

# Fraternity, Integral Ecology and Covid-19

## *The Role of Diplomacy and Science*

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# Introduction

Elisabetta Belloni

The title of this Special Event “Fraternity, Integral Ecology and Covid-19. The role of Diplomacy and Science” evokes the main themes of the two last encyclicals of Pope Francis. Focusing on a buffer zone where religion, ethics, science and diplomacy meet encourages us to reflect on and identify the respective role that science and diplomacy play in finding sustainable responses to challenges such as the Covid pandemic – but not only – that we have to face in today’s world.

The relationship between Diplomacy and Science is a dilemma that we diplomats have faced since the beginning of our career. It is a dilemma which we used to address as almost a joke: is it better to be a diplomat who, being a diplomat, knows nothing about everything, or a scientist who, being a scientist, knows everything about nothing? Globalization and the interdependence of everything has proven that today more than ever we need a merging of diplomacy and science, a *science diplomacy*, as suggested by the title of the *Colloquia*. It is clear that the existing interrelation of crises, the need to address all their aspects and all their causes, and the unlimited consequences of different remedies introduced, require global responsibility based on a common understanding and on the knowledge, as deep as possible, of the direction we should take. I would suggest “scientific knowledge” as the background and the basis on which political decisions have to be honestly taken.

Through the lens of Aristotle, the scientist and the diplomat are both philosophers: one cultivating theoretical science, the other political science. Their activities revolve around three main objectives: dialogue, truth and the common good.

Scientists and diplomats have been able to foster dialogue between human beings coming from very different personal and national backgrounds, providing a shared language. Dialogue is the merging of two concepts. The concept of “logos” derives from the Greek verb λέγω (*légo*), which means to choose, tell, enumerate, speak, and think, as opposed to the term “mythos”. In this opposition, mythos corresponds to mythical thought, based on images,

on the authority of the archaic tradition, on principles accepted and shared uncritically, while logos corresponds to critical, rational and objective thought, capable of submitting beliefs and prejudices to scrutiny. “Dia-” (from gr. διά, δια-) is a prefix that mostly means “between” or “by means of”, or indicates separation, diversity.

Dialogue is the search for the logos, the truth. It is therefore a process that allows us to acquire the elements needed for the adoption of a decision after an exchange between all those that have deep knowledge of the essence of the problem in need of addressing. This process allows to reach the core of human coexistence, the identification of the common good, based on profound knowledge and respect for differences, thus overcoming any individualistic approach.

Moreover, theoretical science and political science are both seeking the truth, the logos again. For the former, truth could be an end in itself, the main goal of scientific discovery, while for the latter it is a means to change reality in order to achieve the common good of the polis, the community where the human being thrives. Only by understanding how things really are can we negotiate and find a sustainable compromise.

I think that diplomats and scientists – of course those who interpret their mission according to the highest values based on knowledge – are answering a calling in their life, a calling that requires a strong spirit of service to humankind.

Our work has become more complex than ever in the 21<sup>st</sup> century.

We are living in the age of interdependence. The phenomenon known as globalization has been at the core of the prosperity of our planet ever since Second World War and technology has widened its scope over the last twenty-five years. The boost of international trade, communication and knowledge sharing has driven one of the most impressive periods of wealth creation in the history of humankind. In 2015, an estimated 736 million people were living in conditions of extreme poverty, from a baseline of 1.9 billion in 1990. Therefore, over the course of a quarter-century, 1.1 billion people have escaped poverty and improved their standard of living.

However, this positive development was accompanied by a worrisome growth of inequality and by an unprecedented stress on the resources of our planet. We have witnessed a spike in the planet’s average temperature. The loss of 20% of its biodiversity is driving the deterioration of our ecosystems to a point where, if we do not take action, desertification, lack of water and conflict over other natural resources could lead to a dangerous wave of instability.

Covid-19 has shown how this interdependence can also make the world more fragile. The pandemic has proven that we are all

equally vulnerable in our fragility, but at the same time it has deepened inequality (for instance, can everybody afford treatment for Coronavirus or for the vaccine?). It is true that, thanks to our technology, we are continuously connected to each other, even in the isolation of lockdown. But this does not necessarily make us stronger. The fragility of the individual (who is more and more isolated in spite of our technological connectivity) is actually, somehow, amplified.

The pandemic, including its socio-economic impact, is a major tragedy. But it could also open the opportunity for a new age, similar to the one we saw 75 years ago, with the end of the Second World War, the creation of the United Nations, and the rise of a new world order which granted an era of unprecedented peace and growth.

We will be confronted with serious challenges in the coming decade: post-Covid recovery; climate change; energy transition; growing inequalities and polarization within our societies; artificial intelligence; and many others.

It is clear that we need a new compass.

I truly hope that the next generation will identify a turning point in 2015, the year when Diplomacy gave us the 2030 Agenda for Sustainable Development, Science proved the unquestioned evidence upon which the Paris Agreement was negotiated, and Pope Francis offered all of us the encyclical *Laudato si'*.

The interconnection between economic, social and environmental welfare is at the core of these three documents. There is need for a multidisciplinary approach based on a profound knowledge of nature as well as on the respect for what others can offer or need. This means the revitalization of a new multilateral approach at the global level that abandons individualism in favour of a constructive solidarity. A new world order, which should establish an alliance among states and other subjects of the international community committed to safeguarding the common good.

The great challenges of our time can be tackled only if scientists and diplomats join in their efforts and are able to hold their work to the highest standards, seeking for knowledge and using it to drive toward the common good. To do this effectively, strong investment in education and culture is needed.

The time for healing and reconstruction is now. Italy will play a leading role by taking over the G20 Presidency next week and setting an agenda that will revolve around three words: People, Planet and Prosperity, to remind the world that sustainability and equality are the main objectives to protect our interests.

