RESEARCH VIRUS

ENVIRONMENTAL TRANSITION

THIERRY LEBEL

THE CLIMATE QUESTION AND THE DIFFICULT DIALOGUE BETWEEN SCIENTISTS AND POLICY-MAKERS

PUG

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Series coordinator: Magali Talandier
Collection coordinator: Alain Faure
Publication manager: Sylvie Bigot
English translation: Harry Forster
Design: Catherine Revil

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ENVIRONMENTAL TRANSITION
A SERIES IN THE **RESEARCH VIRUS** COLLECTION

With growing awareness of the climate emergency and its environmental challenges, scientists are speaking out!

Under the aegis of the scientific council on the Green Capital and Transition, this new series of e-books offers previously unpublished articles by researchers from many backgrounds: hard science, Earth science, engineering, and human and social sciences.

In relation to the agenda of the scientific council – made up of almost 40 scientists representing a full range of disciplines – these short texts aim to disseminate knowledge on issues raised by environmental transition and its impacts.

All the way through 2022 publications in this series have reflected ongoing debate as part of European Green Capital status awarded to the city of Grenoble by the European Commission. Every month has seen a new topic addressed, including climate, atmosphere, energy, mobility, food and urban life.

Scientists are passionate people too. Their papers reveal their learning, but also cast light on the controversies affecting their subject and the sensitive nature of their work in research, with its tentative progress, doubts, puzzles but also its hopes.

Have a stimulating read!

THE CLIMATE QUESTION AND THE DIFFICULT DIALOGUE BETWEEN SCIENTISTS AND POLICY-MAKERS

THIERRY LEBEL, HYDRO-CLIMATOLOGIST (INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT, INSTITUT DES GÉOSCIENCES DE L'ENVIRONNEMENT, GRENOBLE)

The health crisis endured by humankind since the onset of the SARS-CoV-2 may be seen as a foretaste of the climate shocks that are poised to upset our lives in coming decades. This concerns both the socio-economic implications of such crises and the role played by scientific expertise in diagnosing problems and remedying them[1]. In the case of the Covid-19 pandemic, some scientists have done remarkable work explaining and popularizing the issues it raised, but outlandish, unfounded ideas have emerged too, some of which have been passed on or indeed amplified by the media and policy-makers. How, then, are scientists to cope with situations in which their truth runs counter to political agendas and short-term business interests, as well as upsetting the beliefs of the electorate.

The unprecedented pace of global heating, which is outstripping the ability of many species and indeed human communities to adapt, has forced climatologists to enter the public arena. In the early-1990s it still seemed possible to keep the situation under control: annual carbon-dioxide emissions stood at 27.7 gigatonnes, with 1,700Gt in all available to keep within the upper limit of a 2°C rise in the average global temperature. At the time it was plausible to project a soft landing for emissions over the coming century, given the rate at which emissions were increasing every year.

1. Descamps, P. & Lebel, T. (2020). Un avant-goût du choc climatique, *Le Monde Diplomatique* n° 794, mai 2020.

Reasonable discourse and schism of reality

Scientists thought, for a while, that they had done most of the hard work, in particular with the launch of the Intergovernmental Panel on Climate Change, in 1988, followed three years later by its first report. Deliberately adopting a 'reasonable' discourse, which made no attempt to conceal the uncertainties surrounding research on a complex subject, they succeeded in drawing public attention to the need to limit greenhouse-gas emissions. But 20 years later, in 2009, the Conference of the Parties in Copenhagen (Cop 15) foundered on the selfish attitude of rich countries and of China, who could not accept an agreement that made allowance for the concerns of the world's poorest nations. Yet these countries only account for a tiny share of emissions. Only 3% of overall global emissions originate in Africa, for example. At the same time the poorest countries are most exposed to the impacts of global heating, the vast majority of them being located in the Tropics. So they are already facing water shortages and heatwaves that render them almost uninhabitable.

