Ecological Transition: From Academia to Society

Anouk Barberousse[1]
[1]Sorbonne Université Paris, France

Keywords: ecological transition, role of researchers

I. INTRODUCTION

The purpose of this small paper is to explore the prospects of the academic world to contribute to ecological transition. First, I will present how this contribution may be conceived *in abstracto*, as if researchers could exclusively devote their work to the ecological transition from now on, without delay. Then, I will move to a more realistic description of how researchers work and of the relationship between research and society, emphasizing the difficulties of the contribution of the academia to the ecological transition. Third, I will focus on technological knowledge and innovation.

1. On the one hand, ecological transition can be viewed as a set of problems raised by societies, to be solved with the help of the academia. Societies have to find out ways to anticipate, mitigate, and adapt to climate change and the degradation of biodiversity. More precisely, societies have to transform urgently in ways that will affect everyday life of most people on Earth. Both general and concrete answers to climate change and the degradation of biodiversity may provide researchers with renewed research questions fostering interdisciplinary. Here, 'interdisciplinaty' not only means joining disciplinary forces but collaboration among researchers of different disciplines and involves time-consuming dialogue and reframing of research questions. Thus, ecological transitions might appear as an opportunity for new, original, and useful research.

On the other hand, society at large has much to gain from academia. Scientific knowledge is like a constantly growing golden mountain that continuously produces useful by-products for societies. As for ecological transition, items from the golden mountain of scientific knowledge have to be combined in new ways. Whereas they usually come in a piecemeal fashion, as they answer well-defined and clearcut problems, they must be attuned to each other because ecological transition demands a *systemic* approach. Decarbonation cannot be separated from the protection of biodiversity-rich ecosystems or from social desirability. Scientific habits have thus to evolve. Besides looking for a systemic approach, researchers also have to switch from general (or theoretical) to *locally relevant* answers, namely, solutions to transition problems that are understandable by local deciders and citizens (at least in democratic societies). Now, researchers usually look for *general* solutions to well-posed problems. If they want to contribute to ecological transition by relying on their golden mountain, they thus have to change habits and travel on unusual paths.

2. As well-known by its members, the functioning of academia is based on growing specialization, which guarantees the reliability of scientific papers (or is, at least, one way to reach this important aim). Second, researchers are usually reluctant to tackle questions coming from outside the internal dynamic of their discipline: questions coming from society are, *prima facie*, considered with suspicion. Researchers are trained for 8 to 15 years (including post-doc positions) to become the best in their discipline, publishing in the best scientific journals: they do not gladly change habits. Even more so: they (usually) do not change habits. The same could be said about interdisciplinarity: even most research institutions claim that they foster interdisciplinarity, in practice, it is well-known that interdisciplinary work is usually not published in the best journals and is a powerful brake to most scientific careers.

Thus, from the researchers' point of view, the systemic approach, without which the ecological transition is doomed to fail, is seen as an obstacle to their careers. This is a major challenge to retrieving treasures from the golden mountain of scientific knowledge and use them to transform societies and economies. The useful, interdisciplinary knowledge that is relevant to ecological transition is difficult to transform into prestigious publications.

3. Whereas the production of fundamental knowledge in climate science and ecology is subject to the above-mentioned challenges, the production of technological knowledge and its development in innovation and industrial production is less liable to these strictures. First, technological research often has a multi-disciplinary component. Second, its development into innovation cannot be obtained unless researchers take users' needs into account, which are exogenous to academia. At last, researchers have to talk with other people than their colleagues, such as specialists in intellectual property and businessmen. The production of technological knowledge may thus serve as a model to the production of useful and relevant scientific knowledge for the ecological transition.

Two objections might come to mind against this hypothesis about technological knowledge and innovation. First, it might look like an instantiation of a dubious 'techno-optimistic' ideology. Second, this view of technological knowledge and innovation might seem to be more inspired by market mechanisms than by anything coming from within science. The second objection sometimes comes with the view that *social* innovation is more needed than technological innovation.

The first objection relies on the assumption that the opposition between 'techno-optimism' and 'techno-pessimism' is a sound way to envision our future. However, it is not: it is permeated by moral judgments that aren't dragged down by the careful, scientific analysis of relevant data about the production of technological knowledge, people's reactions to innovation, and so on. Thus, it should not be used in discussions about costs and benefits of innovations, whose goal is not primarily moral. The second objection assumes that the production of technological knowledge in 2023 might abstract from economic dynamics. This does not seem to be the case.

Even though the academia may find in the production of technological knowledge a model for building a useful and relevant contribution to the ecological transition, another, important aspect of its ruling has to be emphasized: scientific progress does not come out on command. Contingency and serendipity are key elements in academic life and there is no hope that they might disappear even when finding out sound transition pathways is increasingly urgent.

II. Conclusion and Perspectives

The Institute for Ecological Transition is the instrument of Alliance Sorbonne Université, whose aim is to involve researchers into the definition of pathways toward decarbonation and the protection of biodiversity. Through collective expertise, it places its bets on general-scientific culture and co-construction of transition pathways with citizens as ways to overcome disciplinary challenges and achieve the needed systemic approach.