“The dark tunnel that obscures knowledge”

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We live in the most “scientific” times, and yet it is becoming a field of questioning and exploitation, with many scientists believing that implemented policies ignore or falsify scientific knowledge, even though they claim its authority for political decisions. Our times are characterized by the great development of science and technology and their noisy and rapid entry into everyday life in conditions of permacrisis: From the economic crisis to the pandemic and from the environmental and climate crisis to the multiple challenges for public health.

Annually, scientific publications exceed seven million! However, a large part of the scientific community feels that they are on the margins of decision-making centers, and that decisions are made based on economic or political interests, often manipulating scientific knowledge. The pandemic period was a typical example. Other times, hot-button conclusions of scientific research are ignored or brushed aside by governments; the example of climate change is revealing.

These concerns were the focal point of a very important international conference held at the Academy of Athens from Thursday, May 15, until Saturday, May 17, entitled “Science and Policy in Times of Multicrisis and Dissent”. The conference was co-organized by the European Network of Scientists for Social and Environmental Responsibility (ENSSER), the Mariolopoulos-Kanaginis Foundation for the Environmental Sciences and the Research Centre for Atmospheric Physics and Climatology of the Academy of Athens, with the participation of distinguished scientists from Greece and abroad (in person or online).

“I would say there is something I characterize as a “dark tunnel”, in which the knowledge produced by scientific research is lost and does not reach policy-makers. Millions are spent on research, for pure knowledge, and this often remains unexploited,” says to “K”, the Emeritus Professor of Environmental Pathology at the NKUA, Dr. Polyxeni Nicolopoulou-Stamati, Chair of ENSSER and Secretary of the Board of Mariolopoulos-Kanaginis Foundation. “I wonder where we should lay the blame. Often, some of the politicians’ scientific advisors are not the right ones, chosen for their ability to adapt to their superiors, not for their scientific value and independence. Also, sometimes politicians are inadequately educated. Today there is a huge amount of information, and this requires the

ability to distinguish what is essential and turn it into knowledge and awareness", she adds. Dr. Nicolopoulou-Stamati cites examples from scientific battles she has waged for decades regarding toxic chemicals used by the industry, which act as endocrine disruptors, causing serious health damage. "Big interests try in every way to cloud the issue and delay the necessary decisions for the benefit of public health", she emphasizes.

"In the past, governments persistently ignored scientists' warnings that much of acid rain is caused by fossil fuels containing sulfur. Also, that the ozone hole is related to anthropogenic gas emissions. The scientific community had a really hard time convincing them. We encounter similar difficulties with climate change, in convincing people that the extreme conditions that are occurring, as well as climate destabilization, are largely due to humans", as Christos Zerefos, Secretary General of the Academy of Athens and President of the Mariolopoulos-Kanaginis Foundation for the Environmental Sciences, tells "K". However, Professor Christos Zerefos emphasizes that scientists' insistence has brought results. "I was happy to meet Professor James Skea, head of the Intergovernmental Panel for Climate Change (IPPC), today. Both of us had successfully waged battles about acid rain and the ozone layer", he notes. "Individual political decisions cannot influence scientific research and the decisions our societies will make in the long term. Besides, in the next 20 years, nature itself will lead us to decisions to get rid of fossil fuels. Nature will decide, not economic interests", the Secretary General of the Academy, Professor Christos Zerefos, emphasizes.

"Science and politics developed under the growing influence of increasingly powerful and aggressive economic interests. As "science" has lost much of its former public authority and legitimacy, commercial interests – which for decades have been the largest funders, owners and beneficiaries of "public", i.e. governmental and military scientific research and development – present themselves as pursuing knowledge and innovation for the "common good" as their sole goal, whereas they conceal or deny the increasing control they exert on scientific research, investments, regulations and innovations", ENSSER notes. What could be done?

"The first measure is to achieve the independence of scientific research. The second is transparency, open access and discussion. Science cannot be a "black box" nobody knows what is inside. There are scientific disagreements, different approaches, and unspecified points. Science moves forward by posing questions. Therefore, more open dialogue is needed. Many times, governments say, "This is what science says," to end the discussion. Third, precisely because there are unspecified aspects, it is important to adopt the precautionary principle, i.e. we refrain from doing things when there is an open question as to whether these may threaten humans and the environment. This concerns the chemical industry, the pharmaceutical industry, etc. Also, we need to be careful about the speed of

introducing new technologies without safeguards, as is the case with Artificial Intelligence, for example", emphasizes Dr. Nicolopoulou-Stamati.

