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COMMENTARY

A flower in full blossom? Ecological economics at the crossroads between normal and post-normal science☆

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Abstract

In this paper we address some potential difficulties ecological economics (EE) might be confronted with in its further development. EE has evolved with intent to tackle the urgent problems human society faces today, in particular the ones related to environmental and ecological issues. To deal with such problems, a new concept of science different from disciplinary, normal science seems to be necessary. We will present post-normal and mode-2 science as two examples of such a concept. The importance of this new concept does not lie in the fact that it provides a new framework for knowledge production. Rather, it lies in the fact that the set of values behind it can be seen as a 'regulative principle', i.e., as a collection of ideas and principles with the potential to guide the actions and attitudes one takes with respect to the urgent problems in a transparent way, helping to become aware of and making explicit one's own normative assumptions. EE can be seen as one manifestation of this regulative principle. On the other hand, it is increasingly developing into a normal science with its special set of institutions, what endangers it's status of being mode-2. Besides EE, there are other frameworks that try to set up sort of a 'sustainability science'. It is important to integrate all these initiatives in some way, at least on an abstract level. Otherwise the conception of a 'new mode of science' dealing with sustainability becomes as inflationary as the term 'sustainability' itself and the discussion of this concept may go on without leading to any conclusion. It is not necessary and effective to employ too many resources being engaged in the discussion of the status of a 'sustainability science', however defined. What counts is to take actions and to try to solve these pressing problems—whatever label may be given to such processes—and to be engaged in a open-minded and self-reflecting way, aware of one's own system of values, shortly, according to the regulative principle given by the values behind mode-2 science.

Keywords: Ecological economics; Knowledge; Science; Regulative principle; Post-normal; Mode-2

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1. Introduction

Today, EE can be seen as a young, nourishing and successful science that contributes to the solution of problems approaches in other disciplines have been less able to cope with. It evolved out of a wide range of ideas and views, especially related to a vivid criticism of neo-classical economics and its shortcomings in dealing with environmental problems.

EE is primarily engaged in the search for solutions to some of the most urgent problems that society faces today and less in the quest for insights and rigour in a narrow field. It thus has to deal with issues of far-reaching consequences where uncertainty is high and where the normative questions of value cannot be avoided. This goes well beyond the scope of 'normal' disciplinary science in the sense of 'puzzle solving' (Kuhn, 1970).

Scientific processes taking place in such a comprehensive and solution-oriented context of social relevance may be described in the framework of post-normal science (Funtowicz and Ravetz, 1991), or more generally, in the framework of mode-2 science (Gibbons et al., 1994). These are characterised by a transdisciplinary[1] approach and involve highly normative issues and statements.

The relevance of the notion of mode-2 or post-normal science itself may be questioned (Weingart, 1999), but it is not necessary or fruitful to be engaged in a lengthy discussion on the factual importance of such concepts. What counts is that the main features and values behind them can be seen as constituting a 'regulative principle' (see Section 2.1. for a definition).

In spite of its claimed status as a post-normal science, EE is evolving in direction of a 'normal' science. An indication of that is its growing institutional framework well in line with the one a 'normal' science usually builds up. This helps EE to become further established, but it involves the danger that certain implicit norms become 'effective' in this field and that it increasingly dissociates itself from outsiders and other sciences, what could erode its openness and the ability for reflexivity and self-criticism.

Given this situation, EE seems to be at the crossroads. Either it further develops into a nourishing, interdisciplinary but basically mode-1 science, or it actively tries to be a manifestation of the regulative principle behind mode-2. Although EE is on the best way to pursue the first possibility successfully, we think that its main strength lies in the second one and that the problems to be solved make it important and necessary to actively head in this direction.

In the following, we will shortly describe post-normal and mode-2 science and argue that they are basically the same with respect to their crucial points and that these can be understood to constitute a regulative principle (Section 2). Then we will have a closer look at EE in the context of these concepts (Section 2.5) and point out potential difficulties it may face in its future development (Section 3). Finally, we discuss some strategies to address these problems and present some concluding remarks (Section 4).

2. Mode-2 and post-normal science

2.1. Preliminaries

In this section, post-normal and mode-2 science are introduced in a descriptive way since concise formal definitions are lacking. As an example, we present EE as it has evolved up to now. We are not trying to engage in a philosophical discussion on the theory of science and we are aware to be using some concepts in a vague way. But we think that despite the differences in the concrete formulations of post-normal and mode-2 science, the essential content is the same, and that it is worth to mention this since EE may profit from the findings of the literature on mode-2 up to now not discussed in its context, and especially because it is of no use to carry on the discussion on potential new modes of

[1] Transdisciplinarity (Definition taken from Gibbons et al., 1994): Knowledge which emerges from a particular context of application with its own distinct theoretical structures, research methods and modes of practice but which may not be locatable on the prevailing disciplinary map.