
The triple climatic promise of soil organic carbon: mitigation, neo-classization and bioeconomization

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Résumé

Theme : Climate requalification in the language and thinking of the bioeconomy, particularly with a view to sustainably managing biomass production (Juerges and Hansjürgens, 2018), is one of several ways of conditioning soil organic carbon. However, these bioeconomic recharacterisations of soil carbon are not yet routine in France. For example, a recent book on the bioeconomy (Gohier et al., 2023), published by the Coopération agricole (the umbrella organisation for French agricultural cooperatives), contains no paragraph on soil organic carbon. Despite this, some actors in the bioeconomy are taking up the issue and incorporating it into their strategies, particularly in the Grand-Est region. We are seeking to better specify this nascent bio-economic requalification and what it has helped to produce in recent years in France, in particular an experiment in carbon credits from field crops, to be sold on voluntary carbon markets.

Theoretical approach : Using the theoretical approach of the economics of techno-scientific promises (Joly, 2013, p221-235), we propose to analyse the climate control of organic carbon by distinguishing three major promises, seen as a continuum: 1) that of a carbon sink making it possible to reduce atmospheric CO₂, supported by carbon cycle sciences (which we call ‘mitigation’), already studied in part by King et al. (2018); 2) that of additional remuneration for farmers, through a monetary incentive, supported by neoclassical economists (of the climate and agriculture) (which we call ‘neo-classization’); 3) that of a new brick in the bioeconomy, supported by economic players (cooperatives, innovation groups, etc.) exploiting agricultural biomass for non-food uses (which we call ‘bioeconomicization’).

Our distinction of three promises is supported by a distinction of three ‘thinking-styles’ in the sense of Ludwik Fleck (Zittel, 2012), including a language specific to scientific communities and their ways of formulating metaphors, images and ‘pre-ideas(1)’. As in an artistic style, the ‘thinking-styles’ also induces a hierarchy of values for certain features, objects or attributes. For example, we would say that the promoters of the bioeconomy value the object of the biorefinery and the co-products with a view to optimising the uses of biomass. These values and representations influence the choice of research funding in a given field, and the way in which groups are cemented together. This distinction between thinking-styles helps us to characterise each promise and what it produces, so that we can then better demonstrate their reciprocal influences, and finally, the strength of their alliance in the construction of a carbon credit. The same stakeholder or collective can have several styles.

From a conceptual point of view, promises are distinct from scientific statements: ‘promises

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are by definition speculative' (Joly, 2013, p221-235), whereas scientific statements refer to results based on codified and rigorous scientific methods and evidence systems. The promise aims to mobilise funding for research and development and to convince a wide range of stakeholders of its validity. It has at least two ingredients: i) it is presented as a solution to a given problem: 'the more urgent and widely recognised the problem, the more attractive the promise, and the more legitimate the measures taken' (*ibid*); ii) it must be credible, not only with scientists, but also with a wide range of stakeholders: government agencies, private companies, banks, etc. (*ibid*). Each of these three promises thus generates scientific statements, which mobilise communities of actors that we are trying to distinguish. Nevertheless, when they are articulated or brought together, they mobilise a wide range of arguments and players, giving them a force of conviction and action.

Qualitative method: we are analysing qualitative data collected during our thesis between 2019 and 2023, using two methods. The first uses documents produced by the players: scientific and legal texts, reports, speeches at conferences, press files, etc. The second uses semi-structured interviews with the actors (here anonymised). The second consists of semi-structured interviews with the players (here anonymised), focusing on three main aspects: i) their professional missions related to decarbonisation in arable farming and the reasons that lead them to account for organic carbon ii) the choice in favour of the 'Arable Farming' carbon credit in the 'Low Carbon Label' scheme iii) the interviewee's relations with other actors in order to understand the distribution of roles and the influences of some on others. In addition, informal interviews at agricultural trade fairs and conferences provided additional information on chronological elements, technical tools and strategies.

Plan : First, we want to distinguish between each promise concerning soil organic carbon (mitigation, neo-classization, bioeconomicization), in terms of speculative ideas, scientific statements and the actors who make them. This will enable us to better show how they form a continuum by articulating and mutually reinforcing each other. Secondly, we will focus on a case study, seen as a result of this self-reinforcement: the collective construction of a carbon credit for field crops initially intended for voluntary carbon markets, as part of the "Label Bas Carbone". We will look at the actual alliance between the different styles/actors and the concessions made between them. We will also look at the way in which each promise is put to the test in the implementation of this scheme. In conclusion, we wish to make the disappointments and renunciations explicit, by characterising the gaps between the promises, the scientific statements and the implementation of a credit system in the field.

(1) For Fleck, these 'pre-ideas' are vague ideas, lacking in precision, attached to representations and prejudices, which influence the production of scientific facts (Zittel, 2012). For example, syphilis was linked to the idea of lust in nineteenth-century medical research.

Mots-Clés: Soil organic carbon, economics of techno, scientific promises, thinking, style