

Preparations for ESAF-6



This document contains an inventory of national science advice contributions on COVID-19, written in preparation for the virtual ESAF-6 meeting held on 24 June 2020. The contributions are written by the individual members, and are not necessarily the official position of their organization or country.

BELGIUM

1. Name, organisation and country

Joos Vandewalle, Royal Flemish Academy of Sciences and the Arts KVAB, Belgium

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

In the corona crisis our Academy has played a limited role. Our Young Academy has taken a number of initiatives to join the forces, [see link](#). Our sister Academy of Medicine KAGB is regularly giving expert advices to the government and also on COVID-19, [read more](#).

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

There is no established scientific advisory structure for this type of crisis. However the government has quickly initiated an expert group of broad competences at the start of the crisis. It is well respected. Within the ministry [Sciensano](#) is a research institute of the Federal Research Policy Department with about 700 employees. It covers many services and one branch is epidemiology and public health and it reports daily on the data and issues related to Covid. It has cooperation with the universities in Belgium.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

In our country the evidence-based advices and scenarios that are produced by the researchers on Covid have been well received, by the politicians and the media especially at the start of the lockdown. Also the expert advices on the exit strategy and the screening, and research on vaccines and therapy have been well communicated by the press. In the public, in the media and by politicians the importance of scientific data and evidence based information on important societal issues has increased substantially.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Limit the role of the scientific advice to scientific data, findings, and the scientific evaluation of different scenarios, and do not engage in making choices. This is the field of the politicians.
- Openness on the reports, the methods, the data and the limitations of the results, and communicate these to the public and the politicians. There is now a public debate on the question whether or when the expert reports should be made public. Until now they are confidential.

CYPRUS

1. Name, organisation and country

Nikolaos Mastrogiannopoulos, Chief Scientist for Research and Innovation in Cyprus, representing two organizations: the Deputy Ministry of Research, Innovation and Digital Policy (formed in March 2020) and the Research and Innovation Foundation (RIF), the national agency for supporting research & innovation, existing since 1996

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

The Deputy Ministry for Research, Innovation and Digital Policy had a very important role to play during the crisis, since it was an enabler for the digitization of a number of government services that were crucial in taking supportive measures with regard to the pandemic, such as citizen support and monitoring support.

The Research and Innovation Foundation has also played an important role, since it announced a package of measures and funding programs, in order to enable and assist the research and innovation community in Cyprus to combat the effects of the pandemic.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

The competency for establishing a national scientific advisory structure in Cyprus was undertaken by the Ministry of Health. The scientific advisory consists of esteemed scientists from the academic community in Cyprus and had a close collaboration with Governmental, health and other science stakeholders in Cyprus. This, in accordance with a close monitoring of the pandemic and the provision of advice to the Ministry of Health, has enabled governmental authorities to take decisive measures, thus minimizing the spread of the pandemic.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

This pandemic has highlighted the importance of scientific advice in governmental decisions and crisis management. At a national level the scientific interventions has proven to be quite successful, thus resulting in wide acceptance by the government and the public.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Digital Transformation Technologies (IT solutions, Artificial Intelligence, management of data, observation systems, etc.)
- Social & digital infrastructure to support home working.
- The establishment of an official communication structure between the scientific committee and the government, in order to handle government decisions and policies in potential future crises.

DENMARK

1. Name, organisation and country

Frede Blaabjerg, the Danish Council for Research and Innovation Policy, Denmark

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

No. The Danish Council for Research and Innovation Policy does not have a specific role in the current crisis.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

Two main bodies under the auspices of the Ministry of Health provide scientific advice related to pandemic: The Danish Health Authority under the Ministry of Health provides health related scientific advice, and the Statens Serum Institut (SSI) ensures preparedness against infectious diseases and biological threats as well as control of congenital disorders.

The government has obtained ad hoc scientific advice from other disciplines.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

- The crisis has made scientist and scientific advice very visible to the public. The need for good scientific advice seems obvious and the need for society to have preparedness is also important.
- Communication between scientists / experts and policy makers is difficult and should be practiced, improved and made transparent.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Good and sound scientific advice is an input to political systems to act rapidly and with legitimacy.
- There is a need for structures for interdisciplinary scientific advice and science advisers who embrace the skills of giving policy advice.

ESTONIA

1. Name, organisation and country

Tarmo Soomere, Estonian Academy of Sciences, Estonia

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

The Academy was invited to comment and polish the national strategy for exit of the crisis. A team of 10 Academy members (out of total 72) reviewed the ideas of research projects within the extraordinary call connected with the COVID-19 crisis.

Academy Research Professor Andres Merits was invited into the Academic Board of the crisis management committee chaired by the Prime Minister.

Ad hoc Academic Council at the major daily newspaper Postimees (The Postman) performed fact check, selecting and prioritizing the topics to be covered in the newspaper twice a week from March 19 until May 25); in particular, the Leopoldina's report was translated into Estonian and made public.

