shift from creating ‘more’ to creating ‘better’ – to create a sustainable and desirable future.

This shift in primary goals and vision for the future has profound implications for analysis, policy, and action across the full range of academic disciplines and human activities. For example, if one’s goals include ecological sustainability then one cannot rely on the principle of ‘consumer sovereignty’ on which most conventional economic solutions are based, but must allow for coevolving preferences, technology, and ecosystems (Norton et al., 1998; Beddoe et al., 2009). One of the basic organizing principles of ecological economics is thus a focus on the complex interrelationship between ecologically sustainable wellbeing (including system carrying capacity and resilience), socially sustainable wellbeing (including the distribution of wealth and rights, social capital, and coevolving preferences), and economically sustainable wellbeing (including allocative efficiency in the presence of highly incomplete and imperfect markets). The complexity of these many interacting systems that form the biosphere means a very high level of uncertainty. Indeed, uncertainty is a fundamental characteristic of all complex systems involving irreversible processes, and ecological economics focuses on this type of uncertainty. More particularly, it is concerned with the problem of assuring sustainable wellbeing *under uncertainty*. Instead of locking ourselves into development paths that may ultimately lead to ecological, social, and economic collapse, ecological economics seeks to improve wellbeing and maintain the resilience of the highly interconnected socio-ecological system. This may be done by conserving and investing in natural and social capital assets in a balanced way with investments in human and built capital (Costanza and Daly, 1992; Costanza et al., 2014).¹

¹ To be clear, describing these assets as “capital” in no way implies that they can or should be privatized or commodified, as some critics mistakenly assume. It does imply that they are essential contributors to sustainable human wellbeing (Costanza et al., 2014)

Ecological economics thus focuses on a broader set of questions and goals than the traditional disciplines (Daly, 1992). Here, again, the differences are not so much the newness of the questions or goals, but how to find integrated solutions. They can be stated as *both* questions and goals since they represent both complex problems requiring further research to fully understand and fundamental sub-goals necessary to achieve the overarching goal of sustainable planetary wellbeing:

- **1. Sustainable Scale:** assessing and ensuring that the scale of human activities within the biosphere are ecologically sustainable; how do we stay within the biophysical planetary boundaries?
- **2. Fair Distribution:** distributing resources and property rights fairly, both within the current generation of humans and between this and future generations, and also between humans and other species; and
- **3. Efficient Allocation:** efficiently allocating resources as constrained and defined by (1) and (2) above, including both marketed and non-marketed resources, especially social and natural capital and ecosystem services.

Quoting again for the first article in the first issue of Ecological Economics:

“There is probably not one right approach or paradigm, because, like the blind men and the elephant, the subject is too big and complex to touch it all with one limited set of perceptual tools” (Costanza, 1989, pg 2).

and

“The most insidious form of ignorance is misplaced certainty.” (Costanza, 1989, pg 3).

8. 2019–2049

Have these ideas taken hold over the last 30 years? Arguably, I think they have, at least among liberal and progressive individuals, thinkers and policy makers. What we are experiencing in society today is the evolution of worldviews and their interconnected institutions and technologies (Beddoe et al., 2009). The dominant existing “western” culture is based on a consumerist worldview with maximizing growth of the economy (GDP) as the primary path to change and improvement. Significant change will require alternative worldviews and selection pressure to speed the transition. How might this happen?

One way to think about this comes from the work of Paul Ray and Sherry Anderson, who have been surveying Americans and categorizing them into alternative worldviews (Ray and Anderson, 2000; Ray, 2008). They have grouped Americans into three broad worldviews: (1) Modernists (M)—the dominant worldview of markets and economic growth—50% of the population in 2008; (2) Traditionalists (T)—a nostalgic appeal to earlier (often more religious and racist) times—15% of the population in 2008; and (3) Cultural Creatives (CC)—a worldview based on sustainability, equity, and sufficiency—35% of the population in 2008. CC’s are “disenchanted with” owning more stuff... materialism... status display and the glaring social inequities of race” (Ray and Anderson, 2000). The worldview of EE most closely corresponds to the CC worldview.

These percentages have been changing rapidly. In 1965 CC’s were a mere 3%, M’s 50%, and T’s 47% of the population. We thus have a measure of how fast basic cultural worldviews have been changing in the US, and a “theory of change” that may help understand historical behavior and forecast how and when a major cultural transformation might occur. For example, if current rates of change of cultural worldviews continue, at some point the fraction of the population that is motivated by the CC/EE worldview will come to dominate and (assuming a democracy!) will begin to change goals, rules, policies in ways that more directly support the CC/EE worldview and goals.

One might call this combination of worldview, institutions, and technologies at multiple levels of organization a “socio-ecological regime” (Beddoe et al., 2009). Socio-ecological regimes change when “tipping points” are reached, often requiring a crisis as a trigger. However, like other evolutionary processes, cultural evolution is prone to path dependence, multiple equilibria, lock-in, and traps (Costanza, 1987; Arthur, 1988; Costanza et al., 1993). Many historical civilizations have collapsed due to their inability to escape these processes (Tainter, 1988; Costanza et al., 2007; Diamond, 2006). For example, the ancient Maya developed elaborate trade networks, elites, and cities that lost resilience to recurring drought cycles and eventually collapsed (Diamond, 2006; Heckbert et al., 2014).

