

# TECHNOLOGICAL REVOLUTION, DEMOCRATIC RECESSION AND CLIMATE CHANGE: THE LIMITS OF LAW IN A CHANGING WORLD

**Luís Roberto Barroso**

Senior Fellow, Carr Center for Human Rights Policy  
Justice, Brazilian Supreme Court



**HARVARD Kennedy School**

---

**CARR CENTER**

for Human Rights Policy

# **CARR CENTER DISCUSSION PAPER SERIES**

---

Discussion Paper  
2019-009

For Academic Citation: Luís Roberto Barroso. Technological Revolution, Democratic Recession and Climate Change: The Limits of Law in a Changing World. CCDP 2019-009. September 2019.

The views expressed in Carr Center Discussion Paper Series are those of the author(s) and do not necessarily reflect those of the Harvard Kennedy School or of Harvard University. Discussion Papers have not undergone formal review and approval. Such papers are included in this series to elicit feedback and to encourage debate on important public policy challenges. Copyright belongs to the author(s). Papers may be downloaded for personal use only.

# Technological Revolution, Democratic Recession and Climate Change:

## The Limits of Law in a Changing World

### About the Author

**Luís Roberto Barroso** is a Senior Fellow at the Carr Center for Human Rights Policy. He is a Justice at the Brazilian Supreme Court and a Law Professor at Rio de Janeiro State University. He holds a Master's degree in Law from Yale Law School (LLM), and a Doctor's degree (SJD) from the Rio de Janeiro State University. He was a Visiting Scholar at Harvard Law School in 2011 and has been Visiting Professor at different universities in Brazil and other countries.

Carr Center for Human Rights Policy  
Harvard Kennedy School  
79 JFK Street  
Cambridge, MA 02138  
[www.carrcenter.hks.harvard.edu](http://www.carrcenter.hks.harvard.edu)  
Copyright 2019



HARVARD Kennedy School

**CARR CENTER**  
for Human Rights Policy

Discussion Paper  
September 2019

# Table of Contents

---

TECHNOLOGICAL REVOLUTION, DEMOCRATIC RECESSION AND CLIMATE CHANGE: THE LIMITS OF LAW IN A CHANGING WORLD.....	2
Summary.....	3
I. Introduction .....	4
Part I.....	5
<i>A FEW LESSONS FROM THE 20TH CENTURY .....</i>	<i>5</i>
I. Dystopias, Desires and Reality .....	5
II. The world has improved significantly: the advance of Enlightenment values .....	8
III. The Crucial Importance of Institutions .....	11
Part II.....	17
<i>TRANSFORMATIONS AND AFFLICTIONS OF THE 21ST CENTURY .....</i>	<i>17</i>
I. The Technological Revolution.....	17
II. The Crisis of Democracy.....	20
III. The Global Warming .....	24
Part III.....	28
<i>THE CHALLENGES OF OUR TIME: LIMITS AND POSSIBILITIES OF THE LAW.....</i>	<i>28</i>
I. Some risks of the technological revolution.....	28
II. Democracy and its internal enemies .....	32
III. The efforts against global warming .....	39
Conclusion.....	45

# TECHNOLOGICAL REVOLUTION, DEMOCRATIC RECESSION AND CLIMATE CHANGE: THE LIMITS OF LAW IN A CHANGING WORLD

---

Luís Roberto Barroso<sup>\*,\*\*</sup>

**Abstract:** Law is a universal institution that has pretensions of being ubiquitous and complete. However, in a complex, plural and volatile world, its limits and possibilities are shaken by the speed, depth and extent of ongoing transformations, its resulting ethical dilemmas, and the difficulties of forming consensus in the political universe. This article provides a reflection on how the Law has attempted to deal with some of the main afflictions of our time, facing demands that include the needs to (i) keep the technological revolution on an ethical and humanistic track, (ii) avoid that democracy be perverted by populist and authoritarian adventures and (iii) prevent solutions to climate change from coming only when it is too late. At a time when even the near future has become unpredictable, Law cannot provide *a priori* solutions to multiplying problems and anxieties. When this happens, we must set clear goals for the future of humanity, basing them on the essential and perennial values that have followed us since antiquity.