A political declaration – a vision for the future after the crisis was published in The Postman on 26 May, with focus on clean energy production and smaller energy consumption supported by novel IT solutions. This declaration was extensively commented and supported by the President of Estonia.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

Estonia did not have an established scientific advisory structure for pandemic. The relevant body (Terviseamet, the national Health Board) does not involve a scientific advisory board. The government formed an ad hoc academic board to support decision making in the crisis management committee. No formal debate has been started about the establishment of a permanent structure of this kind.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

- Scientists must be ready to organise themselves in a transdisciplinary manner to channel their advice and best knowledge in a soft manner (=no strong declarations, no direct interference with the crisis management system) to the public so that decision-makers are informed about the most important developments, acute problems and possible solutions in a correct context.
- The ability to rapidly extract and convert into the local context the best expertise from other countries may be key for successful advice.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- The development of remote work and study as a major option to save energy and pollution by substantial reduction of transport requires a new view on IT solutions and energy security.
- The temporary reduction of economy (and energy consumption) opens a unique window for structural changes in the energy policy, towards clean energy production, effective energy accumulation and smaller energy consumption via smarter building.

FINLAND

1. Name, organisation and country

Jaakko Kuosmanen, Finnish Academy of Science and Letters; Sofi (Science Advice Initiative of Finland)

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

The Academy has established a high-level independent expert group on post-COVID-19 recovery in Finland. The group will draft a position paper during fall 2020.

The Academy was commissioned to provide a proposal for a new COVID-19 science advice group by the Prime Minister's Office (PMO).

The Academy was requested to identify researchers for evidence syntheses drafting by the PMO, and has been involved in COVID-19 scenario work at the PMO.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

The Finnish Institute for Health and Welfare has had structures in place. They are fairly siloed by nature. Ad hoc structures were established to support whole-of-government approach. In particular, a temporary science panel was established in the PMO. Debates have started in particular on more open and networked models that could better utilise the expertise of the broader scientific community.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

- Openness builds trust (and we are still far from science advice mechanisms in which this is a common and genuine practice).
- Communicating uncertainty is extremely hard, and it's beyond science communication. Societal science literacy can be a strong supporting factor here.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Improving societal resilience
- Re-organising work and education (with human well-being frame in mind)

GERMANY

1. Name, organisation and country

Gerald H. Haug, President of the German National Academy of Sciences Leopoldina

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

The German National Academy of Sciences is one of the central actors in providing science-based advice on the COVID-19 pandemic to the German Federal Government, other political decision-makers and to the wider public. Since the outbreak of the pandemic in Germany, the Leopoldina has put forward four (4) ad-hoc-statements, [retrievable here](#). The statements covered different aspects in connection with the pandemic and were the result of the work of different expert groups (including not only of Leopoldina-fellows but also experts from the practical field, e.g. from the healthcare and education system.). Further statements are planned. All ad-hoc statements are released in German and English. The Leopoldina is an independent organisation, which chooses its science-based advice topics autonomously but may comply with requests of the German Federal Government to give advice on urgent topics.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

There is no specific scientific advisory structure for pandemic management in Germany, as the country does not have a central government agency for scientific advice (as in the case of UK and its CSAs). However, the Robert Koch Institute (RKI) is both the German federal agency and a research institute responsible for disease control and prevention (subordinate to the Federal Ministry of Health and similar to e.g. CDC in the US). The Paul Ehrlich Institute is both a research institution and medical regulatory body for vaccines and biomedicines (subordinate to the Federal Ministry of Health). Both institutes are collaborating agencies of the WHO in Germany. In the current pandemic, the RKI has played the central role in the immediate epidemiological response and data processing. The German Federal Foreign Office has its own Crisis Response Centre – for all types of crises and for repatriation undertakings. The equivalent to a civil protection agency is the Federal Office for Civil Protection and Disaster Assistance – however, this agency has not played a central role in the current pandemic. Some Länder governments have installed their own expert groups in light of the COVID-19 pandemic (e.g. Bavaria or North Rhine-Westphalia).

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

Not only from the German point of view, this pandemic has demonstrated how essential rapid evidence-based policy advice is. With reference to science-based advice, several lessons can be learned and used as an impetus for improvement (the list is not exhaustive):