## *Lectio Magistralis*

Paul Richard Gallagher

This year is characterized by the rapid and inexorable spread of Covid-19, which has put humanity to the test. The pandemic, in fact, caught us by surprise, upsetting our plans and plunging us into an unprecedented and global, “epochal” crisis. In a few months, the coronavirus has infected millions of people around the world and, with the same speed, amplified inequalities in our access to essential goods and services, with devastating consequences, especially for the most vulnerable. “In the very middle of our technological and managerial euphoria, we have found ourselves socially and technically unprepared for the spread of this contagion: it has been difficult for us to recognize and admit its impact. And now, we are rushing to limit its spread”.<sup>1</sup> The coronavirus has exposed the radical vulnerability of everyone and everything. It is raising numerous doubts and concerns, including around our economic systems and the way we organize our societies. Our securities have collapsed; our appetite for power and our craving for control have suddenly crumbled. We find ourselves weak and full of fear.

We live in an era full of contradictions. If, on the one hand, we are witnessing unprecedented progress in various scientific fields, on the other hand, the world is facing multiple humanitarian crises in different areas of the planet, each of which are strongly interrelated.

We are facing a *health crisis* that has and will have even greater repercussions especially when considering the environment, the economy, politics, nutrition and access to food. The World Health Organization (WHO) has already recorded more than 50 million people infected by Covid-19 worldwide and well over a million people who have lost their lives due to the pandemic.<sup>2</sup>

<sup>1</sup> Pontifical Academy for Life, *Global Pandemic and Universal Brotherhood*, 30 March 2020.

<sup>2</sup> Cf. WHO (World Health Organization): <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>.

A food crisis is already underway. It is and will be further exacerbated by the pandemic which has direct and indirect impacts on production, distribution and access to food, the availability of which has been compromised both in the short and long term, especially for the most vulnerable. Furthermore, the food and nutritional situation in the world was already alarming before the spread of Covid-19. According to the latest Report on *The State of Food Security and Nutrition in the World*, published last July by the United Nations agencies operating in the sphere of nutrition (FAO, IFAD, WFP, UNICEF and WHO), in 2019 almost 690 million people were undernourished.<sup>3</sup> Unfortunately, for a few years now, the number of people affected by hunger, which was on the decline since 2010, is increasing once again. The spectre of famine is crossing our world once more. The causes are many and partly depend on an uneven distribution of the Earth's goods. They also include a lack of investment in the agricultural sector, increasing food losses and waste, as well as the proliferation of conflicts in different areas of the planet.<sup>4</sup> Making matters worse, there is climate change, which especially affects small rural producers who live in countries more likely to be exposed to natural disasters and whose economy is based on the agricultural sector.

This last point recalls us back to the *environmental crisis* for which the scientific community, in the face of global warming and climate change, has provided us with countless pieces of evidence, all of which are well known and alarming. Climate change represents a multitude of threats, with the potential to push part of the world's population into extreme poverty in the coming years, nullifying the significant progress that was made in terms of development and that was achieved with great difficulty. The Special Report of the Intergovernmental Panel on Climate Change (IPCC) dedicated to "Climate Change and Land" has shown that at least half a billion people live in areas at risk of further desertification.<sup>5</sup> The result is inevitable: agricultural production and the security of food supplies are falling and the price will be paid by

<sup>3</sup> Cf. FAO, IFAD, UNICEF, WFP and WHO, *The State of Food Security and Nutrition in the World 2020. Transforming Food Systems for Affordable Healthy Diets*, 2020.

<sup>4</sup> Cf. Pope Francis, *Video-Message for World Food Day*, 16 October 2020.

<sup>5</sup> IPCC (Intergovernmental Panel on Climate Change), *Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems. Summary for Policymakers*, 7 August 2019, p. 3.

the poorest populations, many of which will be forced to flee. In October 2018, the IPCC also found that, if no firm commitment is made to the reduction of greenhouse gas emissions, by 2030 global average temperatures could exceed those recorded in the pre-industrial period by 1.5°C, with serious and widespread impacts on humanity both today and in the future.<sup>6</sup> “These studies show that the current commitments made by States to mitigate and adapt to climate change are far from those actually needed to achieve the goals set by the Paris Agreement”.<sup>7</sup>

Obviously, to all of this is added the economic and social crisis. The pandemic continues to have significant economic repercussions with substantial effects on the labour market.<sup>8</sup> It revealed and amplified many of the vulnerabilities and injustices that were already present. Regarding its impact on health, the virus does not discriminate. But in the world of work, it is the most disadvantaged and most vulnerable who are hit the hardest and with the most cruelty. The devastating consequences of inequality can no longer be ignored. For millions of workers, no income means no food, no security and no future. The poor, especially those working in the informal sectors, were the first to see their means of survival disappear. Living outside the margins of the formal economy, they do not have access to social safety nets, including unemployment insurance and health care. Thus, as their desperation increases, they are more likely to seek other forms of income, increasing the likelihood of their exploitation, including forced labour, prostitution and human trafficking. We must never forget that “in a genuinely developed society, work is an essential dimension of social life, for it is not only a means of earning one’s daily bread, but also of personal growth, the building of healthy relationships, self-expression and the exchange of gifts. Work gives us a sense of shared responsibility for the development of the world, and ultimately, for our life as a people”.<sup>9</sup> Work also

<sup>6</sup> Cf. IPCC (Intergovernmental Panel on Climate Change), *Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty. Summary for Policymakers*, 6 October 2018.

<sup>7</sup> Pope Francis, *Message to the United Nations Framework Convention on Climate Change (COP25)*, Madrid, 2 December 2019.

