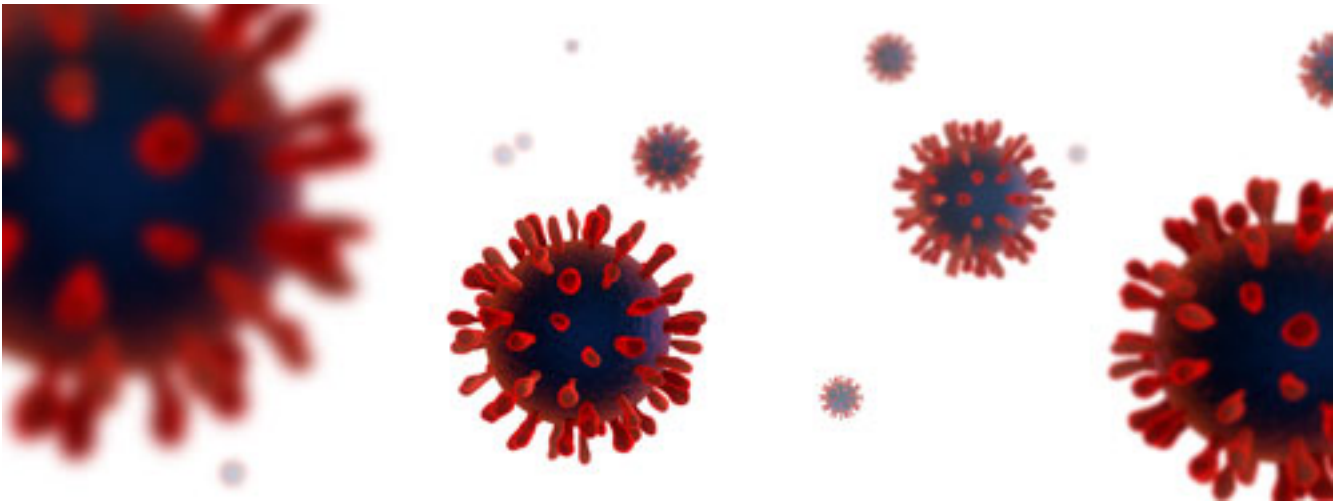




Responding to the Pandemic, Lessons for Future Actions and Changing Priorities

A Statement by the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences



In view of the COVID-19 pandemic, the Pontifical Academies of Sciences and of Social Sciences issue this communication. We note with great appreciation the tremendous services currently provided by health workers and medical professionals, including virologists and others. COVID-19 is a challenge for societies, their health systems, and economies, and especially for directly and indirectly affected people and their families. In the history of humanity, pandemics have always been tragic and have often been deadlier than wars. Today thanks to science, our knowledge is more advanced and can increasingly defend us against new forms of pandemics. Our statement intends to focus on science, science policy, and health policy actions in a broader societal context. We draw attention to the need for action, short- and long-term lessons, and future adjustments of priorities with these five points:

1. **Strengthening early action and early responses:**

1. Health systems need to be strengthened in all countries. The need for early warning and early response is a lesson learned so far from the COVID-19 crisis. It is vitally important to get ahead of the curve in dealing with such global crises. We emphasize that public health measures must be initiated instantaneously in every country to combat the continuing spread of this virus. The need for testing at scale must be recognized and acted upon, and people

who test positive for COVID-19 must be quarantined, along with their close contacts.

2. We received advance warning of the outbreak a few months before it hit us on a global scale. In the future we need to better coordinate efforts on both the political and health care fronts to prepare and protect the population.
3. Governments, public institutions, science communities, and the media (incl. social media) failed to ensure responsible, transparent, and timely communication, which is crucial for appropriate action. International organisations like WHO and UNICEF, but also academies of sciences, need to be supported in their communication efforts so that their scientific evidence-based information can rise above the cacophony of unproven assumptions spreading all over the world.
4. Civil society must be suitably empowered, because the resolution of the present threats requires not only global cooperation but also distributed actions that can only be undertaken satisfactorily by local communities. Given that pandemics render personal face-to-face contacts impossible, efforts need to be made to apply and to further improve communications technologies.

2. **Expanding support of science and actions by scientific communities:**

1. Strengthening basic research enhances the capacity to detect, to respond, and to ultimately prevent or at least mitigate catastrophes such as pandemics. Science needs better funding at a national and transnational level, so that scientists have the means to discover the right drugs and vaccines. Pharmaceutical companies have a key responsibility to produce those drugs at scale if possible.
2. Scientists in all nations already tend to serve with a global perspective when generating preventions and cures. This humane attitude needs further support. Professional associations and science academies need to check whether they can serve better in cooperation with international agencies such as WHO and others, and how.
3. An important research area is understanding the root causes and prevention of zoonotic diseases, i.e. infectious diseases caused by bacteria, viruses, or parasites that spread from animals to humans. Food-related animal production systems may need reshaping to reduce the risks of zoonotic breeding grounds. We also need to know more about the psychological foundations of human behavior in situations of collective stress, in order to decide on appropriate governance strategies in crises.