- In a crisis, science-based advice needs to be delivered swiftly and to a wide range of recipients (from politics to society). At the same time, high standards of quality, independence, and transparency must be followed. The resulting pressure on individual scientists (experts) and scientific advisory structures can pose significant challenges.
- Next to facts and options for intervention, communication is essential. How to transmit the findings to the decision-makers? How to explain them properly to the wider public? How to show the way in which research and scientific deliberations work? How to “translate” science to the non-scientific audience? How to shape science communication bidirectional (from scientists to recipients and back)? How to interact with journalists, including science journalists? Communication competence of scientists and scientific advice actors needs to be improved.
- Science-based advice (and latest research finding) needs to be pooled from different disciplines and different countries worldwide. Interconnecting those actors poses challenges, especially when pandemic responses are mostly on national level or when one scientific discipline seems to be most important to tackle the immediate effects of the crisis. International cooperation in pandemic management has shown its limitations, both in the case of the WHO and the ECDC. Here, the situation must be improved.
- Another challenge to science-based advice is the spread of “alternative facts” and fake news, which lead to mistrust in science, conspiracy and divisions in society. How to counteract such trends? How to relate to such controversies? How to protect scientists from ill-founded attacks? In this case, principles of action and reaction need to be defined.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Contact tracing and data use
- Sustainable, future-oriented recovery and lessons learned
- Structured international cooperation in pandemic management
- Long-term effects of the pandemic on educational systems and human capital development

GREECE

1. Name, organisation and country

Achilleas Mitsos, University of the Aegean, ex-secretary general for research, GREECE

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

No, only occasionally.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

The scientific advisory structure already existed, but it turned into a very important and highly regarded by everyone structure, mainly as a result of its chairperson's combination of scientific knowledge, open attitude and empathy.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

From the outbreak of the pandemic, the government declared that it will follow and implement without any hesitation the proposals of the "committee of experts", and this is exactly what has happened. The fact that this unique-science-based policy proved to be successful (especially in comparison to neighbour countries) may have long-term implications on the importance of evidence-based policy-making in many fields.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

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IRELAND

1. Name, organisation and country

Mark Ferguson, Science Foundation Ireland & Chief Scientific Adviser to Government of Ireland

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

SFI issued a [Five Point Plan](#) which includes curation of problems and solutions and a COVID-19 Rapid Response funding call. This is a rolling call and to date more than 350 applications have been received. The call involves excellent collaboration and integration with all the major research funders. To date approximately 25 projects have been funded (see [press release](#)) and more will be announced shortly.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

Ireland has treated this and all pandemics as a national public health emergency. There is a National Public Health Emergency Team ([NPHET](#)), chaired by the Chief Medical Officer, which is responsible for determining and coordinating all government responses to the pandemic. The National Public Health Emergency Team has a number of sub-committees, including one on expert advice and research.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

This pandemic has seen an unprecedented level of international cooperation. There is a fortnightly teleconference between the Chief Scientific Advisers or their equivalents of more than 18 countries and the sharing of documents and validation tests has been most useful. Learning from the experiences of countries who have dealt with the pandemic differently or with different outcomes has been useful in trying to determine what are the most useful interventions.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- How to get the economy up and running as quickly as possible, both in the short and medium term.
- Returning to a 'better normal', incorporating experiences and procedures from the pandemic, which will be important for addressing other global challenges such as climate change.

THE NETHERLANDS (KNAW)

1. Name, organisation and country

Wim van Saarloos, Royal Netherlands Academy of Arts and Sciences (KNAW)

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

A number of fellows of KNAW participate in various bodies of the government, most notably as invited independent experts in the so-called [Outbreak Management Team](#). (OMT). KNAW has organized a public symposium explaining the pandemic on [February 21st](#) (in Dutch) as well as a webinar on long term societal changes that are needed to continue to deal with the virus on [May 19th](#). KNAW may be engaged also in a next, broader advisory committee on societal adaptation and transition – the KNAW is in close contact with our government about the question how to shape science advice in the new phase we are entering.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

Yes we did as a country. It was started by Academy Fellow Roel Coutinho after the SARS outbreak. He was the first director of the national [Center for Infectious Disease Control](#) (CIDC). It operates as a division of an independent government laboratory (RIVM in Dutch). The director of the CIDC is chairing the OMT. The current director of CIDC, Jaap van Dissel is highly recognized for leading the OMT and providing independent expert advice.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

Specifically the role of the OMT and chair Jaap van Dissel has given a boost to the value of and appreciation for independent scientific advice for policy. The president and vice president of KNAW have recently published an opinion article in a major national newspaper on the interplay between scientific advice and policy/politics, making clear that scientific advisers must stay clear of policymaking.

The present OMT is composed mostly of medical scientists with backgrounds in virology, epidemiology, etc. There is a growing consensus (also within the OMT) that for the coming period, science advice must be broadened to include social sciences, economics, history, etc., and that it is important that a structure is developed where clear questions are developed at the top (in or near the OMT), and into which subgroups can feed their expertise.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Firstly, it will take a long time before we can speak of a post-COVID phase. Scientists leave no doubt: SARS-COV-2 is here to stay. The ways to cope with it, they explain, are 1) slowly allowing Group Immunity to develop, 2) developing a mix of vaccinations, and 3) possibly developing a treatment against COVID-19. Also the need for tests is stressed again and again.
- Secondly, in the meantime, we must develop the so-called 1,5 meter society, by slowly easing the 'intelligent lockdown'. Increasingly, and in line with such developments, the need increases for scientific advice from the social sciences and humanities. For the post-COVID-phase, many important issues where science advice is needed will come centre stage from a new perspective: a resilient society, the Green Deal, climate, etc.