---

\* Justice at the Brazilian Supreme Court. Professor of Law at the University of the State of Rio de Janeiro - UERJ. LLM, Yale Law School. SJD, UERJ. Post-Doctoral Studies as Visiting Scholar at Harvard Law School. Senior Fellow at Harvard Kennedy School.

\*\* The major part of this article was written at the Harvard Kennedy School. I am grateful to Sushma Raman and Mathias Risse for their kind welcome at the Carr Center for Human Rights. I am also thankful to Roberta Thomazoni Mayerle, for her invaluable help in researching environmental issues, and to Luna van Brussel Barroso, for revising and editing the final English version of the text.

# Summary<sup>1</sup>

---

## I. INTRODUCTION

### PART I

#### *A FEW LESSONS FROM THE 20TH CENTURY*

##### I. DYSTOPIAS, DESIRES AND REALITY

##### II. THE WORLD HAS IMPROVED SIGNIFICANTLY: THE ADVANCE OF ENLIGHTENMENT VALUES

##### III. THE CRUCIAL IMPORTANCE OF INSTITUTIONS

### PART II

#### *TRANSFORMATIONS AND AFFLICTIONS OF THE 21ST CENTURY*

##### I. THE TECHNOLOGICAL REVOLUTION

##### II. THE CRISIS OF DEMOCRACY

##### III. GLOBAL WARMING

### PART III

#### *THE CHALLENGES OF OUR TIME: LIMITS AND POSSIBILITIES OF THE LAW*

##### I. SOME RISKS OF THE TECHNOLOGICAL REVOLUTION

##### II. DEMOCRACY AND ITS INTERNAL ENEMIES

##### III. THE EFFORTS TO FIGHT GLOBAL WARMING

### *CONCLUSION*

---

---

<sup>1</sup> "This article was the basis of the keynote address given by the author at the opening of the annual conference of the International Society of Public Law, held in Santiago do Chile on July 1st, 2019".

# I. Introduction

---

The following article attempts to analyze the relationship between Law and three phenomena that profoundly shape the contemporary world. The first of these phenomena is the *technological or digital revolution* and the threshold of the Fourth Industrial Revolution. The combination of information technology, artificial intelligence and biotechnology will have an increasing impact on individual behavior, human relationships and the labor market, challenging legal solutions in multiple dimensions. Secondly, the crisis of democracy threatens countries across continents. Even in more mature democracies, a significant number of citizens has abandoned moderate political views in support of radical minorities, with a disturbing increase in tolerance for authoritarian solutions. Democratic constitutionalism must react to the risks and threats of these new times. Finally, affecting all nations across the globe, there is the environmental issue. Despite the persistence of some opposing positions, the overwhelming majority of scientists has been systematically warning about the dangers of delaying the adoption of urgent measures required to contain climate change<sup>2</sup>, which, in the long run, threatens the very survival of life on Earth.

Law, in turn, as the great universal institution<sup>3</sup>, seeks to apprehend these new realities, with its eternal claim to ubiquity, universality and completeness. However, in a complex, plural and volatile world, filled with ethical dilemmas and political deadlocks, its limits and possibilities are constantly tested and shaken. The combination of these three factors is what causes the current critical juncture. It is in this milieu that we seek: to continue to allow for technological advances, while ensuring that it unveils in an ethical and humanistic manner; revitalize democracy by incorporating the digital world's potentials and redesigning institutions that have become obsolete; as well as awakening the hearts and minds of citizens and the attitude of

---

<sup>2</sup> The expressions climate change and global warming are often used interchangeably, including in this article. Technically, however, they have different meanings, climate change being a more comprehensive term. "Climate change or global climate change is generally considered a 'more scientifically accurate term' than global warming, as NASA explained in 2008, in part because "changes to precipitation patterns and sea level are likely to have much greater human impact than the higher temperatures alone". See Joseph Romm, *Is there a difference between global warming and climate change?*, THE YEARS PROJECT (Aug. 04, 2019), <https://theyearsproject.com/ask-joe/difference-global-warming-climate-change/>.

