



ACADEMY



OF ATHENS

Research Center for Atmospheric Physics and Climatology



MARIOLOPOULOS - KANAGINIS FOUNDATION
FOR THE ENVIRONMENTAL SCIENCES



GLS *Treuhand*
Zukunftsstiftung
Landwirtschaft



Fondation
Charles Léopold Mayer
Pour le progrès humain

Triodos  Foundation

International conference

Science and policy in times of multicrisis and dissent:
Issues of framing, authority, evidence – and political-economic decision making
Academy of Athens, 15 - 17 May 2025

Report of the conference
to the European Parliament and the European Commission

To be presented at a round table discussion in Brussels on 24 March 2026

Programme of the conference, abstracts, presentations and video recordings: see
<https://ensser.org/events/2025/conference-documentation-science-and-policy-in-times-of-multicrisis-and-dissent/>

This conference focussed on the complex relationships between science and policy in this age of global multi-crisis. Many scientists claim that their evidence and conclusions are not heard by policy makers, while policy makers often claim that their policies and actions are "science-based". Autocratic governments even take control of science, manipulating it to serve their interests. However, the main complicating factor in the relationships between science and policy is a third party or the so-called 'elephant in the room', namely industry and commerce.

Since the mid-twentieth century, both science and policy have developed under the growing influence of increasingly powerful economic interests. As "science" has lost much of its earlier public authority and legitimacy, commercial interests – which have for decades been the biggest funders of scientific and technological R&D – have presented themselves as if pursuing only 'public good' knowledge and innovations, while concealing or denying their increasing control over scientific and technological R&D, investments, regulations and innovative trajectories. Moreover, scientific advice to policy-makers is often hotly contested, especially when policy actors and scientists disagree. However, policy decisions that are claimed to be justified by reference to scientific evidence and advice, often just serve short-term corporate and political interests rather than, for

example, the protection of public and/or environmental health and sustainability. The increased private commercial domination of scientific R&D has also led to promises of commercial competitive benefit driving R&D directions, almost irrespective of significant actual failures of the science to deliver. In the world of finance capitalism which prevails in the early twenty-first century, it is the investment in the R&D which counts as success, less so than the material outcomes.

The conference opened with a round table of scientists who gave brief sketches of their perspectives on the theme of the conference. Giuseppe Longo (Centre national de la recherche scientifique and Ecole normale supérieure, Paris) argued that for science to serve democracy, it must foster critical thinking and allow space for dissent. However, that kind of openness and tolerance is increasingly under threat, with several countries limiting dissent and with funding structures favouring majority thinking over independent, basic research that explores new ways of thinking. This was, for instance, the effect of the EU's project-based model, followed by individual countries' funding, despite the Lisbon and Nice agreements of early 2000, which asked the member states to support institutions and fundamental research. This trend of narrowing research agendas, combined with uncritical acceptance of dominant paradigms like genocentric biology or artificial intelligence, risks turning science into a tool of compliance rather than one of open inquiry.

For science to serve democracy, it must foster critical thinking and allow space for dissent

Current policymaking often struggles to phase out outdated or harmful technologies, as Vyvyan Howard (University of Ulster, Northern Ireland) made clear. For example, the fluoridation of drinking water continues, despite high-quality studies linking it to reduced IQ in children born from exposed mothers. The lack of public debate and the persistence of this practice suggest that institutional inertia and influential figures' reluctance to reverse long-held positions play a significant role in sustaining harmful practices. Overcoming such entrenched attitudes and hubris is, and will increasingly be, essential for responsible decision-making.

Panellist Ignacio Chapela (University of California Berkeley, USA) explained that there has been a long-standing tradition of dissent within science, from biotechnology to public education, which continues today with growing concerns about the lack of accountability and hubristic narratives. In Silicon Valley, biotechnology has become entangled with financial speculation, replacing scientific ideals of collective, critical inquiry with narrow commercial agendas. This reflects a historical pattern dating back to the 17th century, when science was tied to power and framed as a path to secular salvation through technological change. This narrative has always been - and still is - intertwined with incumbent powerful companies and institutions, and contributes to fear and the suppression of dissent.