3. **Protecting poor and vulnerable people:**

1. COVID-19 is a common threat that may harm one country sooner than another but will eventually harm us all. Health workers fighting pandemics in the front lines need the best possible support and protection. Women, who are the majority of health workers and are often most at risk, still suffer the same injustices as in other areas of work. This must stop.

2. We are concerned about the selfishness and shortsightedness of uncoordinated national responses. This is the time to prove that the “Family of Nations” (Paul VI and John Paul II) or the “Family of Peoples” (Pope Francis) are communities of values with a common origin and shared destiny.
3. Broad-based policy action in the field of public health is essential in all countries to protect poor and vulnerable people from the virus. COVID-19 will also have an adverse impact on worldwide economies. Unless mitigated, the anticipated disrupting consequences on food production and supply, and numerous other systems, will hurt especially the poor.
4. Pandemics represent a threat to the millions of refugees, migrants and forcibly displaced. We implore the global community to intensify efforts to protect the most vulnerable among us.
5. The obligatory focus on keeping COVID-19 at bay can have large consequences on those suffering from other diseases. Complex ethical issues arise at the global, national, and local level in the health practice, when first-come-first-serve action rules may break down. This is a general issue, but during a crisis it deserves special consideration as well as a joint scientific and ethical commitment.

4. **Shaping global interdependencies and help across and within nations:**

1. Decades of increasing interconnectedness have opened up the world to massive cross-border flows of goods, services, money, ideas, and people. Under normal circumstances these developments enhance the wellbeing and prosperity of large proportions of the world’s population. Under abnormal circumstances, however, we experience the adverse consequences and fragility of interconnectedness. The sheer scale and scope of the current globalism has made the world unprecedentedly interdependent – and thus vulnerable and dysfunctional during crises. For example, the COVID-19 outbreak is prompting demand for more national isolation. However, seeking protection through isolationism would be misguided and counterproductive. A trend worth backing would be a strong demand for greater global cooperation. Transnational and international organizations need to be equipped and supported to serve that purpose.
2. Only governance based on sound scientific evidence and a solid basis of shared fundamental values can mitigate the consequences of such crises. Unless governments reduce their nationalistic interests, there is reason to expect a worsening of the health crisis and consequently a deep global recession, with profound and tragic implications especially for poor countries.
3. Mitigation measures to curb the rapid spread of contagion sometimes require closing borders around affected hotspots. Nevertheless, national borders must not become barriers hindering help across nations. Human resources, equipment, knowledge about best practices, treatments, and supplies must be shared.
4. Global problems such as pandemics or the less visible crises of global climate change and biodiversity loss demand global cooperative responses. We must take into account the

relationships between human activities, global ecology and livelihoods. Once COVID-19 is under control, we cannot go back to business as usual. A thorough review of worldviews, lifestyles, and short-term economic valuations must be carried out to cope with the challenges of the Anthropocene. A more responsible, more sharing, more equalitarian, more caring and fairer society is required if we are to survive.

5. We insist that global crises demand collective action. The prevention and containment of pandemics is a *global public good* (*Laudato Si'*) and protecting it requires increased global coordination as well as temporary and adaptive decoupling. At a time when rule-based multilateralism is declining, the COVID-19 crisis should encourage efforts to bring about a new – in the sense of different – globalization model aimed at inclusive protection of all.

5. Strengthening solidarity and compassion:

1. Apart from a scientific, technical and health policy agenda, we must not forget social cohesion. Churches, as well as all faith- and value-based communities, are called to action.
2. A lesson the virus is teaching us is that freedom cannot be enjoyed without responsibility and solidarity. Freedom divorced from solidarity breeds pure and destructive egoism. Nobody can succeed alone. The COVID-19 pandemic is an opportunity to become more conscious of how important good relationships are in our lives.
3. Today's paradox is that we realize that each person needs to cooperate with other people at the exact same time as it becomes necessary to isolate ourselves from everyone else for health reasons. However, this paradox is only apparent since the act of staying at home is an act of profound solidarity. It is to “love your neighbor as yourself”. The lesson the pandemic teaches us is that, without solidarity, freedom and equality are just empty words (Pope Francis).

