

Chapter 2

A Barcelona School of Ecological Economics and Political Ecology



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The first 21 years of my life were spent in Barcelona (all of them under General Franco's regime, since I was born in 1939). The following 14 years I spent in Oxford, Stanford, in Andalusia and again in Oxford (St. Antony's College) until 1973. In between, long stays in Cuba, Peru and Brazil and some periods in Paris, with the publishing house of Ruedo ibérico. At 35 years of age and feeling rather defeated by the lack of "transitional justice" in Spain after Franco's death, I came back to Barcelona, with a chair in the new Universitat Autònoma (UAB) in Economics and Economic History, which I held until I was 70 years of age. I continued my travels in the sabbatical years, to Oxford in 1984–1985, Stanford again in 1988–1989, to Ecuador (the Flacso in Quito) in 1995–1995, to Yale University in 1999–2000 and in the meantime also often to India after my first visit in 1988. My interests and my books followed this trajectory, first some books on agrarian history and land conflicts in Andalusia, Cuba and Peru between 1968 and 1977, then between 1984 and 2022 many books on ecological economics and political ecology.

Influenced by agricultural energetics and ecological anthropology, my first articles on energy and agriculture were published in the late 1970s. It was not until the early 1990s that I could start teaching outside the Faculty of Economics at UAB because a new degree course in Environmental Sciences had opened up in the Faculty of Sciences, where I taught Introduction to Environmental Sciences (with Jaume Terradas) and also Environmental and Resource Economics for another 15 years. In the mid-1990s, Dr. Giuseppe Munda, with a recent doctorate from the University of Amsterdam with Peter Nijkamp and having become an expert on multi-criteria evaluation, joined the UAB (pushed by Silvio Funtowicz to do so), and he suggested in 1997 that we should start a doctoral program in ecological economics. The Faculty of Economics was less open to the idea than the Department of Geography (with David Saurí, who held a doctorate from Clark University in the

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USA). And this is how we began in 1997, with a group of students from different countries and disciplinary backgrounds, including Roldan Muradian, Fander Falconí, Jesús Ramos Martín, Daniela Russi, Begüm Özkaynak ... and some visiting professors, among whom was Roger Strand. The chapters of this book trace part of the history of this doctoral program until today. We were all very brave to engage on this path, particularly the students. After a few years, the program was very properly housed at the new ICTA building in the UAB, and the teachers came to include internationally famous scholars such as Jeroen van den Bergh, Mario Giampietro and Giorgos Kallis, all of them ICREA professors.

While ecological economics was not taught with its name at the UAB until the mid-1990s, it dates from 10 years before, the mid-1980s as a field of study with an international society, the International Society for Ecological Economics (ISEE), and a journal, *Ecological Economics*. After some informal meetings in Stockholm and Barcelona, the society held its first meeting in Washington DC in 1990. A seminar of a few dozen people at Wye Island nearby organized by Bob Costanza led to a defining publication, *Ecological Economics: The Science and Management of Sustainability*. The disciplinary origins were varied, with dissident economists that followed from Kenneth Boulding and Nicholas Georgescu-Roegen, and systems ecologists (often trained by Howard T. Odum). Systems ecologists such as Charlie Hall soon contributed to ecological economics with tools like the EROI (energy return on investment). This early story was competently summarized by Röpke (2004).

Among the founders and early presidents of ISEE, there were ecologists like AnnMari Jansson and Bob Costanza and dissident economists like Herman Daly, Dick Norgaard, and myself. Other presidents have included John Proops, Charles Perrings, Peter May, John Gowdy, Bina Agarwal, Marina Fischer-Kowalski, Sabine O'Hara, Clovis Cavalcanti, Joshua Farley, Roldan Muradian and Erik Gomez-Baggethun. The last three are (according to their first university degrees): one economist, one biologist and one ecologist, but they have been ecological economists from an early age. In contrast, the founding members became ecological economists.

There are strong regional societies in Latin America, Europe, the United States, Canada, Australia, New Zealand and India. I am a co-founder of three of them. The journal has had as editors Bob Costanza, Cutler Cleveland, Richard Howarth, Stefan Baumgärtner and, most recently, Begüm Özkaynak, and it has been a fundamental research outlet for the practitioners of ecological economics. Some criticisms have been made, not without reason, about the relative absence of feminist economics in the journal and the relative abundance of mainstream economic articles.