On the other hand, one unique feature of cultural evolution compared to biological evolution is that it is “reflexive” in the sense that goals and foresight can affect the process (Richerson and Boyd, 2008; Hands, 2013). Reflexivity is very important and too often ignored, but it is critical to understanding the change process in human-dominated ecosystems. As Beddoe et al. (2009) note:

“To a certain extent, we can design the future that we want by creating new cultural variants for evolution to act upon and by modifying the goals that drive cultural selection. If our societal goals shift from maximizing growth of the market economy to maximizing sustainable human well-being, different institutions will be better adapted to achieve these goals. As we learn more about the process of cultural evolution, we can better anticipate the required changes and can more efficiently design new institutional variants for selection to work on”

This can radically speed up the change process. The rapid rise of *Homo sapiens* is a result of its ability to rapidly change behavior through cultural rather than biological evolution. The transition from “frontier economics” to “spaceship economics”, from the current “modernist” and “traditionalist” world views to the “cultural creative”/ecological economics (CC/EE) worldview is well under way, and the work of ecological economists has contributed greatly to this ongoing evolution. It remains to be seen whether the CC/EE worldview, institutions, and technologies can overcome the M and T worldviews. Recent political trends certainly seem to be a step backward, but I contend that the CC/EE worldview now represents the majority worldview, both in the US and globally. Some support for this contention can be found in a recent public opinion survey of Australians showing that a large majority prefer a “community wellbeing” scenario to more business as usual scenarios (Chambers et al., 2019). What then, is preventing the transition?

The problem is that societies, like individuals, can get trapped in patterns of behavior called social traps or “societal addictions” that provide short-term rewards but are detrimental and unsustainable in the long run. Examples include our societal addiction to inequitable over-consumption fueled by fossil energy and the “growth at all costs” economic model – the M and T worldviews. To overcome this societal addiction is going to take more than simply pointing out its problems. It is going to take “societal therapy” to overcome this addiction (Costanza et al., 2017). Learning from therapies that work at the individual level, one of the most effective techniques is to first focus on life goals – what are society’s life goals and how do we build broad consensus on those goals. It will require a rebalancing of effort away from only pointing out the dire consequences of current behavior (without denying those consequences) and toward building a shared vision of a positive future and the means to get there.

At the societal level, making the transition to a sustainable and desirable future will not be easy and will require a broader and more nuanced conversation and consensus building about societal goals than has so far been the case. This will require moving beyond the argument culture, as EE has advocated. The UN Sustainable Development Goals (SDGs) are a huge step in this direction.

In many ways humans are locked-in, trapped, and in a very real sense “addicted” to the current regime. Growing knowledge of how to overcome individual addictions may help if that knowledge can be

scaled up to the societal level. Evidence suggests that directly confronting addicts with their problems in an effort to scare them into changing often leads to denial and reactance, and is therefore often counterproductive (Costanza et al., 2017; Bacevic, 2019; Roth, 2019). Yet this is exactly what many scientists, activists, and even ecological economists currently do at the societal level regarding issues like climate change, overpopulation, overconsumption, and inequality. Presenting evidence about risks is important, but how that evidence is presented and contrasted with values and positive goals is critical if we hope to change behavior at either the individual or societal levels (McAfee et al., 2019).

What is necessary to implement the EE agenda and vision in the coming 30 years is to fully engage the larger society in discussing and sharing alternative futures and building consensus on preferred futures. Putting future scenarios out to the public in the form of public opinion surveys (Costanza et al., 2015; Chambers et al., 2019), dialogs, media events, and other approaches can do this, but this is a largely unexplored area. There is ample room for creative design and testing of a range of societal therapies. Scaling up what works at the individual level may be an important path to more effective societal therapies that will allow humans to build a sustainable and desirable future together. EE has developed the tools and visions to support this therapy. The challenge is to implement the therapy to make the transition to the sustainable and desirable future we all want.

To make this transition will require an alliance much broader than EE. It will require an alliance of all the many individuals, governments, NGO's, academics, businesses, and other groups that recognize that sustainable wellbeing needs to be the guiding goal going forward rather than unsustainable GDP growth. Such a Wellbeing Economy Alliance (WEAll) is forming with the requisite broad participation (Costanza et al., 2018) and is rapidly gaining support and momentum.

If this is successful, we can look back from 2049 on 30 years of struggle (and occasional relapse) to a world that meets EE's goals and agenda. It will be a world that is finally solidly within planetary boundaries, a world that is far more equitable and just, a world that meets everyone's basic needs, and a world that uses all its diverse resources efficiently and fairly. It will be a world of truly sustainable wellbeing for humans and the rest of nature.

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