THE NETHERLANDS (WRR)

1. Name, organisation and country

Corien Prins, the Netherlands Scientific Council for Government Policy (WRR)

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

In line with its task to advise on the direction of government policy for the longer term, the WRR is concerned with the longer term issues surrounding the pandemic (the crisis after the crisis). For this, the WRR has prepared a paper (insert link when available) including eight main challenges for policy in the upcoming period. The WRR also participates in a think tank organized by the Social and Economic council, and contributes to several discussions surrounding the economic and social impact of the COVID-19 crisis.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

Scientific advice on infectious disease control is centred in the Centre for Infectious Disease Control ([CIDC](#)), which was established after the SARS outbreak. This centre operates as a division of an independent government laboratory (RIVM in Dutch). The director of the CIDC is chairing the Outbreak Management Team (OMT) which directly advises the government. Besides this the Social and Economic council organizes a think tank in which a large number of advisory councils and policy advisors focus on the social and economic impact.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

- In the first phase of the crisis the use of independent scientific advice has been accepted by the public, as the boundary between scientific advice and policy decisions has been affirmed by both scientists (Chair and members of the OMT) and policy makers (Prime-minister and other ministers). Clear and transparent communication on where science advice ends and policy making begins is crucial in this. In the current stage of the crisis we see more confusion about the boundary between science and policy.
- The discussion now shifts to grounds, bounds and disciplinary broadness in outbreak management (issues like data-transparency, uncertainties, more disciplinary perspectives, health indicators beyond mortality and IC), and the need to include social, economic and broader health aspects in outbreak management.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Core of the Netherlands policy of an 'intelligent lockdown' was based on a sense of personal responsibility from citizens. This was proven rather successful in the first period (March-May) due to clear messaging and leading by example. Behavioural advice is needed to see if and how citizens will cope with restrictions for a longer period of time, perhaps even years.
- Strategic and long term advice regarding (minimalizing) vulnerability and (strengthening) resilience. Issues like: governmental responsibility and public responsibility of companies; stimulating economy and protecting labour; social inequalities (in level of resilience); digital opportunities and risks; future of European cooperation and globalization; costs of crisis. This goes beyond practical issues in reopening society and social distancing strategies.

POLAND

1. Name, organisation and country

Janusz M. Bujnicki, member of the European Commission's Group of Chief Scientific Advisors, member of the Advisory Group on Prevention, Counteracting and Combating COVID-19 Advisory Group on Prevention, Counteracting and Combating COVID-19 for the Polish Ministry of Science and Higher Education

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

Yes, the European Commission's Group of Chief Scientific Advisors is dealing with science advice on issues related to the pandemic.

The Advisory Group on Prevention, Counteracting and Combating COVID-19 Advisory Group on Prevention, Counteracting and Combating COVID-19 for the Polish Ministry of Science and Higher Education has two roles: to provide science advice on the COVID-19 pandemic to the Ministry and to evaluate applications of COVID-19-related applications for funding to the Ministry

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

The Advisory Group on Prevention, Counteracting and Combating COVID-19 Advisory Group on Prevention, Counteracting and Combating COVID-19 did not exist before and has been established by the Polish Ministry of Science and Higher Education after the onset of the pandemic.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

- Timely access to high-quality data is essential.
- Timely communication of scientific evidence to the public at large is essential, along with actively fighting rumours and fake information.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Establish efficient ways of data gathering and making the data available.
- Timely communication of scientific evidence to the public at large.

PORTUGAL

1. Name, organisation and country

Helena Pereira, Foundation for Science and Technology (FCT), Portugal

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

Competitive calls related to the COVID-19 pandemic: RESEARCH 4 COVID19 (in partnership with the Agency for Clinical Research and Biomedical Innovation (AICIB), aimed at R&D projects and initiatives that respond to the needs of the National Health Service as a response to this and future pandemics in a very short time horizon), AI 4 COVID-19 (aimed at R&D projects in the field of Data Science that may contribute for improving the response of the Public Administration bodies to the impact of COVID-19 and future pandemics), DOCTORATES 4 COVID-19 (aimed at supporting the development of knowledge to create the skills needed to respond to the pandemic of the new corona virus SARS CoV2 and the COVID-19 disease, and to future pandemics, that may translate into efficient prevention measures, better healthcare and an effective support to citizens), GENDER RESEARCH 4 COVID-19 (in partnership with the Secretary of State for Citizenship and Equality and with the support of the Commission for Citizenship and Gender Equality, aimed at supporting projects and initiatives that allow the production and dissemination of knowledge about the gender impacts of the COVID-19 pandemic and of the contingency plans and measures adopted to contain it).

Online resources: SCIENCE 4 COVID19 (in partnership with AICIB, open and inclusive call for ideas and the organization of task forces to collect and mobilize ideas from science and innovation players.