<sup>3</sup> Paulo Barrozo, *Law in time: jurisprudence for legal history* 9 (2019) (unpublished manuscript on file with author): "[L]aw is the one universal institution. By that is meant that there is no one in principle outside its reach; and this no other institution can match. And as domestic legal systems connect to each other and to the system of international law in inextricable myriad ways, the ubiquity of law further tip-points into its universality".

authorities to deal with the severity of global warming and its consequences. History shows that it is at critical moments that windows of opportunity open up for structural changes in politics, economics and social practices in general. For example: the period that followed the Second World War provided the world with significant civilizing advances. It is necessary, therefore, in this challenging historical juncture in which we live, that we resist the setbacks, but release the creative energy that moves history, with no fear of the innovations and transformations that are irreversible.

## Part I

### *A FEW LESSONS FROM THE 20TH CENTURY*

---

#### I. Dystopias, desires and reality

Two totalitarian dystopias<sup>4</sup> marked the 20th century. The first of these was *Brave New World*, a book written by Aldous Huxley and published in 1932, between World War I and World War II, a period marked by technological optimism. The second was *1984*, by George Orwell, published in 1949, after World War II, a time when the growing power of the Soviet Union and the political appeal of communism were still thriving. A third text marked the final years of the last century: Francis Fukuyama's *The End of History*, published in 1989<sup>5</sup> and then turned into a book, released in 1992<sup>6</sup>. The text was contemporary to the end of the Cold War and reflected the excitement of that moment in history.

In *Brave New World*<sup>7</sup>, Huxley portrays a futuristic political organization, called the World State, where there are no wars, revolutions or social conflicts. The society is divided into five classes, each destined to fulfill a specific function: from the Alphas, created to be leaders, to the

---

<sup>4</sup> Utopia designates an idealized social system, close to perfection. Dystopia identifies just the opposite: an oppressive social system with various forms of coercion.

<sup>5</sup> Francis Fukuyama, *The End of History?*, 16 THE NATIONAL INTEREST 3 (1989).

<sup>6</sup> FRANCIS FUKUYAMA, *THE END OF HISTORY AND THE LAST MAN* (Free Press, 1992).

<sup>7</sup> ALDOUS HUXLEY, *BRAVE NEW WORLD* (Double day, 1932).



Epsilons, who will perform the handiwork. The embryos are designed in a laboratory, in a production line where, through genetic manipulation and conditioning technologies, they are developed to satisfactorily perform the social role attributed to them. In this universe, there are no figures like a father, a mother or gestation. The political and social orders are organized for the utilitarian end of maximizing total and individual happiness. To that end, strong emotions, affective desires and more intense personal relationships were suppressed at the start of life. In the event of some frustration or sadness, there is a drug capable of eliminating negative feelings, called *Soma*. The whole system was based on pleasure, where sex was free and non-monogamous. Nonconformists were exiled. Society, as we know it today, subsisted only in a *Wild Reserve*, which people could visit to see the horrors of another era – ours! –, where there was violence, strange religious rituals and suffering. The only character who rebels against the model of the World State ends up succumbing to the system and committing suicide. Huxley's apparent hedonistic paradise is, in fact, totalitarian and dehumanizing.

In the book *1984*<sup>8</sup>, Orwell narrates the scary and depressing setting of a totalitarian State, founded on oppressive social control, with censorship, surveillance, propaganda, and brutal repression. The story takes place in Oceania, one of the three super-States in which the world was divided in a series of wars and internal revolutions that followed the Second World War. The other two “intercontinental” states are Eurasia and Eastasia. Everybody lives in permanent war. The government is led by a single party, which worships the personality of a leader, known as Big Brother, whose real existence is uncertain. Society is divided into three classes: the Inner Party, which includes the small party elite, the Outer Party and the proles. Ministries are designated by names that represent their opposite: Peace takes care of war, Abundance manages rationing, Love promotes torture and brainwashing and Truth deals with propaganda and history revision. The main character, Winston Smith, works at the Ministry of Truth, rewriting history according to Party demands. Winston is dissatisfied with this oppressive system where, in addition to not having freedom of thought, even his love relationship has to be clandestine. He attempts to join the resistance movement, but is trapped, imprisoned, tortured and brainwashed. At the melancholic end of the book, Winston starts supporting the Party and worshipping Big Brother.

