

Editorial

Annus Horribilis- 2020

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It was the year 1666. Superstitious feared calamities, given the combination 666, which according to old religious beliefs meant the number of the beast. In countries such as Spain, Portugal, and Italy, the Holy Inquisition imposed severe persecution on those who refused to confront the obscurantism of Catholic dogmas. Only a quarter of a century earlier, Galileo Galilei had to account to the inquisitors for his contribution to Copernicus' theory of heliocentrism. Calamities certainly happened, such as the Great Fire of London, when, in September 1666, and after 4 days, 1800 km² of the city turned to ashes. The destruction of 13,200 homes has left 100,000 homeless. But despite the catastrophes, the year 1666 is known as *Annus Mirabilis* or the miraculous year. In the same country, England, Isaac Newton emerged with his remarkable contributions to the advancement of science. That year, he formulated the "law of gravity". The expression *Annus Mirabilis* was used again on other occasions, such as in 1905, when Einstein laid the foundations of the theory of relativity.

The reference is opportune because it puts us face to face with two poles that historically drive or slow the advance of human knowledge: imagination and dogmatic obscurantism; or the scientific spirit vs. the delay.

In this year of 2020, we are living an *Annus Horribilis*. The pandemic of the new coronavirus (COVID-19) spread throughout the world with the same speed and intensity as most of the flows that today connect different peoples, in different locations: information and communications, exchanges of goods, displacement of people.

Today, as in other times, we are facing a polarization between reason and delay. While the scientific community mobilizes to seek a way to face this tremendous challenge, we find, perplexed, the disconcerting presence of retrograde and negationist forces in the face of reality. And it is not just bizarre sects circumscribed to small groups. There are arguments for political actions aimed at concealing the problem and that cry out against scientific reason. They oppose the logic of business in the short term to the very principle of the perpetuity of life, which is (or should be) the major foundation of any ethical principle.

It is important to consider that this harsh reality is not a simple present issue: SeD, in its 2017-2 editorial (We will always have Paris), dealt with denialism and the withdrawal from the Paris Agreement by the USA. In the same edition, in an opinion article, the editors discussed the attack on science and the organized reaction, through Marches for Science, worldwide.

Heralds of delay achieve considerable audience and political legitimacy thanks to demagogic and "disinformant" gestures and arguments, conveyed through a formidable capillarity and speed of the media, many of which do not have moral or scientific filters. In the global context, Brazil appears as a negative example of the relationship between the world of politics, particularly in the sphere of the executive, and the real world. It is worth remembering that almost a third of Brazilians, between fifteen and sixty-four years, are "functionally illiterate", which means that they struggle to read more than keywords in most written texts¹.

1 | Fajardo, V. (2018). Como o analfabetismo funcional influencia a relação com as redes sociais no Brasil. BBC News Brasil. Available at: <https://www.bbc.com/portuguese/brasil-46177957>.

These Brazilians are predominantly active on social media, with 86% using WhatsApp and 72% on Facebook. However, this segment of the population is particularly vulnerable to believing and disseminating fake news, especially those related to environmental sciences or human rights, given their preference for images, videos, audio messages, and simple and brief texts, common on social media. Members of this group are also less likely to verify the information they consume, to detect irony, malice, or embedded satire, or to question unfounded and exaggerated claims and sources².

In addition to the study of the massive “consumers” of obscure campaigns, some troubling questions arise to the debate about what is the explanation for such polarization of ideas and attitudes and what direction is to follow:

- Why does the world of politics consecrate so many troubled minds as leaders (since at least the times of Nero)?
- How did we come to this situation of political legitimacy of obscurantism and bestiality in the 21st century? Preaching that the Earth is flat sounds like something almost harmless or eccentric, compared to the refusal to accept that a pandemic is a serious thing.
- How can we expect the principle of solidarity with future generations to prevail, which serves as the basis for the environmental thinking, if we are not even able to apply this principle to the present time? It is incredible how some leaders refuse to act as statesmen, committed to the common good.

The COVID-19 pandemic points to political dilemmas, but, like every crisis, opens room for opportunity for path corrections.