Research and higher education institutions have massively adhered to the implementation of remote learning and collaborative environments, with the aim of ensuring the normal functioning of teaching and research activities while preventing the transmission of the virus. At the same time, several efforts were made from R&D units, academic structures and their personnel to disseminate science-based information to the general population. Consequently, FCT, through its National Scientific Computing Unit (FCCN), has strengthened the response capacity of the National Research and Education Network (NREN/RCTS), which supports the internet connections of the higher education and research community, to face the resulting substantial increase in traffic.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

There is no established scientific advisory structure, but mobilization of relevant national authorities, private and social partners is in course, allowing an integrated advise for policy making.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

One of the lessons to be learned is the importance of mapping the potential direct role of the different R&I units in clinical and social emergencies and of having properly institutionalized and well-articulated cooperation links with the national health systems in order to guarantee fast and agile responses while preparing more specialized medium and long-range cooperation mechanisms, such as calls for projects or research programmes.

Scientific expertise was shown to be crucial to find innovative solutions for some of the main needs of the society, such as the capability of re-orienting methodological and technical approaches to the production of new intensive care and protective equipment and more accurate diagnostic tests, as well as the importance of collaborative and multidisciplinary work at national and international level.

Development of transversal skills, namely digital skills, is recognized as a major strength to face crisis challenges, including health system preparedness approaches.

The global emergency caused by the pandemic also demonstrated the importance of open science and access to data. This remains fundamental for boosting the role of R&I in the response to the effects of the pandemic and in the search for solutions to the crisis caused by it, namely with regard to the digital transformation of the health sector and the implementation of interoperable digital infrastructures.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Main areas include: therapeutics and vaccine development to combat major diseases, manufacturing and equitable access as a Global Health strategy; Teaching/training in Data Science under the perspective of Big Data and Data Mining applied to Health; development of new technologies (improvement and support for distance learning and teleworking, rapid screening techniques at airports or large events, etc.) that will be fundamental for resuming economic and social activity.
- It is extremely important that the EU objectives on climate and digital transitions, and the respective strategic documents for Industry and Internal Market, remain valid, since these are areas of strong R&I impact and strategically crucial for the definition of the paradigm of a sustainable and inclusive growth of European economies.

SWITZERLAND

1. Name, organisation and country

Swiss Science Council SSC (Switzerland)

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

In Switzerland a [Swiss Science Task Force](#) was established drawing experts from different universities and fields 'ad personam'. As an institution, the SSC is currently not directly involved in this activity. Single members are contributing papers and opinions on COVID-19.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

No, we did not have such a structure before. But Switzerland is one of the first Pandemic Plans. It was completed in 2018, and can be retrieved here: [link](#). However, it turned out that not all stakeholders took the recommended precautions.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

Our Council members see the situation as an opportunity for the Swiss Science system to bounce back from distrust to trust in the perception of the Swiss population. E.g. the acceptance of vaccination has grown stronger. Swiss scientists also developed a contact tracing app, which resonates with Swiss data privacy law and democratic culture. The Task Force is also bridging the information needs of all Swiss Federal Departments involved. Some departments are so happy with it they plan to having a more permanent structure in the future.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Analyse the avoidable failures and errors established in the scientific community during the fight of the pandemic (e.g. lack of interdisciplinarity, nearly no integration of sociology and/or humanities in the national task forces ; very rarely doctors/medical researchers asked veterinary doctors to benefit from their decades of experience with the Corona virus family; severe knowledge gaps and/or overselling fundamentals of statistics, theoretical biology, evolution, etc.)

UNITED KINGDOM

1. Name, organisation and country

GO-Science, UK

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

The Scientific Advisory Group for Emergencies (SAGE) was activated to advise on the UK government's response to the Covid-19 pandemic. SAGE provides timely and coordinated scientific and technical advice, based on external scientific evidence and essential information, to support government decision-makers during emergencies. The advice provided by SAGE does not represent official government policy. It is one of many essential sources of information that Government must weigh-up before adopting new policies and interventions. Other advice includes social, economic and policy considerations.

For health emergencies, like the COVID-19 Pandemic, SAGE is co-chaired by the Government Chief Scientific Adviser (GCSA) and the Chief Medical Officer (CMO).

The Government Office for Science (GO-Science) provides the secretariat for SAGE. The department is well placed for this, as the coordinating point from cross government science networks, including the departmental Chief Scientific Advisors; it can effectively mobilise these networks to support SAGE. The subgroups are:

- [New and Emerging Respiratory Virus Threats Advisory Group \(NERVTAG\)](#)
- [Scientific Pandemic Influenza Group on Modelling \(SPI-M\)](#) in the Department for Health and Social Care
- [Independent Scientific Pandemic Influenza Group on Behaviors \(SPI-B\)](#)
- PHE Serology Working Group
- COVID-19 Clinical Information Network (CO-CIN)
- Environmental Working Group
- Children's Task and Finish Working Group
- Hospital Onset COVID-19 Working Group

These groups consider the scientific evidence in their respective fields and provide their consensus conclusions to SAGE. Further detail on the role of SAGE in response to Covid-19 is available [online](#).