Ricarda Steinbrecher (EcoNexus, UK) argued that the Precautionary Principle is crucial, especially for protecting the most vulnerable, who cannot avoid the harmful consequences of risky technologies and policy decisions. Yet policy-making is often driven by narrow interests and legitimated by using buzzwords like 'innovation' and 'progress' (used to trigger conditional reflexes), without asking: progress from where and toward what? This deepens existing crises by ignoring systemic connections and the integrity of ecosystems.

Independent scientists have been and are being intimidated and persecuted if their work does not serve powerful vested interests. This goes as far as threats of physical violence, as Larissa Bombardi (University of São Paulo, Brazil and Université de Paris, France) reported from her own experience after publishing her research into European-manufactured pesticides used in Brazil. She had to take refuge from her home country Brazil to Belgium. She was praised by the other panellists for her courage to speak out,

as Rachel Carson did, and for representing other scientists who suffer for their work but are unable to be heard.

Independent scientists are being intimidated and persecuted if their work does not serve vested interests

Pseudo-scientific criticism, suppression of publications, personal smear-campaigns, SLAPPs¹, withdrawal of funding and dismissal are other common weapons wielded against critical scientists. Many members of ENSSER have experienced those unscrupulous tactics. Policy makers and governments should help to counter that trend by standing up for independent science. The USA currently shows the opposite trend, with the government itself weaponising and politicising science in an attempt to silence dissenting voices.

The discussion with the panellists raised several important issues. In this time of crisis, there is a risk of narrowing our thinking and reinforcing dominant, often powerful, but biased narratives — like framing climate change solely as a problem of carbon dioxide and methane. While urgency is real, we must resist being funnelled into too narrow framings, technocratic solutions or funding policies that primarily serve powerful vested interests. For example, US scientists calling only for the restoration of their funding are not questioning deeper issues about the purpose and orientation of science. Without ensuring that there is space for collective critical reflection and inquiry, even — and maybe especially — in moments of emergency, the complex challenges we face will not be adequately addressed.

There is an urgent need to question the dominant narrative that artificial intelligence and technology will solve our crises, especially because those crises were created by the same uncritical reliance on technology. In agriculture, for example, powerful alliances like BASF-Google and Bayer-Microsoft reflect this trend. Public funds are increasingly funnelled into their high-tech 'solutions', a narrative endorsed not just by industrial organisations like Croplife International, but also by governments and institutions like the UN FAO, reinforcing a problematic cycle rather than addressing the underlying causes of the crises that confront us.

In areas like the biology of organisms, scientific paradigms often align with business interests, especially when profits are at stake. This can lead to mutual reinforcement between flawed theories and commercial agendas. While dissent persists, it is sidelined, and many scientists adopt reductive models — like viewing the brain as a computer — that conveniently support profitable technological narratives.

Private funding has overshadowed public support, leading to a dominance of corporate-driven science

In the first full session of the conference, the current relationship between science, policy and decision making was explained. Brian Wynne (retired from Lancaster University, UK) argued that science is increasingly deployed as a surrogate for weakened political authority in modern democracies. This reduces complex social and political issues to techno-scientific problems, excluding democratic debate and public input. The shift, since the 1980s, from public to corporate control of scientific research has gone largely unacknowledged. Scientific institutions have adapted to this shift, often prioritising corporate-driven innovation over public needs. As a result, the language of "science and policy" is misleading, since private interests now shape both. Wynne called for greater recognition of corporate influence in science and policy, which often escapes public accountability. Research funding is driven by vague commercial promises and narrow risk assessments, while broader social implications are ignored. Since the rise of

¹ Strategic lawsuits against public participation

neoliberalism, private funding has increasingly overshadowed public support for scientific research, leading to a dominance of corporate-driven science.