The world experienced, in a very generalized way, from the end of the 1970s, a wave of reduction in state’s regulatory action, which was based on the idea that the market regulates itself. Today, we are seeing that without the state and its protection mechanisms (of the economy, people, environment), the trend is disruptive. This is possibly the first lesson. And it’s nothing new, since, almost ninety years ago, Keynes had already pointed this out in his proposal to leave the 1930s Great Depression.

Another lesson is that the ease and speed of circulation of information has positive but also negative implications. Without filters, distorted truth disinforms and crystallizes leaderships of braggarts and fanatics, immune to reason.

It would be assumed that the general increase in material well-being since the post-World War II would lead to a more empathetic and less individualistic societal order. That did not happen. Inequalities have grown. But the COVID-19 pandemic can contribute to building a more selfless path.

Anyone who deals with sustainability issues is familiar with the precautionary principle. But our society has not yet assimilated this idea into its practices. It is time to internalize precaution as a parameter of public decisions. Investments in social and environmental protection cannot be subjected only to the coldness and immediacy of the orthodox economic calculus. An idle hospital bed should not be treated as a bad investment, but as a safeguard for times of crisis, such as the current one.

It is also clear that complex problems require creative coping modes. Interdisciplinarity, so present in addressing topics such as sustainable development and relations between humans and the environment, is presented as a necessary and timely approach. Only in this way is it possible to establish a dialogue between different scientific fields. After all, the current pandemic is a subject for

2 | Harden, C. (2019) Brazil Fell for Fake News: What to Do About It Now? Blog Post, Wilson Center’s Brazil Institute, Part of the Democracy and the Rule of Law, first published on February 21, 2019.

medical professionals, but also for sociology, engineering, economics, and a wide range of specialties, which must work in an integrated way.

Science has much to contribute to tackling the current crisis. It is not just its product (knowledge and solutions) that count. It is also important to the *modus operandi* of academic production (the use of method) and validation of the results (peer evaluation). Much has evolved in the sphere of public decisions over the last few decades. Advisory councils were created for decision makers, bringing together different segments of society. Spaces for social participation were opened in the sphere of public policies.

The same science that is called today to save humanity, has been budgetary depreciated, subdued to bureaucratic dictates of execution, and denied in its solidity. Today, the race against time shows the price of delay. We do not harvest fruits overnight; continuous investment and the creation of a scientific culture are needed.

The environmental area is exemplary in these aspects. Decisions regarding the tackling of problems with the severity of the COVID-19 pandemic cannot be confined to a handful of public agents who do not base their thinking on the rigor of the rites of scientific validation and the legitimacy of society's participation. In addition to the generation of scientifically validated and legitimate knowledge, we also need to think about the "society": the habits of consuming this information and education for good use of technology. Experts propose that the promotion of critical thinking and education in general (including scientific) is the only plausible solution, in the long run, to this information dilemma³.

Thus, this crisis can also lead us to reflect on the mode of consumption of our society and rethink values. With ample investment in the promotion of new habits of information consumption, Brazil can reach a point where social media serves direct democracy, constructive debate, and the dissemination of more reliable information in fields so closely linked such as human health and the environment. Studies have shown that the destruction of the environment, with the transformation of landscapes and forms of contact with wildlife, can be at the origin of the spread of diseases.

Returning to the *Annus Mirabilis* of 1666, it is worth remembering a perhaps encouraging fact for the present situation: a year before Newton's great discoveries, on July 25, 1665, a five-year-old boy named John Morley had been found dead in his Holy Trinity Parish home in Cambridge, England. When city authorities examined his corpse, they noticed black spots on his chest, the unmistakable mark of the bubonic plague. Little Morley was the first known case and death of the disease in Cambridge that year: the sign that the London outbreak that spring advanced to the city where young Newton studied, at Trinity College.

Many people in the city rushed to isolate themselves in the field, including Newton, whose home was about 100 kilometers north of the university. Appropriately distant from the nearest city, it was there, in almost total solitude, where he invented calculus, created the science of movement, revealed gravity and more. Newton's forced isolation certainly did not give rise to his ideas, which he had been working on before, but certainly fuelled the conditions of reflection and contact with nature in which modern science could be created.