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One of the most interesting and experiential presentations at the conference was that by Brazilian researcher Larissa Mies Bombardi, who was forced to leave her position as a professor at the Department of Geography at the University of São Paulo, due to the publication of a scientific atlas on the dire consequences on the health of farmers and their families (especially children) caused by the use of pesticides. The campaign against her escalated, including friends of the Bolsonaro government, with threats to her career and even her life when the study was published in English and pesticide residues were found in Europe, even in Brazilian organic products, resulting in a major blow to exports. The contradiction was that many pesticides were of European production, yet their use was forbidden in Europe, which was characterized as "chemical colonialism". Ms. Bombardi left Brazil with her two children in 2021.

Dr. Ricarda Steinbrecher, from Britain, described how she had tried to stop mining that harmed marine life, believing that if she explained the scientific standpoint that everything is an interdependent "system", it would be simple. "I realized they knew about the system concept – but there were economic interests"… This is the "uncomfortable truth" that Professor Bombardi also spoke about. Professor Ignacio Chapela from the Department of Environmental Sciences at Berkeley noted that "unfortunately, for many scientists at universities, the main issue is to have funding for a research program – who pays and why, whether it is useful for the people, is of no concern"…

Governments often seek a scientific cover for preconceived decisions. In his intervention, Professor Erik Millstone, from the University of Sussex, noted that "policy-makers want scientific advisory bodies to provide opinions which close discussions, not continue or expand them". They ask for opinions so that "they can claim they are doing what science dictates, no matter how misleading that may be".

Dr. Barbara Berardi Tadié, Research Director at the French environmental organization Pollinis, referred to the obstacles encountered by environmental protection legislation at the EU level. "The pesticide registration process is based on a combination of regulations and administrative and technical guidelines. In

practice, however, some of these guidance documents, which are of major importance for assessing the risks of a pesticide, have not been updated, approved, or even drafted. This was also the case in the Guidance Document on Bees, which was published by the EFSA in 2013, but was never adopted at European level, because it was not approved by the Standing Committee on Plants, Animals, Food and Feed (SCoPAFF), a crucial yet little known link in the chain of the EU decision-making", said Dr.Tadié, attributing the fact to a coordinated role of the industry in deconstructing the scientific and political consensus around the document.

Dr. Andrea Beste highlighted another aspect that has to do with soil protection against chemical pollution. While in 2002 there was a European regulation with positive content, a result of the scientific research on soil, mainly carried out at the European level, the agro-industrial lobbies fortified themselves at a national level, saying that the regulation should be national, since soil is not an element that is…… transported, like air or water.

How can you seek and achieve scientific consensus? Professor James Skea, Head of the Intergovernmental Panel for Climate Change (IPCC), described the almost… exhausting way of consultation at many levels (scientific and governmental) and stages for the conclusion of the Panel's reports, yet in a manner that ultimately becomes widely accepted at the scientific level.

Professor Emeritus of Lancaster University, Brian Wynne, spoke about the environment of "neoliberal modernity". "A fundamental change has occurred. This is the contradiction between the official public discourse of "the independence of science (from any private interests or influences)", and the reality which has been formed since the mid-20$^{th}$ century, i.e. that science, which is considered public and independent, has for decades become controlled and directed by private corporate entities and interests. The problem is that these important private interest bodies exercise power over governments worldwide", emphasized Mr. Wynne, who raised the issue of promoting innovation that goes against the current.

Dr. Irina Castro from the University of Coimbra, Portugal, underlined the need to challenge economic pressures, υπογράμμισε την ανάγκη αμφισβήτησης των οικονομικών πιέσεων, through scientific discourse, scientific diversity, and a more systematic application of the precautionary principle.

Dr. Ephraim Pörtner, affiliated researcher at the University of Zurich and member of the movement Critical Scientists Switzerland, spoke about the definition of "convivial science". He emphasized that critical thinking, curiosity and continuous research must be developed, and that the logic of controlling nature and societies must be phased out. "We propose the term "convivial sciences" to include forms of science based on mutual responsibility and civilized disagreement, allowing us to be in better harmony with nature. Convivial sciences encourage democratic

knowledge production and responsible critical research to meet the needs of today's and future generations and their socio-ecological relationships".