Signed by

Joachim von Braun, President of the Pontifical Academy of Sciences (PAS). University of Bonn, Germany

Stefano Zamagni, President of the Pontifical Academy of Social Sciences (PASS). University of Bologna, Italy

Marcelo Sánchez Sorondo, Bishop Chancellor of the Pontifical Academies of Sciences (PAS) and of Social Sciences (PASS), Vatican City

Dario Edoardo Viganò, Vice Chancellor of the Pontifical Academies of Sciences (PAS) and of Social Sciences (PASS), Vatican City

Werner Arber, PAS Academician and Council Member, Former PAS President, Professor, Biozentrum, University of Basel, Nobel Laureate in Physiology, Switzerland

Frances Arnold, PAS Academician, Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, California, USA

Vanderlei Bagnato, PAS Academician and Council Member, Professor, Department of Physics and Materials Science, University of São Paulo and the Institute of Physics of São Carlos, Brazil

John D. Barrow, FRS, PAS Academician, Professor of Mathematical Sciences in the Department of Applied Mathematics and Theoretical, Director of the Millennium Mathematics Programme, Cambridge University, UK

Antonio M. Battro, MD, PhD, PAS Academician and Director of the International School on Mind, Brain and Education, Ettore Majorana Foundation and Centre for Scientific Culture, Erice. Member of the Academia Nacional de Educación, Argentina

Helen M. Blau, Ph.D., PAS Academician and Donald E. and Delia B. Baxter Foundation Professor, Director, Baxter Laboratory for Stem Cell Biology, Stanford University School of Medicine, Institute for Stem Cell Biology and Regenerative Medicine, Department of Microbiology and Immunology, Stanford, USA

Rocco Buttiglione, PASS Academician, Istituto di Filosofia Edith Stein, Granada, Spain

Steven Chu, PAS Academician, William R. Kenan, Jr. Professor of Physics, Professor of Molecular and Cellular Physiology, Stanford University, USA

Aaron Ciechanover, PAS Academician, The Rappaport Faculty of Medicine and Research Institute, Technion-Israel Institute of Technology, Haifa, Israel

Guy Consolmagno, PAS Academician Perdurante Munere, Specola Vaticana, Vatican City

Yves Coppens, PAS Academician, Collège de France, Paleoanthropologie et préhistoire, Paris, France

Paul Crutzen, PAS Academician and Nobel Laureate in Chemistry, Max-Planck-Institute for Chemistry, Mainz, Germany

Partha Dasgupta, PASS Academician, Frank Ramsey Professor Emeritus of Economics, Faculty of Economics, University of Cambridge, UK

Francis L. Delmonico, M.D., PAS Academician and Council Member, Professor of Surgery Harvard Medical School, Massachusetts General Hospital. Chair World Health Organization Task Force Donation and Transplantation of Organs and Tissues, USA

Edward M. De Robertis, PAS Academician and Distinguished Professor, Biological Chemistry, University of California, Los Angeles, USA

Pierpaolo Donati, PASS Academician and Council Member, Professor of Sociology, Dept. of Political and Social Sciences, University of Bologna, Italy

G rard-Fran ois Dumont, PASS Academician, Rector, Professor at the Sorbonne, Paris, France

Christoph Engel, PASS Academician, Max Planck Institute for Research on Collective Goods, Bonn, Germany

Elaine Fuchs, PAS Academician, Investigator of the Howard Hughes Medical Institute and Rebecca C. Lancefield Professor of the Rockefeller University, New York, USA

Takashi Gojobori, PAS Academician and Distinguished Professor, CBRC (Computational Bioscience Research Center), BESE (Biological and Environmental Sciences and Engineering), KAUST (King Abdullah University of Science and Technology), Thuwal, Kingdom of Saudi Arabia

Ana Marta Gonz lez, PASS Academician and Scientific Coordinator, Institute for Culture and Society, Dept. of Philosophy, University of Navarra, Spain

Mohamed H.A. Hassan, PAS Academician, Sudanese National Academy of Sciences (SNAS), Khartoum North, Sudan

Michael Heller, PAS Academician, Pontifical Academy of Theology, Faculty of Philosophy, Krak w, Poland

Allen D. Hertzke, PASS Academician and David Ross Boyd Professor, Department of Political Science, University of Oklahoma, USA

Vittorio H sle, PASS Academician and Council Member, Professor of Arts and Letters at the University of Notre Dame, USA

Niraja Gopal Jayal, PASS Academician and Professor, Centre for the Study of Law and Governance, Jawaharlal Nehru University, New Delhi, India

Charles Kennel, Director and Distinguished Professor Emeritus, Scripps Institution of