The Beijer Institute at the Royal Swedish Academy of Sciences played a confusing role in the establishment and development of ecological economics in the early 1990s. It continued with Anna-Mari Jansson and her student Carl Folke (today a top author by the number of citations in ecological economics), with a focus on energy and human ecology, but it was in the early 1990s transformed to a Beijer Institute of Ecological Economics, which left out ecological economists in favor of mainstream environmental economists such as Karl-Göran Mäler. Another mainstream environmental economist active in the ISEE at the beginning was David Pearce, who in

1994 was asked to leave the editorial board of the journal. These were not clashes of personality but intellectual conflicts. Pearce promoted “weak sustainability” (all forms of capital – manufactured capital, human capital and “natural” capital – could be measured in the same units and substitute for one another) against the more robust view from ecological economics favoring physical indicators and strong sustainability (a requirement that natural capital be preserved in physical terms so that its functions remain intact).

Robert Ayres had already in 1969 introduced (with Allen Kneese) in an article in *The American Economic Review* the accounting of materials in the economy (Ayres & Kneese, 1969), which later flourished in the Vienna group led by Marina Fischer-Kowalski of studies of the social metabolism measuring the material and energy intensities of the economy (e.g., Fischer-Kowalski & Haberl, 2007). This is ecological economics, overlapping with industrial ecology, urban ecology, and agroecology, which are practiced by many other groups.

The debate and tension between, on the one hand, the economic accounting of environmental damages and of nature’s services to humans, and on the other hand, their biophysical assessment, has persisted in ecological economics. Sometimes even those most favorable to a multi-criteria biophysical and social assessment have opted for an economic methodology, such as a modified gross domestic product (GDP), that would produce a single indicator and a single number (e.g., the calculation of the Index of Sustainable Economic Welfare (ISEW) was popular for many years). Sometimes, those who started from human ecology and energetics have gone over to the economic counting of the loss of so-called natural capital thinking that this would impress policymakers.

However, the basic tenets of ecological economics still go so against the grain that efforts to bridge the gap and communicate with mainstream economists and so-called policymakers have sometimes led to contentious compromises. Such tenets are:

- (a) The economy is embedded in physical and social realities; it cannot be analyzed as a system of its own. The economists’ view of the economy as a circular system (that Georgescu-Roegen called “the merry-go-round”) in which producers bring their products to the markets where they are bought by consumers who receive their income for the work or services they provide to producers, is wrong. The industrial economy is clearly not circular, it is entropic. It is increasingly entropic with still an increasing role in absolute terms for fossil fuels.
- (b) Externalities are not so much “market failures” as systematic cost-shifting (to use K. William Kapp’s term, in 1950, in his book on what we could now call business ecological economics). Firms systematically avoid including environmental liabilities in their accounts.
- (c) The damages that the human economy does to Nature (and the contributions that the human economy does sometimes to the reparation and regeneration of Nature) must be counted in a variety of valuation languages. The livelihood values, sacredness, relevance to future generations, and full ecological values cannot be translated into monetary terms. They are not commensurate with

money (as Otto Neurath already discussed in the 1920s in the “socialist calculation debate” against Ludwig Von Mises and F.A. Hayek).

- (d) An ecological macroeconomics does not focus on GDP growth but on the social and physical sustainability of the economy. Hence, proposals since 1970 for a “steady state” (originated by Herman Daly) and more recently a vigorous debate on “prosperity without growth” and the need for a period of Degrowth of the rich economy.
- (e) Demography is not a field of study outside ecological economics, on the contrary, ecological economists have knowledge and opinions on demography, favoring in general a stop and a certain decrease in the human population. They are familiar with indicators like the human appropriation of net primary productivity (HANPP) and the “ecological footprint”. At the same time, they are very much aware of the enormous inequalities in the exosomatic use of energy and materials by humans.
- (f) Far from international trade contributing to prosperity, it has contributed to inequality and exhaustion of materials and sources of energy, through “ecologically unequal exchange” that should be measured with physical indicators (Hornborg & Jorgenson, 2010). This creates a link from ecological economics to world systems theory and its concept of frontiers of commodity extraction and waste disposal.

2.1 From Ecological Economics to Political Ecology

At the UAB, ecological economics, perhaps because of my own interests in agrarian conflicts from 60 years ago, has overlapped to some extent with Political Ecology. This is what characterizes the “Barcelona school” in my view. Some senior members of ICTA are mainly concerned with environmental public policies, some with the study of the metabolism of society, some with ecological macroeconomics and “degrowth.” There is a variety of interests at ICTA in the environmental social sciences, including a very strong group in ecological anthropology with Victoria Reyes Garcia (who was my student as a first-year undergraduate, some time ago). But the overlap between ecological economics and political ecology (as the study of socio-environmental conflicts) is one of our specialties at ICTA. One first product was the article by Gerber, Veuthey and myself, comparing conflicts on tree plantations in Cameroon and Ecuador (2009). The link between ecological economics and political ecology arises because conflicts (what we call “ecological distribution conflicts”) are born from the growth and changes in the social metabolism, which are studied and quantified by ecological economics (and also by industrial ecology). Such conflicts are often “valuation contests”; the social actors of such conflicts express values which cannot be reduced to economic accounting. Political power is used to impose some valuation languages (such as cost-benefit analysis, or monetary compensation for externalities) negating others.