This setback, among others, brought it home to scientists that policy-makers had yet to grasp the importance of what was at stake. John Holdren, Chair of the American Association for the Advancement of Science and advisor to President Obama, concluded that we would have to make great efforts to adapt, while enduring more suffering[2], unless we drastically reduced emissions, unquestionably the only way to avoid chaos. When the Paris Agreement was signed in November 2015 many spoke out condemning a "schism of reality"[3]; others hailed an historic achievement.

Unfortunately the first group seem to have been right. Emissions have increased, rising from 41.5Gt a year in 2015 to 43.1Gt in 2019, whereas they were supposed to drop by almost 10%. As a result we can only afford to emit another 700Gt to stay below the 2°C threshold (or half that amount to limit heating to 1.5°C). In its most recent synthesis report on the Nationally Determined Contributions[4]

2. Holdren, J. (2008). Science and technology for sustainable well-being, *Science* n° 319, 25 janvier 2008.

3. Schmidt, L. (2019). Écologie : la société contre l'État, *Alternatives Economiques* n° 397, 01/2020. https://www.alternatives-economiques.fr/lucile-schmid/ecologie-societe-contre-letat/00090871

4. Contributions corresponding to commitments made by the Parties to cut GHG emissions, initially at Cop 21 and then updated for Cop 26, in November 2021.

of Parties, the United Nations Framework Convention on Climate Change calculated that these NDCs would lead to a roughly 16% rise in emissions (compared with 2010), whereas in fact a 45% cut was needed over the relevant period to stay below the 1.5°C threshold[5]. To make matters worse none of the Parties meet their NDC commitments, prompting many scientists to endorse the idea that there really is a reality gap between words and actions.

In Germany and France the competent supreme courts – respectively the Federal Constitutional Court, in Karlsruhe, and the Council of State – upheld complaints[6] lodged against the government for failing to meet their international commitments, enshrined in national law. Worse still some countries or government agencies are casting doubt on scientific expertise, in a process tantamount to fostering ignorance. Witness the controversy surrounding a ban on the use of glyphosate (herbicide). A campaign has been orchestrated to discredit the body of research in this field, pandering to the demands of various pressure groups advocating short-term interests and profit at all cost[7].

General public in the grip of doubt

The effects of climate change are not uniformly apparent, leaving the general public to wonder, quite rightly, how urgent it is to act, what resources will be required and what sacrifices they will have to make. It is difficult for non-specialists to distinguish between what is rooted in proven science (notably the greenhouse effect or calculating the global equilibrium temperature) and what is derived from ongoing research, phenomena for which there is still no

5. UNFCC, Updated NDC Synthesis Report, FCCC/PA/CMA/2021/8/Rev.1

6. For further details of France's performance see the 2021 Annual Report by the High Council on Climate, https://www.hautconseilclimat.fr/publications/rapport-annuel-2021-renforcer-lattenuation-engager-ladaptation/
Regarding Germany, see the ruling by the Karlsruhe court, dated 29 April 2021, see https://www.bundesverfassungsgericht.de/SharedDocs/Pressemitteilungen/EN/2021/bvg21-031.html
For the ruling by France's Council of State, see https://www.conseil-etat.fr/fr/arianeweb/CE/decision/2021-07-01/427301

7. Nersesyan A. & Knasmueller S., Evaluation of the scientific quality of studies concerning genotoxic properties of glyphosate, for the NGO SumOfUs, 25 March 2021.

satisfactory explanation, or indeed potentially controversial causal hypotheses (such as the climatic hiatus in the 1950-70s[8] or the Gulf Stream possibly slowing down).

Looking more specifically at France, there is an in-grained shortcoming in the way the education system presents knowledge almost as a dogma. This is not a good way of preparing the public to find its way between a stable body of knowledge rooted in consensus (the matter of science) and other forms of knowledge still under construction (the matter of research). Fluctuations in political discourse on climate change, with changing majorities and daily news, also prevent people from making up their minds on an issue involving numerous factors, for which each one of us is partly responsible but to which the solution clearly depends on decisions taken at the highest level.