<sup>8</sup> Cf. ILO (International Labour Organization), *ILO Monitor: Covid-19 and the World of Work*, 1<sup>st</sup>-6<sup>th</sup> edition, March/September 2020.

<sup>9</sup> Pope Francis, Encyclical Letter *Fratelli tutti* on Fraternity and Social Friendship, 3 October 2020, n. 162.

helps us to fulfil our duty of solidarity towards every social group and community, as well as towards future generations.

The health crisis, food crisis, environmental crisis and socio-economic crisis are all highly interrelated transversal crises, so much so that we can speak of a single and complex socio-health-environmental crisis.

Each crisis requires vision, planning and swift action, moving beyond both individualistic and more conservative approaches.

Taking up an aphorism attributed to Winston Churchill, “never waste a crisis”. Every moment of difficulty contains an opportunity. The catastrophic event of the pandemic can be seen as “social remodelling”, as a unifying moment in which common interests converge. As Pope Francis suggested while he presided over the extraordinary moment of prayer on March 27, this year, we must “take this time of trial as a time of *choosing*”.<sup>10</sup>

The Covid-19 pandemic can, in fact, represent a real moment of *conversion* (and not only in a spiritual sense), a real opportunity for transformation; however, it might also be a recipe for detours from the right path, or individualistic withdrawal and exploitation.

Pope Francis, speaking to the UNGA (United Nations General Assembly), stated: “We are faced, then, with a choice between two possible paths. One path leads to the consolidation of multilateralism as the expression of a renewed sense of global co-responsibility, a solidarity grounded in justice and the attainment of peace and unity within the human family, which is God’s plan for our world. The other path emphasizes self-sufficiency, nationalism, protectionism, individualism and isolation; it excludes the poor, the vulnerable and those dwelling on the peripheries of life. That path would certainly be detrimental to the whole community, causing self-inflicted wounds on everyone. It must not prevail”.<sup>11</sup>

The response to Covid-19 can, in fact, give rise to the possibility of starting over, a second chance, animated by the hope that, while “the post-industrial period may well be remembered as one of the most irresponsible in history, nonetheless there is reason to hope that humanity at the dawn of the twenty-first century will be remembered for having generously shouldered its grave responsibilities”.<sup>12</sup> It is a challenge to civilization in favour

<sup>10</sup> Pope Francis, *Extraordinary Moment of Prayer*, 27 March 2020.

<sup>11</sup> Pope Francis, *Video-Message to the 75th Meeting of the General Assembly of the United Nations*, 24 September 2020.

<sup>12</sup> Pope Francis, Encyclical Letter *Laudato si'* on Care for Our Common Home, 24 May 2015, n. 165.



of the common good and to place human dignity at the centre of all our actions.

This requires a clear vision of what kind of society and economy we want to build and an accurate “reflection on the meaning of the economy and its goals, as well as a profound and far-sighted revision of the current model of development, so as to correct its dysfunctions and deviations. This is demanded, in any case, by the Earth’s state of ecological health; above all it is required by the cultural and moral crisis of man, the symptoms of which have been evident for some time all over the world”.<sup>13</sup>

This clear vision cannot fail to call for a careful evaluation and re-proposal of the concept of *security*. In 2019, global military spending continued to rise, reaching more than 1.9 trillion US dollars and equalling 2.2% of world GDP (Gross Domestic Product), the highest since 1988.<sup>14</sup> The picture that emerges from this data is a world economy committed to spending more and more to arm itself. The paradox is that its ever-growing expenditure on arms does not contribute to reducing insecurity, but increases it. It confirms the logic of the classic “security dilemma”, according to which the search for a balance of forces pushes each State to try to secure some margin of superiority out of fear of finding itself at a disadvantage. However, weapons and armies will not guarantee greater security. This is particularly evident if we consider the fight against Covid-19, a non-military threat, which has shown the total ineffectiveness of military spending in guaranteeing integral security and which can only be resolved with increased global cooperation.

In fact, the current crisis has revealed that this model too, is unsustainable. Despite enormous military investments, the crisis has highlighted the inadequacy of the concept of “security” understood only from a military perspective. An alternative to this unsustainable model is to strengthen multilateralism, while insisting on the commitment to disarmament and arms control, not as an end in itself, but with a view to contributing to common security and peace. This should not be understood as the absence of war, but the absence of fear, and therefore the promotion of social well-being in the common good. Indeed, it is necessary to combine our efforts to inspire dialogue, diplomatic initiatives and common

<sup>13</sup> Benedict XVI, Encyclical Letter *Caritas in veritate* on Integral Human Development in Charity and Truth, 29 June 2009, n. 32.

<sup>14</sup> Cf. SIPRI (Stockholm International Peace Research Institute), *SIPRI Yearbook 2020: Armaments, Disarmament and International Security*, 2020.

security policies. “The international community is called upon to adopt forward-looking strategies to promote the goal of peace and stability and avoid short-sighted approaches to national and international security problems”.<sup>15</sup>

“Everything is related”, “everything is connected” – this is one of the main threads running through the Encyclical *Laudato si’*. The Holy Father uses it in the awareness that the whole world is intimately connected. The defence of ecosystems, the preservation of biodiversity and the management of the global commons<sup>16</sup> will never be effective if it is not considered together with politics and economics, migration and social relations. “Strategies for a solution demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature”.<sup>17</sup>

From this perspective emerges the need “to convert the model of global development”<sup>18</sup> into an approach that is more respectful of the common good, of creation and of the integral human development of peoples, including present and future generations. We need to adopt a new vision of the world, anchored in an integral ecology. This implies that we promote a more complete understanding of our common home that brings together the scientific, environmental, economic and ethical dimension, and that is open to an “integral vision of life that can inspire better policies, indicators, research and development processes and criteria for evaluation, while avoiding distorted concepts of development and

<sup>15</sup> Pope Francis, *Message to the United Nations Conference to Negotiate a Legally Binding Instrument to Prohibit Nuclear Weapons, Leading Towards their Total Elimination*, New York, 27 March 2017.