Academic science opens up debate, while official scientific advisors are expected to close down debate

Erik Millstone (retired from the University of Sussex, UK) highlighted that, while some claim that science and politics should remain separate, in reality, science is frequently and unavoidably politicized — though often in opaque and unaccountable ways. Scientific advisors to official policy-makers have radically different agendas and tasks from scientists working in academic contexts where, as one question is answered, more questions arise. Academic science opens up new issues to explore, new questions to ask and new ways of investigating them. But official scientific advisors are

expected to settle questions definitively and close down debate, so that more questions are *not* asked. Government ministers and e.g. European Commissioners want their scientific advisors to provide specific policy recommendations, not lists of uncertainties and alternative options. A far more honest, accountable and sustainable approach would begin by recognising that scientific assessments of risks are always framed by some set of prior, value-laden, context-dependent assumptions, that we can call 'risk assessment policy' assumptions or RAP assumptions. Science can and should make important contributions to policy-making, but it should be seen as sandwiched between two separate but often related sets of value judgements. One set, i.e. the RAPs, are up-stream, while down-stream assumptions influence for example judgements about how policy goals should be pursued, which measures to utilise, how rapidly and at what cost.

Under current arrangements, risk assessment policies are concealed rather than articulated explicitly, but also often set by nominally 'scientific' advisors, or by those who selected members of risk assessment bodies. Under prevailing conditions, key policy considerations and choices are left implicit and misrepresented as if they are purely scientific. Industrial corporations have captured many scientific panels and their RAPs. That is why so often they provide reassuring narratives. Making risk assessment policy choices explicit will require being as rigorous about the choice of questions asked as about the choice of answers given. RAP issues are always in play in regulatory science, but they are often unacknowledged, implicit and unaccountable. In practice, most RAP issues are being decided by scientific advisors who are routinely portrayed as 'independent', objective and decisive, but often they are closely aligned with industrial corporations. Policy-makers, e.g. government ministers and European Commissioners, want to use those scientific advisors as 'their shield', to help them to avoid having to take responsibility for controversial decisions. But science-based policy-making can only achieve and reconcile both scientific and democratic legitimacy if RAPs are made explicit and decided in accountable ways.

In practice, most risk assessment policy issues are decided by scientific advisors who are often closely aligned with industrial corporations

Thus, policy-makers, industrial players as well as scientists should not only take responsibility, but also be accountable, each for their own roles and their own values.

Irina Castro (University of Coimbra, Portugal) exposed the entanglement between knowledge production and commercial structures. In the last fifty years, science has been increasingly subsumed under corporate logics and power — first formally, as scientists in public universities became highly dependent on competition-based funding and corporate funding, and then in practice, through neoliberal imperatives like patents, market-metrics, and entrepreneurial roles. Rather than a neutral system, the economy is

Policy-makers, industrial players and scientists should take responsibility and be accountable, each for their own roles and values

understood as a societal infrastructure shaped by power and conflict, with elite institutions dominating scientific agendas. Under neoliberalism, the state shifted from public benefactor to market facilitator, pushing science toward commercial goals through funding cuts, labour insecurity and policy incentives that commodify research. Castro emphasised that the vast majority of research today is funded by private actors (and their vested interests). This trend undermines the collaborative, open ethos of science and alienates researchers, though it has faced

resistance. Reclaiming science as a public good calls for reinvestment in public funding and the rebuilding of democratic, accountable, inclusive scientific institutions.

In the second session of the conference, illustrative examples of science - policy interactions were discussed. A revolutionary new guidance document was developed by EFSA, concerning assessing the risks from pesticides, not just to people, but also to bees, but it has never been implemented by the EU because industry objected, as Barbara Berardi (Pollinis, France) explained.

Angelika Hilbeck (retired from the Swiss Federal Institute of Technology, Zurich) reported how she gave testimony in South Africa, contributing to a groundbreaking Supreme Court ruling in the case of the African Centre for Biodiversity versus Monsanto/Bayer and the government of South Africa. The Supreme Court of Appeals, after examining the evidence, reversed the authorisation of Monsanto's drought-tolerant genetically modified (GM) maize and ordered the South African government to make the legally required environmental impact assessment, which it had failed to do before it authorised the maize. That judgment is relevant to the EU, since GM industries submit near-identical applications to all regulators around the world, including those of the EU and the USA. Almost all regulators, including the EU's, have acted like the South African regulator and accepted at face value what the applicant corporations have said. But in South Africa, the court, in fact, demanded that the government comply with the law rather than rubber-stamp an industry assessment. Thus, the highest South African court set a precedent by acting independently from the government. It gave the Precautionary Principle some teeth, while in Europe it remains mostly window dressing.