Oceanography, UCSD, USA

Nicole Le Douarin, PAS Academician and Council Member, Professeur Honoraire au Collège de France, Secrétaire Perpétuelle Honoraire de l'Académie des Sciences, France

Yuan Tseh Lee, PAS Academician, Academia Sinica, Institute of Atomic and Molecular Sciences, Taipei, Taiwan (ROC)

Jean-Marie Lehn, PAS Academician, Université Louis Pasteur, Laboratoire de Chimie Supramoléculaire ISIS-ULP, Strasbourg, France

Pierre Léna, PAS Academician and Professor Emeritus, Université Paris Diderot, France

Thomas E. Lovejoy, PhD, University Professor of Environmental Science and Policy, George Mason University, Fairfax, VA Senior Fellow United Nations Foundation

John F. McEldowney, PASS Academician and Professor, School of Law, University of Warwick, Coventry, UK

Marcia K. McNutt, President, National Academy of Sciences (*signing in her personal capacity*)

Yuri Manin, PAS Academician, Max Planck Institute of Mathematics, Bonn, Germany

Roland Minnerath, PASS Academician and Council Member, Archbishop of Dijon, Historian, France

Jürgen Mittelstrass, PAS Academician, Konstanzer Wissenschaftsforums, University of Constance, Germany

Mario Molina, PAS Academician, University of California, San Diego, La Jolla, CA, USA

Erna Möller, PAS Academician, Sweden;

Salvador Moncada, PAS Academician and Professor, MD, Research Domain Director for Cancer at the University of Manchester, UK and Honduras

Rudolf Muradyan, PAS Academician, USA

Ryoji Noyori, PAS Academician, Center for Research and Development Strategy (CRDS), Japan Science and Technology Agency (JST), Riken Fellow, University Professor, Nagoya University, Japan, Nobel laureate in Chemistry

Naomi Oreskes, Professor of the History of Science, Harvard University, USA

Cesare Pasini, PAS Academician Perdurante Munere and Prefect, Vatican Apostolic Library, Vatican City

Ingo Potrykus, PAS Academician, Switzerland

Veerabhadran Ramanathan, PAS Academician and Council Member, Professor, Scripps Institution of Oceanography, University of California at San Diego, USA

Peter H. Raven, PAS Academician and President Emeritus, Missouri Botanical Garden, St. Louis, MO, USA

Martin Rees, PAS Academician and Council Member, former Astronomer Royal, and Trinity College Cambridge, and President of the Royal Society, UK

Gregory M. Reichberg, PASS Academician, Peace Research Institute of Oslo (PRIO), Oslo, Norway

Dani Rodrik, PASS Academician and Ford Foundation Professor of International Political Economy, John F. Kennedy School of Government, Harvard University, USA

Louis Sabourin, PASS Academician, École Nationale d'Administration Publique (GERFI), Université du Québec, Canada

Jeffrey D. Sachs, University Professor and Director of the Center for Sustainable Development at Columbia University, Director of the UN Sustainable Development Solutions Network, Commissioner of the UN Broadband Commission for Development, and SDG Advocate under UN Secretary-General Antonio Guterres.

Michael Sela, PAS Academician, the Weizmann Institute of Science, Department of Immunology, Rehovot, Israel

Hans Joachim Schellnhuber, PAS Academician, Potsdam Institute for Climate Impact Research (PIK), Potsdam, Germany

Wolf Singer, PAS Academician and Council Member, Professor of Physiology at the Goethe University Frankfurt, and Max Planck Institute for Brain Research, Frankfurt, Germany

Marcelo M. Suárez-Orozco, PASS Academician and Council Member, Dean & Distinguished Professor of Education UCLA Graduate School of Education & Information Studies, USA

Govind Swarup, FRS, PAS Academician and former Centre Director NCRA & GMRT, Honorary Fellow of TIFR, India

Hans Tuppy, PAS Academician, University of Vienna, Institute of Biochemistry, Austria

Rafael Vicuña, PAS Academician, Pontificia Universidad Católica de Chile, Facultad de Ciencias Biológicas, Departamento de Genética Molecular y Microbiología, Santiago, Chile

Wilfrido Villacorta, PASS Academician and Professor Emeritus, De La Salle University, Philippines

Edward Witten, PAS Academician, Institute for Advanced Study, Princeton NJ, USA

Ada Yonath, PAS Academician, Director of the Helen and Milton A. Kimmelman Center for Biomolecular Structure and Assembly of the Weizmann Institute of Science. Nobel Laureate in Chemistry, Israel

Paulus Zulu, PASS Academician and Council Member, Professor, University of Kwa Zulu Natal, South Africa