<sup>16</sup> *Global commons* have been traditionally defined as those parts of the planet that fall outside national jurisdictions and to which all nations have access. Stewardship of the global commons cannot be carried out without global governance. Global commons include the Earth’s shared natural resources, such as the high oceans, the atmosphere and outer space and the Antarctic in particular. Cyberspace may also meet the definition of a global commons. Due to the impossibility to manage effectively global commons at national level, the key challenge of the global commons is the design of governance structures and management systems capable of addressing the complexity through multiple public and private interests. The management of the global commons requires pluralistic legal entities, usually international and supranational, structured to match the diversity of interests and the type of resource to be managed, and stringent enough with adequate incentives to ensure compliance. Such management systems are necessary to avoid, at the global level, the classic tragedy of the commons, in which common resources become overexploited.

<sup>17</sup> Pope Francis, *Laudato si’*, n. 139.

<sup>18</sup> Benedict XVI, *Angelus*, 12 November 2006.

growth”.<sup>19</sup> Here the image of the “polyhedron whose different sides form a variegated unity, in which ‘the whole is greater than the part’”<sup>20</sup> is very effective.

The development of a polyhedric and interdisciplinary approach to integral ecology has, as its pivot point, the centrality of the human person. The consequence is the promotion of a culture of *care*.<sup>21</sup> This is in contrast to the culture of waste, so widespread in our society today, whose object “is not only food and dispensable objects, but often human beings themselves”.<sup>22</sup>

It is therefore essential to adopt an integral point of view that favours an intimate knowledge of nature and its processes. This is a fundamental prerequisite for a better understanding of the current crisis and for the development of effective solutions aimed at correcting the dysfunctions of the current model of development, which has negative impacts on people’s lives and on the environment. “A technological and economic development which does not leave in its wake a better world and an integrally higher quality of life cannot be considered progress”.<sup>23</sup> The ethical and social dimensions of development must be adequately considered.

All of this implies the education and training of new generations. Indeed, when it comes to integral ecology, particular attention must be paid to the importance of the education process. The transforming power of education in integral ecology requires the patience to generate long-term processes, aimed at shaping genuinely sustainable policies and economies which promote quality of life, in favour of all peoples and the planet, especially the disadvantaged and those in situations of greater risk. Spaces for education and formation are central to this model. They should become more than simply places for the transmission of knowledge; they should be poles for the promotion of integral human development, working with new generations to adopt more sober and responsible lifestyles.

The fact that in an increasingly globalized world everything is interconnected, requires that our centres of education address our

<sup>19</sup> Interdicasterial Working Group of the Holy See on Integral Ecology, *Journeying Towards Care for Our Common Home: Five Years After Laudato si’*, LEV, 31 May 2020, p. 9.

<sup>20</sup> Pope Francis, *Fratelli tutti*, n. 215.

<sup>21</sup> Pope Francis, *Laudato si’*, n. 231; Pope Francis, *Fratelli tutti*, nos. 17, 79, 96, 117, 143, 188.

<sup>22</sup> Pope Francis, *Address to the Members of the Diplomatic Corps Accredited to the Holy See*, 13 January 2014.

<sup>23</sup> Pope Francis, *Laudato si’*, n. 194.

interdependence not only at the commercial, economic and technological level but, even more importantly, at the level of our interpersonal, intergenerational and social relationships.

The Covid-19 pandemic revealed problems that had already existed for years and that can no longer be avoided, “The world was relentlessly moving towards an economy that, thanks to technological progress, sought to reduce ‘human costs’; there were those who would have had us believe that freedom of the market was sufficient to keep everything secure. Yet the brutal and unforeseen blow of this uncontrolled pandemic forced us to recover our concern for human beings, for everyone, rather than for the benefit of a few”.<sup>24</sup> The current situation requires us to reflect on the need for a new solidarity, a conversion of mentality and gaze. It requires the promotion of an ethic of change that is capable of preparing the way for personal and social rebirth. We have experienced both uncertainty and fragility as collective, constitutive dimensions of the human condition. We need to respect these limits and to keep them in mind in every development project, while also caring for the most vulnerable.

After all, “solidarity is not a feeling of vague compassion or shallow distress at the misfortunes of so many people, both near and far. On the contrary, it is a firm and persevering determination to commit oneself to the common good; that is to say to the good of all and of each individual, because we are all really responsible for all. It is above all a question of interdependence, sensed as a system determining relationships in the contemporary world, in its economic, cultural, political and religious elements, and accepted as a moral category”.<sup>25</sup> The most important lesson that this pandemic has left us with is that, whatever the emergency we face, it is only by being united, only by showing solidarity, that we can overcome the most trying of circumstances.

The various global problems that we have to face in the 21<sup>st</sup> century, and of which the Covid-19 pandemic is only the latest clear expression, call for a new ethics and a new kind of international relations. Both must be capable of facing the fact that, as “a society becomes ever more globalized, it makes us neighbours but does not make us brothers”.<sup>26</sup>

<sup>24</sup> Pope Francis, *Fratelli tutti*, n. 33.

<sup>25</sup> St. John Paul II, Encyclical Letter *Sollicitudo rei socialis*, 30 December 1987, n. 38.

<sup>26</sup> Benedict XVI, *Caritas in veritate*, n. 19.