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

In the UK, the Scientific Advisory Group for Emergencies (SAGE) provides evidence-based scientific advice to the Cabinet Office Briefing Room (COBR) meetings in emergencies. It ensures Ministers are informed and best placed to make critical decisions based on a range of credible scientific evidence. SAGE is well established and has advised the Government on a range of

emergencies such as: Swine Flu (H1N1) in 2009, Volcanic Ash in 2010, Flooding in 2013 and a potential reservoir breach in 2019. Typically, SAGE meets in advance of COBR and the GCSA subsequently represents SAGE at COBR.

There have been eight previous emergencies in the last 11 years, since its conception, when the government has sought expert scientific advice through the SAGE mechanism. Expert participants at SAGE are determined by the scientific expertise needed in that particular situation. In the case of COVID-19, SAGE has brought together expertise from across the scientific spectrum including epidemiologists, clinicians, therapeutics and vaccine expertise, public health experts, virologists, environmental scientists, data scientists, mathematical modelers and statisticians, genomic experts, and behavioral and social scientists who feed analysis, research and data into SAGE.

Further [information available on GOV.UK](#).

In addition, SAGE has a range of external science advice and advice from expert groups. During Covid-19, this has included subgroups listed above and other examples, such as:

- [Covid-19 Genomics UK \(COG-UK\)](#)
- Health Data Research UK (HDR-UK)
- Scientists from the National Academies

The UK's Chief Scientific Adviser's (CSA) network has also supported cross-government coordination and information-sharing throughout the pandemic. CSAs are senior science advisers who provide independent challenge within their respective departments, ensuring science and engineering evidence and advice is robust, relevant, and high-quality. During C-19, many of them have driven forward specific research areas and will continue to do so in the next stage of the UK's response.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

- In this crisis, the public have relied on the science and medical community and the profile of science has never been greater

The Covid-19 global pandemic has had an unprecedented effect on our way of life. In light of the fast-moving and all-encompassing nature of the response, it has been imperative the government is making decisions on the latest, most reliable scientific advice.

The UK is fortunate to be home to a wealth of experts, including virologists, clinicians, epidemiologists, and behavioural scientists, many of whom have guided the UK's approach to the virus through SAGE and its subgroups.

To help the public understand and follow guidance, scientists informing all aspects of the UK's response have spoken directly to the public in daily televised briefings. This is the first-time scientists have spoken alongside political leaders during a national emergency. Open and clear communication of the science advice will continue to be important as our understanding of Covid-19 and the situation evolves.

- Transparency should be at the heart of science advice to government

At the beginning of the outbreak, behavioural and social interventions were introduced which would dramatically change the public's everyday lives. It was clear the public needed to be fully informed of the scientific evidence and advice regarding these interventions.

The minutes of SAGE meetings and supporting documentation (scientific data and analysis used to inform SAGE discussions) are typically published at the conclusion of the relevant emergency. This reflects the need to balance building the public's understanding of the advice provided by the Group, with the need to protect any national security or operational considerations, and ensure there is a safe space in which Group can provide – and Ministers can consider - free and frank advice.

For this crisis, the UK has revisited this approach in the light of the exceptional circumstances, recognising the high level of public interest in the nature and content of SAGE advice, the likely need for the provision of advice over an extended period, and the very wide-ranging impacts across UK society.

For its work on coronavirus, SAGE has published all past minutes and supporting documents and is committed to publishing all future minutes and supporting documentation within 1 month of the meeting having taken place, and earlier where possible.

This new approach has been taken to allow for wider scientific review, showing questions which have been answered and where gaps in our knowledge of Covid-19 outbreak still exist. It has also helped correct some misconceptions, built public trust and confidence that the most up-to-date scientific evidence and advice has been provided to the UK Government.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Discovery and distribution of effective vaccines and therapeutics

Covid-19 is a new virus, so we need effective vaccines, medicines, or both to safely overcome the global pandemic. The UK Government has committed to supporting domestic and international vaccine development:

- £42.5m to support two candidates under development by the University of Oxford and Imperial College London
- £250m to CEPI to support ongoing work to rapidly develop a coronavirus vaccine
- £330m per year over the next five years to Gavi, the Vaccine Alliance.

A key area for scientific advice is the effective and equitable manufacture and distribution of successful vaccines and therapeutics for Covid-19, particularly in countries with less developed research communities.

Last month, the UK published ground-breaking results from the RECOVERY trial. Dexamethasone, an anti-inflammatory drug, has been proven to reduce the risk of death significantly in C-19 patients on ventilation by as much as 35% and patients on oxygen by 20%, reducing the total 28-

day mortality rate by 17%. It has now been approved for use as [a C-19 treatment throughout the UK with immediate effect](#).

The demand for dexamethasone and other effective medical interventions will be high, so we need to ensure they find their way to those who need them most.