To understand the link between ecological economics and political ecology, let us look first in more detail at the fact that the industrial economy is not circular, it is entropic. (Georgescu-Roegen, 1971). The enormous circularity rift or metabolic gap or “entropy hole” explains the march of the economy to the commodity extraction frontiers and, therefore, the increasing number of environmental conflicts gathered in the EJAAtlas that by January 2022 has reached 3600 entries.

It is fashionable to talk about the “circular economy.” This could be meant in two senses.

Introductory microeconomics is often taught in terms of what Georgescu-Roegen called “the merry-go-round between consumers and producers,” a circular scheme in which producers put goods and services in the market at prices which consumers pay; meanwhile, consumers (as providers of labour, land or other inputs or “factors of production”) get money from producers in the form of salaries, rents etc. and they buy, as consumers, the products or services that have been produced. The “merry-go-round” needs energy for running (energy which gets dissipated), and it produces material waste which is not recycled. This is left aside in introductory mainstream economics, or maybe it is introduced much later, in the analysis of the “intergenerational allocation of exhaustible resources” and in the treatment of externalities which are “internalized into the price system.”

As ecological critics of mainstream economics since the 1970s and 1980s, we thought that we were slowly convincing the public if not the professional economists that the “merry-go-round” representation of the economy was wrong. The economy is embedded in physical realities. However, to our surprise, the recent novelty is that, from industrial ecology and not only from economics, a circular vision of the economy is also preached. The geologically produced energy and the materials entering the economy are here taken into account, and the waste is very much present, but it is assumed that technical change may close the circle. The waste becomes inputs. The energy (dissipated, of course, because of the Second Law of Thermodynamics) is not a problem because it will come from current sun energy (not fossil fuels, which are exhaustible stocks of photosynthesis from the past). The circular supply chain is supposed to rule physically the economy. We know however that the actual degree of the circularity of the industrial economy is very low, and it is probably decreasing as formerly biomass-based economies complete their transition to an industrial economy based on fossil fuels in India and Africa (Roy & Schaffartzik, 2021).

Georgescu-Roegen in *The Entropy Law and the Economic Process* (1971) and other authors before and after him insisted on the fact that the industrial economy is not circular but entropic. This explains the growth of environmental conflicts at the extraction and waste disposal frontiers. This is lesson number one in a course of ecological economics and political ecology. Of all the materials entering the economy (fossil fuels, building materials, metal ores, biomass), by 2005 only about 6% were recycled (Haas et al., 2015). There is no reason to expect an improvement to have happened since 2005. The low degree of circularity has two main reasons. First, 44% of processed materials were used to provide energy and are thus not available for recycling. Second, socioeconomic stocks were growing at a high rate

with net additions to stocks of 17 Gt/year. In the last 120 years, the human population grew five times (from 1.5 to 7.5 billion) while the inputs processed in the global economy (biomass, fossil fuels, building materials, metals) grew approximately thirteen times, from 7.5 to 95 Gt per year (Haas et al., 2015). The economy is becoming less and less circular. The expansion of stocks requires, once in place, a persistent input of materials and energy for their maintenance and operation

Therefore, the industrial economy marches all the time in search of energy and materials towards the commodity extraction frontiers and to the waste disposal frontiers, often inhabited by humans and certainly by other species. (Scheidel et al., 2018, 2020; Hanaček et al., 2022). Hence the growth in the number of Ecological Distribution Conflicts (EDC), and as a response the strength of the environmental justice movements. Sometimes, I have called these movements “the environmentalism of the poor.” This does not mean that all poor peasants and indigenous people are environmentalists and behave like environmentalists. It means that in the conflicts over resource extraction and in the conflicts over waste disposal, poor people are often in favour of nature conservation because they live on nature’s contributions very directly. That’s why Chico Mendes opposed deforestation in Acre in Brazil in 1988 and why in Peru indigenous people in Bagua in 2009 refused to give up their communal lands with their minerals and oil to be placed on the market. Many died. Not too far, in Yanacocha, in Cajamarca, near where Pizarro met Atahualpa, peasants opposed Newmont gold mining because it pollutes the water. Elsewhere, poor people oppose eucalyptus plantations for pulp export. My book *The Environmentalism of the Poor* (2002) collected a few hundred of such ecological distribution conflicts, and my new book *Land, Water, Freedom and Air – The Making of the World Movement for Environmental Justice*, drawing on the EJAtlas, collects many more across the world (Temper et al., 2015, 2018). The protagonists of such conflicts display incommensurable values. When they stop metal mines or coal-fired power plants or object to oil palm plantations, they carry out “degrowth in practice.”

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