Reclaiming science as a public good calls for reinvestment in public funding and the rebuilding of democratic, inclusive scientific institutions

The journalist Elena DeBre (Lighthouse Reports) reported about the 'Bonus Eventus' scandal, concerning a secret database of derogatory profiles of environmental advocates, scientists, politicians and others seen as opponents of pesticides and GM crops or supporters of organic and other alternative farming methods. Compiled by a public relations firm linked to Syngenta and other agrochemical interests, this database was

The highest South African court reversed the authorisation of Monsanto's GM maize, giving the Precautionary Principle teeth, while in Europe it is mostly window dressing

shared by the PR firm with regulators and industry leaders to pre-empt and undermine dissent, e.g. sabotaging a pesticide risk conference in Kenya.

Andrea Beste (Institute for Soil Conservation & Sustainable Agriculture, Germany) presented the case of soil science and policy. While EU-level soil policies are more progressive than those in most member states, regulatory proposals of the European Commission from 2002 onwards have still not been implemented due to continuous resistance from

agroindustry-aligned farmer organisations. Threatening politicians' careers by framing environmental action as a threat to jobs, and using flawed rhetoric like 'sound science' to justify continued use of pesticides, the agrochemical lobby ignores growing scientific evidence supporting the case for agroecology. Despite ample data to support better practices, political inaction persists, driven largely by entrenched interests, short-termism, and corporate pressure. Ultimately, the failure to implement effective soil conservation in the EU is less about any lack of knowledge about what harm has occurred and how it can be diminished, but more about wilful negligence and greed.

Explaining the case of genetically modified organisms (GMOs) and new genomic techniques (NGTs), Ricarda Steinbrecher (EcoNexus, UK) argued that here, narrow selective versions of science carry too much weight in policy, compared to agroecologic, social, ethical and other factors. Another characteristic of this field is that both scientific and general terms (e.g. 'cisgenesis', 'breeding', 'precision') are purposefully misused, redefined or degraded to obfuscate the picture, to diminish clarity and language necessary for meaningful debate, and to confuse or mislead the public, who can no longer make well-informed judgements. The European Commission's 2023 proposal to exempt the NGTs from EU GMO legislation contains criteria for considering NGT plants equivalent to conventional plants, but scientifically, those criteria are seriously flawed.

The failure to implement effective soil conservation in the EU is less about lacking knowledge and more about wilful negligence and greed

To date, the fate of this NGT proposal has not been finalised: the European Parliament, the member states and the Commission have not yet been able to reach an agreement about it. An online participant from Kenya commented that it is very important to Kenya what the EU decides to do with NGTs, because Kenya usually follows EU GMO policy.

Unlike the GMO field, where there is a lot of disagreement and dissent among scientists, climate science shows a far smaller degree of disagreement, although it does not reach consensus either. 'Scientific consensus' is a contradiction in terms anyway, since disagreement and criticism are fundamental to all of science. Jim Skea, chair of the Intergovernmental Panel on Climate Change (IPCC), explained that the IPCC was established to allow governments to have more influence on climate science, following contentious outcomes from its predecessor group of independent scientists. Its reports categorise scientific findings by levels of agreement and confidence, using probabilistic terms like 'likely' ($\geq 66\%$). A notable controversy, the 'Himalaya gate' glacier error, prompted an external review and the introduction of an error protocol. Recent emission scenarios have drawn criticism for their reliance on speculative technologies like BECCS (bio-energy with carbon capture and storage) and CDR (carbon dioxide removal), and for overemphasizing business-as-usual socio-economic pathways — only 5% concern substantial systemic changes. Moreover, political pressures shape how conclusions are framed, with governments insisting on presenting emission reductions as conditional scenarios rather than concrete policy imperatives.