- Future preparedness

Many countries have now lifted lockdowns and are relaxing restrictions on behavioural and social interventions designed to prevent the spread of the virus. Others are approaching the peak of their epidemic. We need to ensure science advice continues to guide decision-makers as countries move to the next phase of the pandemic.

The risk of a 'second wave' is still high. It is important global scientists continue to collaborate to mitigate this risk by sharing information, including epidemiological data and analyses, and lessons learned on early warning systems.

The science community will also need to advise on how governments prepare for future pandemics to avoid the health, social and economic impacts which have marked this once in a generation event.

WALES

1. Name, organisation and country

Peter Halligan, Chief Scientific Adviser, Welsh Government

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

As the Chief Medical Officer and Chief Scientific Adviser for Health lead on this Public Health Crisis, I and my team have provided support, analysis and advice for the newly established Technical Advisory Cell set up to advise the Welsh Government.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

The Technical Advisory Cell (TAC) provides scientific and technical advice to support Welsh Government decision makers during emergencies. TAC updates Welsh Government officials about UK government Science Advisory Group for Emergencies and Welsh modelling forecasts. The Technical Advisory Cell meets 3 times a week. Membership is drawn from Welsh Government, Public Health Wales, Cardiff University and Swansea University. It comprises a range of experts from different disciplines are included covering public health, health protection, medicine, epidemiology, modelling, technology, data science, statistics, microbiology, molecular biology, immunology, genomics, physical sciences and research. Advice and membership is published.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

- Scientist regularly disagree about what constitutes the best kind of scientific evidence.
- Science is complicated and often uncertain but framing policies decisions by ministers suitable for public response including compliance is equally complicated.

5. What are two most important topics in the post-Covid-phase on which scientific advice can make an important contribution?

- Need to learn lessons from this and previous epidemics particularly regarding behavioural sciences.
- Recognise the widespread public acceptance of science informed directives from government and realisation that most of the general public can change their social behaviour rapidly and decisively when required.

EUROPEAN COMMISSION

1. Name, organisation and country

European Commission (EC), DG Research and Innovation and Joint Research Centre

2. Do you or does your organisation play a specific role in the current crisis and if so, could you give a very brief description?

The European Commission Directorates-general for Research and Innovation and Joint Research Centre have acted to coordinate, speed up and reinforce the procurement efforts of medical equipment and has directed research funding to the development of tests, treatments and vaccine. It has created a common stockpile of protective equipment for distribution where most needed.

Research and Innovation remains at the heart of European policy-making in the response to the pandemic because it is crucial to:

- Understand this new virus and the disease it causes;
- Limit its spread (amongst others with the help of tests);
- Develop effective and safe treatments;
- Protect the population to the extent possible (amongst others through safe and effective vaccines);
- Understand and cope with the unprecedented socioeconomic consequences of the pandemic; and
- Better prepare for future similar situations (pandemics and resilience).

In view of this, the Commission quickly mobilised dedicated funding for R&I to address the pandemic - altogether EUR 1 billion under Horizon 2020.

Research and innovation (R&I) have been mobilised to play a key role in the response to the COVID-19 outbreak. R&I related actions are an essential part of the coordinated EU response. These actions focus on:

- Support new R&I;
- Speeding up research by optimising framework conditions;
- Translating research findings into public health policy;
- Internal and external coordination;
- Analysis of social and economic impacts and;
- Outreach and communication.

The whole JRC has been mobilised to provide evidence that might support the tasks of Crisis Management while to start thinking of the aftermath of the crisis, including the elaboration of models to determine which are the most effective exit scenarios and their consequences. This includes, among other input, guidelines and control materials for testing and better characterization of the pandemics; epidemiological modelling; the detailed analysis on economic impact in different sectors (agriculture, energy supply, transport, ...); the analysis of social

aspects along with the environmental perspective; scientific input to supporting the African response to COVID-19; and more.

3. Did your country already have an established scientific advisory structure for this type of pandemic, and if so what are its core characteristics? If this is not the case, has a debate started on the establishment of such a structure?

New advisory structures:

- *Advisory panel on COVID-19*: group of epidemiologists and virologists to provide recommendations to the Commission on response measures, including policy measures for addressing and mitigating medium and long-term consequences of COVID-19, chaired by the Commission President, Ursula von der Leyen, and co-chaired by Stella Kyriakides, Commissioner for Health and Food Safety. Established on 16.03.2020 by EC Decision C(2020)1799
- *Special Advisor to President Von der Leyen*: Peter Piot was appointed to advise the Commission in supporting and steering research and innovation (R&I) in the global fight against COVID-19; he will also advise the Commission on increasing European preparedness in case of future epidemics making best use of research and innovation. This will imply advice on the acceleration of the development, manufacture and deployment of diagnostics, treatments and vaccines; also member of the above mentioned advisory panel.
- *COVID-19 Ad Hoc group*: set up by EC together with MS in the framework of the ERAvsCorona Action Plan to strengthen the operational coordination of R&I funding against COVID-19 covering the whole pipeline (from pre-clinical research to products being available to citizens) for vaccines, treatments and testing; work is carried out in four subgroups: (1) Clinical trials, (2) Manufacturing, (3) Testing, and (4) Financing.
- *Foresight*: study on the scientific, technological and societal conditions for the end of the COVID 19 crisis; May-July 2020.
- *JRC Coronavirus Task Force*: Set up to coordinate and connect the different scientific activities and contributions of the JRC to the EC's COVID-19 response (led by JRC.E.1 disaster management unit)

