



Science and Survival. A Focus on SARS-CoV-2 and Connections Between Large-Scale Risks for Life on This Planet and Opportunities of Science to Address Them



The 2020 PAS plenary is guided by the idea that the role of science is critical for the survival of humanity – in view of the SARS-CoV-2 / COVID-19 crisis probably more so than ever. The conference also addresses interlinkages between health, large-scale risks for people, and planetary health, as well as opportunities of science to facilitate addressing and contributing to solve them.

The Plenary 2020 builds on deliberations by the Pontifical Academy of Sciences earlier this year, that led to a joint statement by PAS & PASS and an international dialog in a virtual event on Health of People, Health of Planet, Our Responsibility. A lot has been learned about the pandemic in the past $\frac{3}{4}$ of a year, and scientists need to share and compare insights. We highlight here key science related observations from PAS statements, which form the background of this 2020 Plenary session.

Strengthening Science and responsible actions by scientific communities

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.

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 organizations 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.

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.

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.

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.

Strengthening solidarity and compassion

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.

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.

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.

Broad-based policy action in the field of public health is essential in all countries to protect poor and vulnerable people from the virus. A lesson the pandemic teaches us is that, without solidarity, freedom and equality are just empty words (Pope Francis).

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