Scientific consensus is a contradiction in terms

Thus, although the IPCC makes a valiant attempt to present the available science in exact detail to governments, it is clear that most governments do not acknowledge the fundamental uncertainties and incompleteness of the science, be it in climate change or in any other field. In general, although more research into many pressing issues is necessary, the continuous call by politicians for more

research is often an excuse for not accepting responsibility and taking action. On many issues, there is sufficient reliable knowledge to take effective action. Many critical issues do not bear further delay of political action.

In the course of this session, another case of science - policy friction emerged. It became clear that organic farming is crucial for preserving the soil, combatting the effects of climate change and protecting biodiversity. Governments are often reluctant to support organic farming explicitly, suggesting that consumers are not able or willing to pay the higher costs of organic products. Considering that organic farming is not only crucial in the three above mentioned areas, but also supports human health, the question arose why it is the consumer who has to bear the extra costs. Why are human health, biodiversity, protection of soil and climate luxuries that only a few can afford? How can policy start a shift in this regard?

The third session looked at the future, considering a more fruitful science-policy relationship. Christine von Weizsäcker (Federation of German Scientists and German Society on Human Ecology) argued that policies should be based on "the best available scientific knowledge" and not on what is referred to as "sound science". The "best available scientific knowledge" is in alliance with the Precautionary Principle, which is a pro-poor strategy: the poor do not have the money to buy their survival in the global market competition. They urgently need climate action, biodiversity protection and sustainable use. They need human rights (which include the right to science) and they need precaution. They cannot buy their way out of damage and catastrophes, "discounting the future", as the rich can. The term "sound science", on the other hand, is interpreted to mean that prevention is possible, but only if the causal chain has completely been proven and if there is scientific consensus (which cannot really exist anyway). Thus "sound science" in practice means: postponement of governance; reversal of the burden of proof; and the poor cannot discount the future and suffer. This is the opposite of the Precautionary Principle.

The continuous call by politicians for more research is often an excuse for not accepting responsibility and taking action

The poor need the Precautionary Principle: they cannot buy their way out of damage and catastrophes

Ephraim Pörtner (Critical Scientists Switzerland and University of Zurich) and Ulrich Loening (retired from University of Edinburgh, UK) explained why science as currently conceived is often part of the problem, and how it could become part of the solution. The view that science is apolitical, or that it can and should avoid politics at all costs, remains widespread. However, researchers who believe they are

working within an apolitical, value-neutral version of science are often simply ignoring the ways in which dominant presumptions frame their questions, concerns or goals. In light of the troubling history of science's involvement in colonialism and imperialism, we must reject the Baconian approach to science, which is focussed on control and dominance. Instead, we should adopt 'pluriversal' perspectives that embrace the many different ways of seeing, understanding and experiencing the world. We must rethink, reclaim and radically transform science by uniting strands of critical enquiry under the banner of 'convivial science': plural forms of science rooted in mutual responsibility and civilised disagreement that connect us to each other and to our ecological relationships.

Plural forms of science rooted in mutual responsibility and civilised disagreement are needed

John Ioannidis (Stanford University, USA) approached the same question from another perspective, pointing out that most published scientific research across diverse areas does not meet standards of reproducibility and transparency. This creates challenges and a large waste of effort and undermines trust in science. There are many ongoing efforts to improve the reproducibility, transparency, and eventually the credibility and usefulness

of scientific evidence. More than seven million scientific papers are published every year, but the system is largely driven by 'publish or perish' incentives. Proper qualitative incentives and research assessments could help in enhancing research design, conduct and outcomes.

In the round table closing the conference, Petros Varelidis (Ministry of the Environment, Greece) made the point that science is only one parameter in political decisions. Industrial interests and social perceptions are some other parameters, and politicians must strike a balance between all parameters if society is to accept their decisions. Political decisions may and sometimes should therefore deviate from what science suggests. Politicians do not always acknowledge this, as it means that they cannot shift the responsibility for their decisions onto scientists. Edward Henry (US Department of Agriculture) argued that governments need to consider the perspective of the scientists who advise them: e.g. inductive and deductive reasoning in science may give different pictures of an issue; short- and long-term scientific considerations may be different too.

