European Commission

COVID-19 pandemic

STATEMENT ON SCIENTIFIC ADVICE TO EUROPEAN POLICY MAKERS DURING THE COVID-19 PANDEMIC

24 June 2020

#Coronavirus

By The Group of Chief Scientific Advisors of the European Commission,
The European Group on Ethics in Science and New Technologies, and
Peter Piot - special advisor to the President Ursula von der Leyen on the response to COVID-19

In late 2019 in Wuhan, China, a new severe acute respiratory and multi-organ disease was identified named COVID-19, caused by the coronavirus SARS-CoV-2. The WHO declared the outbreak of a pandemic on 11 March, and called countries to take urgent and vigorous action. It is now a major public health crisis throughout the world, and is also predicted to have major impacts on European societies and economies.

The SARS-CoV-2 virus is a pathogen previously unknown to science and medicine. To date, there is still a dearth of information on the virus itself, the spread of the disease, and the causes of excess deaths. Looking beyond the chain of infection, there is limited understanding of how the measures that have been taken to fight the pandemic are disrupting health systems, businesses, trade chains, and society more generally, as well as how all of these interconnect with each other. Regarding the future, the possibility exists that societies will have to live long-term with COVID-19.

It will take time for scientific knowledge to be advanced to a level that will allow the disease to be kept under control. Nevertheless, evidence from science, which is often required at short notice, is crucial to help develop sound public policy. It raises the question of how scientific advice can be best given to European policy makers when knowledge is fast evolving, risks are large, and evidence is preliminary and limited. This question is particularly difficult because there are many uncertainties, outcomes and risks that need to be considered as well as at times limited scientific evidence, which means politicians have to face difficult trade-offs sometimes requiring controversial and unpopular decisions.

The COVID-19 pandemic has been with us for some months now, and the Group of Chief Scientific

Advisors (GCSA)[1] of the European Commission, who tend to work on long-term issues, has decided that it is now time to learn from experience to date, about giving scientific advice concerning this ongoing crisis. Giving scientific advice in complex and uncertain circumstances such as the current pandemic, was the subject of an Opinion "Scientific Advice to European Policy in a Complex World" prepared by the Group of Chief Scientific Advisors (GCSA) of the European Commission, published in September 2019. In the present Statement the GCSA draw on the principles generated in that Opinion with inputs from Peter Piot (special advisor to the European Commission's President Ursula von der Leyen on the response to the coronavirus and COVID-19), and the European Group on Ethics in Science and Technologies draw on their Statement "European Solidarity and Protection of Fundamental Rights in the COVID-19 Pandemic", to explain how science advice can be best provided to help policy makers cope with the COVID-19 crisis.

To help policy makers manage a viral epidemic such as COVID-19, scientific advice needs to address a number of crucial issues. First, there is a need to understand the SARS-CoV-2 virus and the disease that it causes: how does it infect; what is the way and the rate of transmission in populations; what are the severity and long-term health effects of the disease; how can the virus be detected; how does the virus evolve? Answers to these kinds of questions are required to properly model the pandemic so appropriate social measures can be recommended taking into account fundamental rights and freedoms to contain and flatten the curve of infection, to avoid overwhelming health care systems and to preserve lives. However, when knowledge is only partial as it is at the beginning of a pandemic, scientific understanding may be limited and modelling is imprecise with significant margins of error, and so advice may well change as knowledge improves. A second issue important for managing the pandemic is the development of treatments that can reduce or eliminate the virus, or can ameliorate symptoms of the disease. Because of the length of time it takes to develop drugs, the main option initially is re-purposing of pre-existing drugs. Subsequently, treatments can be designed that are more specific to the virus, but that is a longer term solution. Third, is the development of a vaccine, which depends on knowing how the immune system can mount a defence against the virus, and how that immune response can be best stimulated. Vaccines also take time to develop, to test, and to scale-up for use at the population level, and indeed may not be developed at all. Fourth, is understanding and advising on the impact the pandemic and the containment measures can have more generally on society, for example on other human health conditions and their treatment, on the quality of lives, on policies, economies, and fundamental rights and freedoms. A fifth issue is the need to use systems approaches to address the two way feedbacks and interactions between societies and the disease as societies respond to the threat of COVID-19. The pandemic itself is evolving, partly because of changes in the virus and the disease it causes, and partly because of the personal and societal measures put in place to control the infection.

The complexity and uncertainty of the coronavirus crisis in what is a febrile political environment, is why giving science advice is difficult and must be given with great care. Below we give guidance

[1] Professor Janusz Bujnicki – former member of the Group of Chief Scientific Advisors, contributed to this statement

about how scientific advice should be given in these demanding circumstances, which should be acknowledged as being difficult for scientists, for politicians, and for the public.

The complexity of the COVID-19 pandemic and its aftermath means that a multidisciplinary approach is required to develop advice. The disciplines required include the biological and medical sciences, other natural sciences and engineering, the social sciences and the humanities. The need to consider biological and medical aspects of the pandemic is obvious. Physics is relevant to determine how far droplets containing virus may carry after a sneeze to determine appropriate physical distancing and to assess the effectiveness of face masks. Engineering is relevant for the development of machines that can assist survival and help avoid contagion. Given that distancing measures are central to counter the spread of the virus and that the social and economic consequences of such measures can be complex and long lasting, the social, economic and behavioural sciences as well as law, are crucial to devise practical approaches that will be effective to reduce human contacts. These measures may be required for a considerable period of time and it is important to limit harm to individuals and societies. The humanities are needed to address issues related to moral acceptability, ethics, psychosocial impact, culture, and communication, which inform complex decision-making. These include balancing COVID-19 deaths compared with deaths due to other diseases not being treated, or for even more difficult comparisons such as with the damage being done to economies and the effects this will have on individuals, their families and societies. Issues that need to be considered in this context include education, mental health, and social attitudes.