For this reason, the process of strengthening international cooperation is even more important and can no longer be postponed, nor can anyone avoid being implicated or remove themselves from it. It is necessary to build it together because no borders, barriers, or political walls can hide or protect anyone from the effects of this socio-environmental-health crisis. There is no room for the globalization of indifference, for an economy of exclusion, or for the throwaway culture so often denounced by Pope Francis. “Today, no State can ensure the common good of its population if it remains isolated.”<sup>27</sup> The current circumstances clearly show that goods such as health, the environment, the climate, and security are not just individual or national goods, but public and collective goods. They require an integral and collective approach, both at a substantive and geographical level. This approach depends on responsible behaviour, that is, a behaviour that is aware of others and that is oriented towards “us” and “we”. Internationally this approach takes the name of “multilateralism”.

Building together presupposes a commitment to pursue constructive dialogue that is interdisciplinary and genuinely oriented towards the universal common good.

Therefore, we cannot overcome an emergency such as that of Covid-19 if we do not combine technical solutions with a vision that places the common good at its centre. Political decisions must take scientific data into account, but interpreting human phenomena solely through a scientific lens would mean producing answers at a purely technical level.

This pandemic has helped us discover that we must start again to think and plan together the future of the planet.

For this reason, a new alliance between science and humanism is indispensable. They must be integrated and not separated and should not be opposed to one another. The health and the economic and social development of our community depend on them. Concerning the latter, “the development of a global community of fraternity based on the practice of social friendship on the part of peoples and nations calls for a better kind of politics, one truly at the service of the common good. Sadly, politics today often takes forms that hinder progress towards a different world”.<sup>28</sup>

*Better politics* means an inclusive politics that is at the service of everyone, where the health of the political system is determined

<sup>27</sup> Pope Francis, *Fratelli tutti*, n. 153.

<sup>28</sup> Pope Francis, *Fratelli tutti*, n. 154.

precisely by the kind of care received by the most vulnerable, because it is the way in which they are treated that reflects the true health of society as a whole and, therefore, of each one of us that makes up the community.

In the current globalized world, such policies cannot be limited to any one nation or region. Instead, it is necessary to have better policies at the international level, bearing in mind, as has already been said, that no country can go forward alone.

While today's problems must be solved by taking into account the entire international community and all of humanity, the world is larger than a single country. The right solutions must also take into account the many complexities that exist. This requires that we engage in scientific collaboration that is truly interdisciplinary and that does not ignore any type of knowledge. "Given the complexity of the ecological crisis and its multiple causes, we need to realize that the solutions will not emerge from just one way of interpreting and transforming reality. Respect must also be shown for the various cultural riches of different peoples, their art and poetry, their interior life and spirituality. If we are truly concerned to develop an ecology capable of remedying the damage we have done, no branch of the sciences and no form of wisdom can be left out, and that includes religion and the language particular to it".<sup>29</sup> Let's make the world great again!

Often, in our technologically advanced world, there is the temptation to seek solutions to problems through science and technology alone. The sciences equip the human intellectual with power that can be used for the common good, or that can be used in a selfish way, leaving others behind. For this reason, the sciences must be guided and oriented by ethical principles, as well as grounded in human nature, in all of its richness. An approach disconnected from the human person cannot reach a solid, just and human solution. It risks being partial, relative and ideological. In recent years, technological development has made it possible to achieve incredible progress for our societies; however, it has also led to the belief that technology itself can predict all human activity using only data and algorithms. Instead, in order to face the consequences of the pandemic, I would argue that we must engage in innovative scientific and institutional models based on the sharing of knowledge and cooperation between different disciplines.

<sup>29</sup> Pope Francis, *Laudato si'*, n. 63.

Life is bigger than science. The study of the laws of nature and wide-ranging scientific investigations can benefit significantly from in-depth and interdisciplinary dialogue. For example, this could include engaging with philosophers and theologians with the aim of building an ethical framework that encourages each of us, with our different skills, to take more responsibility in caring for and cultivating creation<sup>30</sup>, building an economic system that will improve, rather than destroy, our world.<sup>31</sup> I am thinking, for example, of the various circular models of production and consumption,<sup>32</sup> capable of contrasting and reversing the perverse dynamics set in motion by the current throwaway culture.

In this time of uncertainty and anguish, the pandemic has amplified the injustices and inequalities in our world, many of which stem from unequal economic growth that disregards fundamental human values and that is indifferent to the damage inflicted on our common home. No country has been spared, no population has come out unscathed and no one is immune to its impact. The spread of the virus has shown us that human health is intimately connected with the health of the environment in which we live.

This chance to start over should be founded in a complex vision and a systemic approach that relies on a renewed sense of solidarity, and respect for the common good and the environment. The international community can no longer pursue a market-based logic, seeking profit at any cost. Instead, it has the moral duty to promote measures and decisions that are ethically founded and that put the human person at the centre. It is necessary to create a fraternal society that promotes education in dialogue and that allows everyone to give their best. The appeal not to leave anyone behind must be a warning, that human dignity should never be neglected and that the hope to build a better future should never be denied to anyone.

I would like to conclude with the words that the Holy Father addressed to the participants of the 75<sup>th</sup> session of the General Assembly of the United Nations, “We never emerge from a crisis just as we were. We come out either better or worse. This is why, at this critical juncture, it is our duty to rethink the future of our common home and our common project. A complex task lies before us, one that requires a frank and coherent dialogue aimed at strengthening multilateralism and cooperation between states.

<sup>30</sup> *Genesis*, Ch. 2, Verse 15.

<sup>31</sup> Pope Francis, *Laudato si'*, n. 129.

<sup>32</sup> Cf. Pope Francis, *Laudato si'*, n. 22.