FP10 has a democratic blind spot: citizens are not involved in its agenda-setting

Aude Lapprand (Sciences Citoyennes, France) drew attention to the EU's research agenda, pointing out that there is neither transparency nor democracy in the agenda-setting of the 10th Framework Programme for Research and Innovation (FP10, due to run from 2028 - 2034). So far, the programme's agenda seems to focus mainly on security, defence and competitiveness; FP10 may even be dissolved into a competitiveness fund. Citizens are not involved in its agenda-setting: that is a conspicuous "democratic blind spot". This results in political choices that are not likely to be supported by citizens: e.g. there is no indication that citizens are interested in 'smart cities'. Citizen conventions (with mandatory adoption of recommendations into at least 10% of the budget) could help to overcome this.

David Gee (Brunel University, London), in the round table, presented some proven interventions that have helped reduce harm and inspired less harmful technological innovations:

1. Be patient and persist: it can take 30 to more than 100 years to replace a widespread and profitable but harmful technology.
2. Finance independent scientific research via levies on the emerging harmful products, distributed by panels of politically independent scientists. This is a model established by the US government after the evidence of the threat of CFCs (chlorofluorocarbons) to the ozone hole emerged in 1985, with the rate of the levy rising as the evidence of harm moves from "possible" to "probable" to "confirmed". This provides a rising source of medium term public investment, as well as a continuing incentive for the harmful agent manufacturers to innovate into less hazardous agents.
3. Protect the independent scientists who, after producing the inconvenient truths of evidence of harm, are severely harassed.
4. Promote better and less harmful innovations which almost always, eventually, replace the harmful technology anyway (e.g. asbestos substitutes).
5. Encourage compensation claims that often initiate change.
6. Make greater use of the legal protection provided by the Precautionary Principle.
7. Use the power of TV documentaries and other investigative journalism to expose the harms and galvanise society to act.
8. Make more and wider use of the laws on transparency and access to documents and to the courts that the Aarhus Convention, the USA's and other Freedom of Information laws and the EU's Access to Documents rules make possible.

Gee also called for establishing an award for harassed early warning scientists, i.e. scientists who warned at an early stage for potential harm of substances or technologies, and were intimidated for doing so but shown right later.

Recommendations

1. The EU, particularly the European Commission, should make efforts to comply with its statutory obligation to respect and implement the Precautionary Principle and stop violating it and allowing it to be undermined by industry. The Precautionary Principle is crucial for protecting all the vulnerable who cannot protect themselves.
2. All players in the science-policy relationship, i.e. policy-makers, industrial players, universities and scientists, should not only take responsibility, but also be democratically accountable, each for their own roles and their own values.
3. Policy makers and governments should protect independent science and independent scientists against intimidation and harassment, including those who criticise their policies and offer dissenting perspectives.
4. Science-based policy-making can only achieve and reconcile both scientific and democratic legitimacy if risk assessment policies (RAPs) are made explicit and are accounted for.
5. Policies should be based on "the best available scientific knowledge" and not on biased claims of "sound science".
6. Science has to be freed from the grip of market fundamentalism; a considerable upscaling of public funding for basic and public-good-oriented research is needed to achieve this. One source of this funding could be a small tax on harmful agents as they emerge from research (e.g. at the "possible" carcinogen stage of the IARC evaluations of carcinogenicity), to be devoted just to publicly funded science on the hazards and to less harmful substitutes.
7. Citizens need to be involved in the agenda-setting of the 10th Framework Programme for Research and Innovation (2028 - 2034) and in projects supported by it, as well as in other major investments in research and development.
8. Firm measures must be taken to prevent corporations from capturing risk assessment policies. The revolving door between politics and corporations, which typically involves vested interests, should be prohibited or severely restricted.
9. All risk assessment panels should include government-independent citizen representatives who are able to ask critical questions and vote.
10. Corporate science must be labelled as such and excluded from risk assessments, as it is usually biased towards corporate interests.
11. Convivial science, i.e. science based on mutual responsibility towards each other, future generations, and the Earth, as well as on civilised disagreement, should be prioritised in any funding scheme.

The EU should stop violating the Precautionary Principle and allowing it to be undermined by industry