Just as in 1666, perhaps 2020 is the opportunity to transform COVID-19's *Annus Horribilis* and episodes of returning to obscurantism into a new *Annus Mirabilis*. It is worth remembering that, unlike Newton's time, we now have means of communication and interaction in real-time that allow combining physical distancing with virtual proximity, which opens wide possibilities of collective scientific production, even without physical contact. *Sustainability in Debate* moves forward to help illuminate this path.

This edition of *Sustainability in Debate* contains 10 articles in the *Varia* section. The first article, entitled "Permanent Preservation Areas scenarios in dairy farms in the Vale do Taquari against the forest code",

3 | Ferreira, P. (2018) The first step is to have critical sense and question,' says educator about combating fake news. Available at <https://oglobo.globo.com/sociedade/educacao/educacao-360/o-primeiro-passo-ter-senso-critico-questionar-diz-educador-sobre-combate-noticias-falsas-23071727>

by the authors Caio Zart Daiello and Claudete Rempel, aims to analyze the implications of innovations in the regulation of permanent preservation areas implemented by the New Forest Code.

In the article “Territorial and environmental management in the indigenous lands of rio Paru de Leste: a collective challenge in the northern Brazilian Amazon”, the authors Iori van Velthem Linke et al. analyze the sociopolitical scope and mobilization involved in the implementation of the National Policy for Environmental and Territorial Management of Indigenous Reserves - PNGAT with the indigenous peoples of the Paru de Leste River, in the north of the Amazon.

The authors Ana Cláudia Cardoso, Kamila Oliveira and Taynara Pinho, in the article “Mismatches between extended urbanization and everyday socioenvironmental conflicts in Santarém, Pará, Brazil”, investigate the reasons for the non-flourishing of the environmental debate in the contemporary urbanization of the Global South, through a study of the newly created Metropolitan Region of Santarém, located in the Brazilian Amazon.

The article “Economistic discourses of sustainability: determining moments and the question of alternatives”, by the authors Esther Meyer and Ulli Vilsmaier, presents an analytical-discursive review of the concepts of sustainability in an intercultural perspective.

In the article “Globalization and consumption: a case study of cool roofs as socio-environmental alternative”, the authors Anderson Belem, Bruno de Borowski and Mairon Machado analyze the effect of white roofs in the reduction of internal temperature in buildings in São Borja, RS. The study proves a considerable reduction in the average temperature, but reports that the financial return is only achieved in the long run.

The authors Jaqueline Koser, Celso Barbieri and Tiago Franco, in the article “Legislation on meliponiculture in Brazil: social and environmental demand”, propose a revision of the Brazilian legislation related to meliponiculture in the country, as well as its applicability, proposing changes in the Environmental Crimes Law.

In the article “Socio-environmental accounting system in health management: a case study at the Vision Institute”, the authors Tatiana Abe and Simone Miraglia analyze the applicability of a socio-environmental management tool in Health Management, through the partial application of the Environmental Management Accounting System (SICOGEA) - Generation 3.

The article “Impacts of the Fomento Program on Family Farmers in the Brazilian Semi-Arid and its Relevance to Climate Change: A case study in the region of Sub medio São Francisco”, by the authors Patrícia Mesquita et al. aims to present results on the perception of the impacts of the Program from the point of view of 24 family farmers, interviewed through qualitative research, in 2017, in four municipalities in the states of Bahia. In addition to the socio-productive aspects, the research sought to understand the impacts of the Program in the context of climate change.

The authors Mariana Adas et al., in the article “Reforest or perish: ecosystem services provided by riparian vegetation to improve water quality in an urban reservoir (São Paulo, Brazil)”, study two scenarios in relation to the economic costs of ecosystem services provided by protected riparian vegetation (RPA) of the banks and tributaries of the Guarapiranga Dam, São Paulo, Brazil.

Finally, the article “Development of natural and innovative material for application as thermal insulation in buildings”, by the authors Rodrigo Spinelli et al., aims to demonstrate the development of a façade cladding plate for buildings, with thermal insulation from the vacuum, and the corn cob.

We thank the authors who honor SeD with the submission of their works and the evaluators who collaborated with this edition. We hope you enjoy reading this issue.

The Editors