Already existing advisory structures:

- *The European Centre for Diseases Prevention and Control (ECDC)*: providing risk assessments, guidance, and advice on public health response activities to EU Member States and the EU Commission; it is also represented in the above-mentioned advisory panel on COVID-19.
- *The European Medicines Agency (EMA)*: providing advice to patients and healthcare professionals on the safe use of medicines during the pandemic, and providing scientific and regulatory advice to developers and companies on COVID-19.
- *Group of Chief Scientific Advisors*: a group of highly qualified independent experts with the mandate to provide independent scientific advice and at the request of the College to inform its decision-making and thus contribute to the quality of EU legislation. The GCSA, together with Prof Piot (see above), as well as the European Group on Ethics in Science and New Technologies (EGE, see below) agreed to cooperate to provide advice to the Commission on

COVID-19. The advice is planned to be delivered in three steps (pending agreement by the College):

- a short-term statement with focus on COVID-19 and based on a previous scientific opinion (June 2020);
 - recommendations on preparedness and resilience to pandemics, which could inform the development of a 'European Partnership on Pandemic Preparedness and Societal Resilience' (October 2020);
 - a scientific opinion on resilience towards crises in more general terms (Spring 2021).
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- *European Group on Ethics in Science and New Technologies (EGE)*: An independent, multi-disciplinary body, which advises on all aspects of Commission policies where ethical, societal and fundamental rights issues intersect with the development of science and new technologies. The EGE agreed to cooperate with the GCSA and Prof. Piot in the provision of science advice on COVID-19 (see above).
 - European Commission Expert Group "Economic and Societal Impact of Research and Innovation" (ESIR): a group of independent experts delivering analysis, insight and recommendations for the further elaboration of policies that can enhance the contribution of R&I to the overall EU policy agenda. The ESIR group just published its first Policy Brief 'Protect, prepare and transform Europe' that fed into the Commission's post COVID-19 strategy (the recovery package).
 - The whole JRC has been mobilised to provide evidences that might support the tasks of Crisis Management while to start thinking in the aftermath of the crisis, including the elaboration of models to determine which are the most effective exit scenarios and their consequences. This includes, among other input, guidelines and control materials for testing and better characterization of the pandemics; epidemiological modelling; the detailed analysis on economic impact in different sectors (agriculture, energy supply, transport, ...); the analysis of social aspects along with the environmental perspective; scientific input to supporting the African response to COVID-19; and more.
 - The JRC's Disaster Risk Management Knowledge Centre: The Disaster Risk Management Knowledge Centre (*DRMKC*) provides a networked approach to the science-policy interface in DRM, across the Commission, EU Member States and the DRM community within and beyond the EU. In the COVID-19 context, the DRMKC serves as one important network and platform to produce, assemble, store and share external and internal scientific research in response to the pandemic. Lessons learned report on COVID-19 crisis management will be part of the second "Science for Disaster Risk Management" flagship report.

4. What do you see as the two main lessons on the use as well as status and acceptance of scientific expertise in this crisis?

- A multidisciplinary and interdisciplinary approach is required to develop advice, including biological and medical sciences, other natural sciences and engineering, the social sciences and humanities, including economics, communications and political sciences, as well as expertise in health systems, risk scenarios and crisis management.

- Need for a new social contract between science and policymaking (with norms and rules underpinning trust, preventing blame attribution to science or policymakers in case pandemic response fails and clarifying roles and responsibilities at science-policy interface, independence, co-creation).
- There is a need for having science advice structures in place at European level with the necessary expertise, capacities and competencies, which can be activated immediately in case of such emergencies. This could contribute to better-coordinated/ harmonized response measures by different MS informed by the same scientific evidence.
- There is a need to connect different levels of science advice structures, from local, regional, national to the international level.

5. What are two most important topics in the post-COVID-phase on which scientific advice can make an important contribution?

- Better preparedness and resilience to future pandemics / crises, also in the broader context of climate change and major societal transitions, including developing effective early warning / foresight systems (e.g. via text mining of social media, citizen science coordination, and more)
- Importance of social science in policy advisory systems likely to increase given that the crisis requires behavioural adjustments, an understanding of how economic and political processes interact with biological ones (also in view of concept of the Anthropocene), as well as knowledge about how policy responses interact with values and identities of different groups (e.g. trade-off between economic livelihood of the young and the health of the elderly)