Therefore, multidisciplinarity in science advice is essential. These discussions across disciplines have to be organised and co-ordinated well, given that the range of perspectives is wide and the scholars involved may not always be familiar with working across the territories of other disciplines. There is also merit in a mechanism of scientific advice that delivers considered and balanced opinions based on a wide range of perspectives, because it promotes public trust in the policy decisions taken.

As already emphasised scientific knowledge of a pandemic such as COVID-19 is often uncertain and tentative, and changes over time. Communicating uncertainty and complexity to policy makers and to the public at large can be difficult, but is essential if trust in politicians and their advisors is to be maintained. It is recommended that attention is always given to identifying and assessing uncertainties when the scientific advice is given. Scientific advisors need to provide clarity about what is known, partially known, unknown, and unknowable. Uncertainties can arise from the limitations, analyses and interpretations of data, whether all aspects of the problem have been considered, and when there are differences in scientific conclusions. For example, when epidemiological models are involved in scientific advice, there needs to be a focus on the probabilities associated with the different estimates of outcomes being made, as well as the assumptions that are assumed in that model and how they may differ from other models being developed. This can be confusing for scientists, politicians and the public alike, but it is essential that the uncertainties are explained and understood. It is not enough for politicians to say they are “following the science”, they need to understand the uncertainty in the science and its relation to the recommended measures of policy makers, and to communicate that to the public well. There can also be uncertainties in the legal and ethical aspects of advice and when that occurs it needs to be explained in communications as well. This is all difficult for communication professionals

to deal with, as they are used to distilling advice down to simple messages, but simple messages are usually not the right approach when policy is generated from multiple and complex science in times of uncertainty, such as during the COVID-19 pandemic.

Trust is particularly critical if the public are to have confidence in their political leaders and is especially required when onerous demands are made on personal behaviour. There also has to be trust in the scientists and the way they work if their advice is to be heeded. Trust is only possible if the science advice given by official advisors is open and transparent, and is based on the highest quality of evidence. It also needs to be well communicated to the public by the scientists and politicians. Being open and transparent allows the evidence upon which the advice is based to be publically assessed, and makes it clear whether political leaders indeed take the science seriously and if not, it forces them to justify their actions. Being open also allows other scientists to challenge evidence and interpretation, which is often required when knowledge is tentative, uncertain, and complex. In a situation of fast evolving knowledge, as in early stages of a pandemic, there needs to be challenge and debate between scholars of different opinions to advance understanding. That is how science works. The public and politicians need to appreciate that scientific knowledge evolves and improves, and that new understanding of the disease and of the societal impact and reaction to management of the disease, may lead to changes in policy direction. Differences of views between scientists can serve as an 'early warning' for the public authorities, which indicates that more discussion and analysis is required. This is important to ensure that preparations and actions are put in place to limit damage and accelerate recovery.

This all is easily said, but is not so easily delivered, given that diverging scientific opinions can be confusing for both politicians and the public. However, the solution is not to 'hide' differences of opinion but rather to force them into the open and clarify why there is a range of scientific opinions and ethical assessments. This is made more difficult if the public and politicians are not 'at ease' with science, which can be the case. Early and frequent deliberative engagement of science advisors and policy-makers helps increase the understanding of scientists of how policy making and politics works and of policy makers about science and its uncertainties and complexities. An educational system designed to generate an informed citizenship together with a mature relationship between scientists and policy makers, are crucial to the nourishment of public trust at the science/public policy interface. Relevant to this is fake news, misinformation, and conspiracy theories, that also confound and confuse good scientific advice. Present egregious examples include ingesting disinfectant to combat SARS-CoV-2, or blaming 5G technology for the infections. Such ideas can spread fast through social and mass media, and are prone to manipulation by politicians, celebrities, and other prominent public figures. Scientific advisors need to push back vigorously on such misinformation, even if it puts them in conflict with their political leadership.

Another critical factor for scientific advice is the importance of clarity about the governance arrangements and responsibilities in the networks from science advisors to political leadership, and on to the medical agencies that are tasked with implementing the public policy. Clarity should cover definition and demarcation of advisory versus decision-making functions and roles, together with the responsibilities for communications and for ensuring the public messaging is carried out correctly. This is necessary so the scientific case is not 'distorted' by the messaging, and that scientists are not used as 'cover' for politicians, who are the ones ultimately responsible for policy making. It

should also be recognised that politicians sometimes have to make difficult decisions and may choose not to follow the scientific advice, but if they do so they should make that clear and give their reasons for doing so.

The coronavirus crisis has taught us that much of Europe was insufficiently prepared. In the world of today, pathogens can spread from anywhere to everywhere on the earth, and present a challenge of the same order as Climate Change, but it is one that can be prepared for, as has been shown by the responses of some of the Asian countries. To assist policy makers in their future considerations about this issue, the Chief Science Advisors to the European Commission and the European Group on Ethics in Science and New Technologies, who both typically work on longer term issues requiring broad scientific consultation and analysis, are planning to produce Opinions on the management of pandemics more generally later in 2020, and on the wider topic of crisis resilience later in 2021 together with SAPEA, the consortium of science academies in Europe. They will work with Peter Piot, special advisor to Commission President Ursula von der Leyen on the response to the coronavirus and COVID-19.

The College of the Commissioners can count on the Chief Science Advisors and the Members of the European Group on Ethics to produce opinions now and in the future to support their decision-taking, in particular under circumstances of complexity and uncertainty.

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