---

<sup>8</sup> GEORGE ORWELL, 1984 (Chelsea House, 2007) (1949).

Unlike the first two, Fukuyama's text was not futuristic fiction. On the contrary: it had the pretension of portraying past, present, and future reality. Two months after Mikhail Gorbachev's speech at the United Nations, announcing that the Soviet Union would no longer interfere in the affairs of its Eastern European satellites, the author gave a speech, in February of 1989, that would lay the foundations of his article *The End of History*, published a few months later, and of the book that would deepen the subject<sup>9</sup>. His argument was simple: with the end of the Cold War and the imminent collapse of communism, the ideological clash between capitalism and communism that had marked the 20th century, as well as the Cold War that served as its backdrop, had come to an end. Liberal democracy, based on the rule of law, free market, individual freedoms and the right to political participation, had been consecrated as the culmination of the ideological evolution of humanity<sup>10</sup>. According to him, Marx was wrong: capitalism, not communism, prevailed in the end. Hegel, for his part, was right when he foresaw that a perfectly rational form of society and state would one day emerge victorious<sup>11</sup>. A few months after the publication of the article, the fall of the Berlin Wall on November 9, 1989, and, later, the dissolution of the Soviet Union on December 26, 1991, seemed to prove Fukuyama right. Time, however, would show that the prediction of the end of history was more of a wishful thinking than of a reality.

Neither of the two dystopias materialized, neither in the 20<sup>th</sup> century itself, nor in this initial quarter of the 21<sup>st</sup> century. It is true that *1984* had its plot based on closer historical threats, given the Nazism and Stalinism experiences, while *The Brave New World*, as a work of science fiction, described a more remote future. Nevertheless, both represent important warnings coming from the 20<sup>th</sup> century concerning the real risks of the combination of politics, authoritarianism, technology and genetic engineering. Frightening prophecies, like those of these two works, are not always formulated as an anticipation of what is effectively going to happen, but, precisely the contrary, serve to awaken the minds to dangers that may germinate in society. As for constitutional democracy, it is correct to say that it was the victorious ideology

---

<sup>9</sup> Fukuyama, *supra* note 4; FUKUYAMA, *supra* note 5.

<sup>10</sup> Fukuyama, *supra* note 4: "What we may be witnessing is not just the end of the Cold War (...), but the end of history as such: that is, the end point of mankind's ideological evolution and the universalization of Western liberal democracy as the final form of human government".

<sup>11</sup> *Id.* at 4.

of the 20th century<sup>12</sup>. However, at the beginning of the new century, it faces relevant challenges and objections. In short: the dystopias did not come true, but history is not over just yet.

## II. The world has improved significantly: the advance of Enlightenment values

The 20th century may not have been brief, but it certainly was an era of extremes<sup>13</sup>: it had both the mark of wars and genocides, on the one hand, and the consecration of human rights and the expansion of democracy on the other. The wars were many: *world wars* like the First, from 1914 to 1917, and the Second, from 1939 to 1945; and *local wars*, like those of Korea, Vietnam and Gulf, among others. In addition, there was the long-lasting Cold War, with the imminent risk of nuclear conflict. There were two holocausts: one with the death of more than 1.5 million Armenians killed by the Ottoman Empire, between 1915 and 1923, and the massacre of more than 6 million Jews by the Nazis, between 1941 and 1945. Some would also include in this list the slaughter of more than 500,000 Tutsis in Rwanda in 1994. The century was also marked by the Russian Revolution of 1917 and the great depression of the capitalist world, beginning in 1929. It was also the scene of the rise and fall of fascism, Nazism and communism, as well as the outbreak of Islamic fundamentalism.