The present crisis has further demonstrated the limits of our self-sufficiency as well as our common vulnerability. It has forced us to think clearly about how we want to emerge from this: either better or worse. The pandemic has shown us that we cannot live without one another, or worse still, pitted against one another. The United Nations was established to bring nations together, to be a bridge between peoples. Let us make good use of this institution in order to transform the challenge that lies before us into an opportunity to build together, once more, the future we all desire”.<sup>33</sup>

<sup>33</sup> Pope Francis, *Video-Message to the 75th Meeting of the General Assembly of the United Nations*, 24 September 2020.



## Discussion\*

Paul Richard Gallagher, Marcia McNutt, Giorgio Parisi,  
and Wolfgang Plastino

Wolfgang Plastino: *The current health emergency has underscored the need for more integrated international cooperation. How will a stronger multilateralism help us face the global crisis caused by Covid-19 and more specifically, its political, economic and social consequences?*

Marcia McNutt: First of all, this was a fabulous opening statement, and I would like to elaborate on some of the themes that we've already heard. I think multinationalism is essential on a number of fronts, and let me enumerate a few of them from my perspective as a scientist. The first is epidemiology. We find unfolding before us an unintended scientific experiment. Populations around the globe, with different age and genetic demographics, who are under different public health systems, with different degrees of exposure to pre-existing conditions, and different cultural norms that determine their willingness or resistance to adopt public safety precautions, are all experiencing the very same health emergency. This is a classic example of a multivariate problem for which we have the hope of actually having an overdetermined system. As scientists, we owe it to the public to make national statistics freely available from all our countries on infection rates, on deaths, who is dying, who is getting infected, how badly are they being impacted, and to analyse them globally, in order to understand how best to confront this global scourge. We can't do this on an individual nation basis, but we can do this multinationally.

The second example I want to cite is medicine. Vaccines, treatments, and other therapies are being developed all over the world. We understand deep in our hearts that the ideal humanitarian

\* The text below is the full transcript of the Round Table that followed the *Lectio Magistralis* by H.E. Paul Richard Gallagher, Holy See Secretary for Relations with States.

solution is to use these treatments to protect the most vulnerable first. But that's going to require international cooperation.

The third example I want to give is ecology. Zoonotic diseases are becoming more common, they're becoming more deadly, and they're becoming more global in their impact. International cooperation, and understanding the factors that lead to diseases crossing boundaries and acquiring remarkable virulence, is absolutely essential. What are the relative roles of habitat destruction, humans encroaching on the urban-wildland interface, the practice of consuming wild as opposed to farm animals and other factors in leading to the rise of these zoonotic diseases? We have to cooperate internationally if we are going to become more resilient to these kinds of crises.

And then the last example I want to give, which is quite different from the others, is supply chains. Let me start with just a personal story. During the early days of the pandemic, when the US was suffering from shortages of all sorts of personal protective equipment, a scientific colleague of mine from Hong Kong, Zhao Wutang, sent me a large crate filled with thousands of surgical masks. Those masks supplied my local hospital, my entire extended family, and all of my neighbours with the protection we all needed to stay safe during the first few months of the pandemic, until supplies could be established here in the US. But I know that not everyone was so fortunate. We learned, sadly, from the Covid-19 crisis that the just-in-time efficiency of global supply chains was badly suited to global emergencies. We need new paradigms. Engineering works very differently from science. Science is all about discovery. Engineering knows that there are many solutions to problems, and so they optimize which solutions they take depending on the needs of the user. If the user wants the safest solution, that's the one they get. If they want the most cost-efficient solution, that's the one they get. Right now, we don't have supply chain solutions that are suited to crises. And we need to prioritize that.

Now although I've focused on the role of science, engineering and medicine, these challenges benefit cooperation and collaboration across governments, non-governments and communities. And I'd like to acknowledge the role of international scientific organizations in all this, such as the G20 Science Summit 2021, which Italy will host next year, the International Science Council, and the InterAcademy Partnership. They all help to coordinate international science efforts. In fact, the InterAcademy Partnership has a secretariat hosted in Trieste with support from Italy, and I want to thank the Italian government for that. There's also a secretariat in the US which is hosted by our academy. They

have all provided resources to help governments decide on policies regarding Covid-19 and many other issues, and so these organizations have remained strong and vital.

*Paul Richard Gallagher:* I'd just add a few thoughts onto what I've already said. This mask that I've just taken off – you talk about international cooperation – was actually provided to the Vatican by the Korean Embassy to the Holy See. They've been very attentive, like many other embassies have been, to our well-being. They want to keep us alive, which is not a bad thing.

I think we have to be quite honest, and say that the state of relations between countries and regions of the world, continents of the world, is not that great. It's true that we've had an unprecedented period of peace following on the Second World War. But even today there are many, many, many conflicts taking a very high price for humankind. And so I think that this is an opportunity to renew some of our structures and our organizations; there is urgent need for this, because some of the problems we are facing today could exacerbate those situations. Environmental considerations do not respect borders, nor do pandemics. And there is always the danger, then, that people, if they feel that their neighbours are not taking these problems seriously or are not acting in an appropriate way, might take matters into their own hands.

So it is urgent that relations improve, not only with dialogue but with the use of the multilateral system, and we are very much in favour of reform of the multinational system as well. Many things need to be changed at every level. But at the same time, its very existence is vital at this time. And as I said, this needs to be based on a renewed appreciation of our humanity and renewed commitment to solidarity amidst peoples and cultures and countries to face the common problems that we are facing. And in all of this, I think that diplomacy has its role, that it is more necessary than ever; there needs to be as much “jaw, jaw,” and as little “war, war,” as possible, and we move forward in that way. I think it's a way of also generating a certain optimism and combatting the pessimism to which I referred, and which is undoubtedly present amongst many of us before the enormity of the problems we are facing. But if we do get people working together, we do get people talking together, and talking about the things that matter most, then I think that we can move forward with a certain degree of confidence.