The experimental Citizen's Convention on Climate (2019-20) is testimony to the value and importance of a collective grasp of climate stakes. The mission of this citizens' assembly, instituted by President Macron, was to "to define a series of measures that [would] allow to achieve a reduction of at least 40% in greenhouse gas emissions by 2030 (compared to 1990) in a spirit of social justice". Some 150, randomly selected French people, with an average scientific background and no particular views on climate change, took part in an individual awareness-raising process coupled with group debate, enabling them to form an opinion. They made 149 suggestions, with genuine potential for achieving change, while skirting round several important issues such as a carbon tax or a shorter working week. The President had committed himself to take their recommendations as they came, but the bill ultimately drafted by French Parliament fell far short of the Convention's ambitions. Here again the influence of various lobbies – such as air transport, despite depending a great deal on public subsidies – severely hampered much needed progress. The government continues to subscribe to the goal of cutting GHG emissions by 40% by 2030, but the measures set forth in its Climate and Resilience bill[9] are in no way

8. Whereas the global temperature started to rise steadily in the 1910-20s, an almost 30-year pause in this trend was observed between the late-1940s and mid-1970s, giving rise to scientific debate on the role of possible internal causes (oceanic oscillations), as opposed to external causes (aerosol peak, solar activity). Climate-change deniers seized on the hiatus to muddy the waters.

9. Law n° 2021-1104, dated 22 August 2021 on Combating Climate Change and Building Up Resilience. https://www.legifrance.gouv.fr/eli/loi/2021/8/22/2021-1104/jo/texte

consistent with this objective, witness the response by the National Council on Ecological Transition (CNTE), the Council on Economic, Social and Environmental Affairs (CESE), the Upper Climate Council and the Citizen's Convention itself.

Many scientists have reached the bitter conclusion that their views carry little weight, if their findings conflict with the dominant socio-economic interests or might oblige government to take decisions that do not sit well with their core electorate. They must also come to terms with the emergence of social groupings which prefer to follow a guru than someone who questions the world, with beliefs mattering more than reason. Finally they are increasingly aware that misunderstandings and confusion are major impediments to constructive dialogue between them and society's various actors. Profound rifts in terms of interests, scales of value and practice often carry more weight than rational, fact-based argument.

Whistle-blower scientists?

Faced with the often contradictory expectations of their audience, scientists are struggling to decide how much to simplify the way they convey their learning, its limitations and uncertainties, in order to highlight the social implications of their discoveries. For in so doing they come to act as whistleblowers.

Some refuse to openly make such a commitment, convinced that an impartial, factual message is needed to guarantee a messenger's credibility and keep learning at a safe distance from its 'exploitation'. As Isaac Newton famously put it: "I can calculate the motion of heavenly bodies, but not the madness of people". Others, in contrast, have no time for strict neutrality given the huge, immediate implications of their research, in particular when it shows that some densely populated parts of the world may became uninhabitable if nothing is done. So in some sense warning an audience of the potential impacts of climate change means taking sides, and certainly going further than merely understanding the processes driving such change. Furthermore scientists have good reason to point out that short-term fixes are the wrong way to mitigate the impacts of global heating. Solutions, such as air-conditioning or artificial snow, entail additional emissions so, far from alleviating the problem, they actually make it even worse.

The essential point for scientists is to enable their audience to distinguish between scientific knowledge, speculation – key to any research work – and recommendation – a research scientist's civic duty. But they must bear in mind

that their message will pass through various filters which relate to the personality – background, beliefs, risk aversion – of individual members of their audience, and to their social status, particularly with regard to the conflicts of interest and turf wars to which that position may give rise. This being so, it would be a mistake to suppose that dialogue between scientists, policy-makers and the general public can be entirely objective and disinterested.

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