*Giorgio Parisi:* Multilateralism is the future. We live in a world with finite resources, and we are bound to work together. It is dramatically true that with the global crisis weaker countries become

poorer, and inequalities increase. During Covid-19, some countries have been touched in a very heavy way, and I'm very sorry to hear about Peru, where the number of deaths this year has nearly doubled with respect to the previous year. This is a real humanitarian disaster, like the Spanish flu, but I have the feeling that other countries don't care about what is happening in Peru.

The Covid-19 crisis will not end if the virus is not eliminated in every country, as was done with smallpox. Vaccination should be a fundamental human right, for this and other illnesses, and this aim, as has been stressed by the international Gavi organization, may be reached only by a strong international combined effort. International collaboration is ultra-fundamental, in order to construct a global pandemic preparedness for future pandemics, and this can be done only within a multilateral approach. We know that there will be a new pandemic in the future, and we must be prepared. The role of the WHO should be strongly increased; for example, we need a global reserve of personal protective equipment, ventilators, tools for sanitizing, whatever may be useful. We cannot let any country be left alone, without these extremely useful objects to help save lives. I wish to add that a global institute of health, something that is organized like the NIH, the National Institute of Health of the United States, would be a crucial step to address all the scientific problems that are related to pandemics and preparedness.

*Wolfgang Plastino: What does the coronavirus emergency teach about dealing with environmental threats?*

*Giorgio Parisi:* The environment is crucial to us in many, many respects. As has already been said by His Excellency Gallagher, global warming is a terrible crisis, and unfortunately we have only started to face it. For the moment, we have only the most feeble signals, but in the future things will become much, much worse. I hope that the Covid-19 crisis has taught all of us that global problems should be solved at the global level. No country (as His Excellency also said) can be saved by its lone efforts.

Let me just mention two of the many ways in which the present environmental threats have influenced the Covid crisis: air pollution strongly increases pulmonary and circulatory illnesses. These illnesses played a crucial role as co-morbidities and increased the death toll of Covid. We also have to remember that animals are a crucial part of the environment; not only is respect for animals our moral duty, but disrespect of animals also has serious health

consequences, as we saw already long ago during the MERS-CoV disease. We know that Covid emerged from a market, where the animals were kept in an unhealthy way. We have just heard, in the recent news, that Covid has been transmitted from humans to minks, and back from minks to humans. This is an extremely worrying phenomenon, because we should avoid the formation of a mammal reservoir of the virus. There are so many points of connection between the environmental aspect and the Covid crisis, that I will leave them to other people to go into greater detail.

*Marcia McNutt:* I will try not to repeat any of the points that President Parisi has made, which are of course so very important. Let me just say that environmental threats, whether it's Covid-19 or climate change, clearly know no boundaries. We can't close our borders to them. We can't call up our military and tell them to shoot the virus out of the sky. We can't negotiate with them diplomatically. We can't legislate them out of existence. And most importantly, we can't solve them anywhere until we solve them everywhere. My own nation is now leading in cases and deaths per capita – not a record we are proud to claim. Despite strong interventions by some nations to control infection rates, no one is going to be safe as long as the US remains a reservoir for the disease. These ubiquitous problems demonstrate that we have to work together, that facts and science matter.

We can see the consequences of ignoring science and facts daily with Covid-19. We are seeing the consequences of ignoring science and facts also regarding climate change, too, unfortunately, especially here in the US. But let me say this. Shame on us as scientists for too long having assumed that all of society would automatically embrace the benefits of science technology and innovation. We must remake the case each and every day for the benefits of science, and be more mindful about how we can anticipate and mitigate the negative impacts of innovation on some components of society, particularly those who are most vulnerable. We have to recommit to that, and decide how we are going to do that consistently and every day.

*Paul Richard Gallagher:* These two crises have an awful lot in common. We all know that we're going to be incredibly indebted to the teams of scientists who are working on the vaccines which will hopefully save so many lives in the years to come. But if I look at the other element which is indispensable in this situation, I think it is personal responsibility. The scientists can do so much, but if we are not going to contribute to that, it will not be successful.

So I think that when it comes to the environment – and we see many, many initiatives, and certainly as a result of *Laudato si'* five years ago and the Paris Agreement – many, many people have experienced a kind of ecological conversion, an environmental conversion, and are more aware of the world in which they live and its vulnerability. It's the same thing now with Covid-19. We have to be prudent, we have to be responsible in our actions, and in following the leadership. We can't just leave it up to governments and authorities, or to scientists. Everybody has to do their bit here.

And I think that then underlies the need for recommitment to education; we need to help people who do not appreciate these things, or the young as they are moving into their maturity in the world which is environmentally fragile, and which is affected by Covid-19. We need to help them through education, through our programmes, and to help them to assume the responsibilities which will be theirs in the future for themselves and for their loved ones.

*Wolfgang Plastino: The key role of dialogue in our society has been stressed several times, along with the need to encourage interdisciplinary debate between scientists, philosophers and theologians. What is the link between science, religious freedom and the common good?*

*Paul Richard Gallagher:* I think the principal point that I'd like to make here would be that the benefits that science can bring are many and great, but science and scientists need to work in an ethical and a principled environment. There's an old principle going back to the New Testament, where it says that not everything that we can do is necessarily good, just because we can do it. We have to have that dimension to it: the thing must be ethically sound, in order to produce something good. I think that there is this need for interdisciplinary scientific cooperation, and I think that religious freedom is very fundamental because it draws us to consider what are the fundamental rights of the person, the right to life, the right to other things, the fundamental things. But the right to religious freedom is really that inner, interior freedom that all people should benefit from. And I think it therefore provides an element of a litmus test also for the capacities of science as well.

*Giorgio Parisi:* Roughly speaking, scientists try to understand world as it is, philosophers ask how we understand the world, and theologians try to relate the world with something that transcends

the world. Of course, this may be a caricature of what happens, but just to summarize the situation.

Now, what I would like to stress, is that all these people have different viewpoints on the same world in which we live, and an interdisciplinary dialogue is very important. It has often been said that scientists and philosophers speak to the mind of people, while religion speaks to the heart of the people. As has been stressed by other participants, in the past scientists have forgotten to address many of the problems of many people, and that is something which brings shame on us. We have to remember that we are all men, that we all have the same ethical principles, and that we should work only in the same direction of the common good. Scientific freedom and religious freedom are fundamental human rights, and in the past their suppression has been the source of many events; I sincerely hope that this kind of suppression of human rights will stop in the future.

*Marcia McNutt:* Scientists can certainly advise citizens on steps that they should take to protect themselves, for example in the case of the Covid-19 pandemic, or steps they could take to mitigate climate change – how they can protect themselves, their loved ones, their neighbours and all others. But sadly, science cannot make people care about how their actions affect strangers, generations yet to be born, citizens of other nations, or people who do not look or think like they do. And yet we do know that we share a common journey with all of them, and our futures are intertwined, intertwined in a way that means that we're all in this together. Religion has always been one of the most powerful forces for motivating people to think beyond their own personal welfare. Science and religion working together for the benefit of preserving a sustainable future for humanity, for us now, for our children, for our grandchildren, for the unforeseeable future is likely our one, our only, and our best hope.

Wolfgang Plastino: *Given its disruptive power, artificial intelligence (AI) is one of many emerging technologies at the centre of many debates due to its ethical and social impacts. What are the challenges, opportunities and risks associated with the use of artificial intelligence?*

*Marcia McNutt:* Artificial intelligence shares so many aspects of many of the things that we've already been discussing. It offers the promise of multiplying our abilities, of taking over routine tasks, doing them much more rapidly and accurately, and replacing

mind-numbing jobs that no one really wants to do, and even of finding possible answers to questions that were not possible to solve before. AI in my view is neither intrinsically good nor bad. And that's true with most science. Science isn't good or bad, science just is. It's knowledge. But how it is applied can either be a benefit overall to society, or it can have negative impact. And because AI is a disruptive technology, it is essential for researchers to work with civil society to encourage the beneficial applications and mitigate possible problems. As H.E. Gallagher already stated earlier, if we leave it only up to market forces to decide how science and technology are to be used, then shame on us for accepting that negative outcomes can happen.

So, examples of some of the questions that scientists working with civil society need to consider in how AI is applied are: How will we confront the issue of finding gainful employment for those whose jobs are lost to AI? This can't be a situation where those who know how to benefit from it do, and those who don't are simply left behind and become unemployed and destitute. How do we protect personal privacy, which may no longer be guaranteed when independent large datasets are combined using AI, thus circumventing the protections that each database had individually, but no longer hold once they are put together? How do we create an ethical framework for when and how AI can replace humans in decision-making, and how can errors be eliminated? This has been discussed extensively, for example, in drones being used in warfare. And as a fourth example, how can we establish a continuing framework within which we can re-examine the social and ethical implications for AI that involves conversations of scientists, engineers, and civil society all working together? Because, honestly, science and technology change our ethics as it permeates society, and we have to keep up with the pace of that change and constantly look at the new applications, and how they are disrupting our society, and make sure that we are building the society we want, not the society that we are being driven into.

*Paul Richard Gallagher:* I think I can be really quite brief here, because I want to reinforce some of the things President McNutt has just mentioned. I think that in recent years, maybe even recent decades, the question of AI is the issue broached by more engineers and companies of engineers involved in the development of artificial intelligence approaching the Vatican, asking us for guidance, holding dialogues about the ethical and moral questions associated with this technology. That's been very encouraging, and it does show that the very engineers who are responsible for this development



are aware of both the negative and the positive dimensions, and are to some extent fearful of the misuse of AI.

I'd like to reinforce the question that is certainly of concern to us: the whole question of AI in the matter of autonomous weapons, and where decisions are made during conflicts. And we've seen already increasingly the use of drones, which for the most part are still controlled by generals and other people, but there is the prospect that they could be so programmed as to make their own decisions about targets, etc. The other thing is the whole question of employment, the impact of AI on the employment markets, the danger of technological unemployment, and the impact then that that would have on human dignity, and also on security and the development of our societies. In many parts of the world there are already endemic problems of unemployment. When I was a young priest in the city of Liverpool, there were already then – and we're talking about the late 1970s – families in their third generation of unemployment in the parish that I cared for. Now, forty-odd years later, one shudders to think what the situation may be.

But we certainly do have to make this one of our priorities, because work is not just a way of earning a living, or providing for your loved ones. It is also part of what it means to be a human being, and we shouldn't allow that to be forgotten.

*Giorgio Parisi:* My colleagues have been very clear and have mostly said everything that I want to say. It is clear that we cannot leave the control of AI in the invisible hand of profit. We should carefully design measures that are needed to share the benefits of AI across society. It is clear that when we have an automatic car, or a self-driving car, there will be the problem that taxi drivers are going to disappear. Taxi drivers will lose their jobs very, very rapidly, and this will be a painful process which should be controlled in some way or other.

We need insight from many fields to maximize the social benefit of artificial intelligence and with interdisciplinary research which involves not only hard scientists but soft scientists, psychologists, economists and so on. We have to give opportunities to education, artificial intelligence and information in schools, and generally speak with citizens in order to give them end-to-end control over what's happening. The issue of military use of AI is extremely important and I think it will be extremely urgent to organize an international conference, discussing what steps could be taken to limit the risks of autonomous weapons, and to arrive at full international agreement on this point for all the countries in our world.

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