After World War II, the United Nations was created and several human rights declarations have been approved since then. From the middle to the fourth quarter of the century, there were important innovations in customs and culture, including the development of the contraceptive pill, female emancipation, the struggle for civil rights by people of African descent, and recognition of equality for LGBT groups. Even after the dissolution of the Soviet Union, the century continued to accelerate, with the development and massive use of personal computers, cell phones and, above all, the revolution brought by the internet, connecting almost the entire world in real time. It was also the era of radio, television, jazz, rock n' roll, the Beatles and *bossa nova*. The age of Pablo Picasso, Frida Kahlo and Andy Warhol. Also, Villa-Lobos and

---

<sup>12</sup> In 1900, no country in the world had its rulers elected by universal suffrage. By December 1999, there were 119 such countries. See *End of century survey finds dramatic gains for democracy*, FREEDOM HOUSE (Dec. 7, 1999), <https://freedomhouse.org/article/end-century-survey-finds-dramatic-gains-democracy>.

<sup>13</sup> *The Age of Extremes: The brief Twentieth Century* is the title of the celebrated book of one of the most prominent historians of the twentieth century, Eric Hobsbawm, published in 1994. In the United States, it was published under the title "*The age of extremes: A history of the world*".

Caetano Velloso. The plurality, intensity and speed of events, interpreted from various ideological and existential points of view, led to conflicting evaluations of the impact that the period had on the history of humanity, both in general and, in particular, in the twenty-first century, which began subsequently.

The English historian Eric Hobsbawm in an acclaimed book published in 1994 lays a negative and even pessimistic overview of the twentieth century. The book begins with statements by 12 relevant intellectuals, beginning with Isaiah Berlin, who refer to the “brief twentieth century” – a period from the beginning of the First War to the dissolution of the Soviet Union – as “the most terrible”, “the most violent”, a “century of massacres and wars”. Hobsbawm himself stated that the century began with catastrophe and ended in crisis, with a short “golden age” of economic growth and social transformation in between, from the end of World War II to the early 1970s<sup>14</sup>. In the author's view, both communism and capitalism have failed, and the future is not promising. For him, the world of the third millennium would certainly continue to be marked by political violence<sup>15</sup>. The book was completed immediately after the end of the Cold War and the collapse of the socialist project. Having been an active Marxist intellectual, Hobsbawm did not see, then, the triumph of liberal democracy and the free market, but the prevalence of a system which, in his view, was incapable of bringing social justice and stability. For him, “the old century ended badly”<sup>16</sup>.

The vicissitudes of the twentieth century, masterfully reported by Eric Hobsbawm, and the risks of capitalism with no ideological competitors, should not be minimized. However, it is also impossible to turn a blind eye to an undeniable fact: humanity began the twenty-first century in better conditions than it has ever been. From a historical perspective, the world that developed under the flag of the Enlightenment ideas, consecrated at the end of the eighteenth century – reason, science, humanism and progress<sup>17</sup> – has been of continuous evolution in multiple domains. We live more and better, on a planet with fewer wars, less malnutrition, less poverty, greater access to knowledge, more rights, including for secularly discriminated minorities such

---

<sup>14</sup> ERIC HOBSBAWM, *AGE OF EXTREMES* 6 (Penguin, 1994).

<sup>15</sup> *Id.* at 460.

<sup>16</sup> *Id.* at 17.

<sup>17</sup> STEVEN PINKER, *ENLIGHTENMENT NOW: THE CASE FOR REASON, SCIENCE, HUMANISM AND PROGRESS* (Penguin, 2018).

as women, blacks and gays. Even animal ethics has entered society's radar. The twentieth century, with its advances in science, medicine, digital technology and democracy, therefore, did not represent a period of decadence of the human condition<sup>18</sup>. Just the opposite, it was the century that overcame illusions and made us more demanding, more realistic, and free from imaginary comprehensive narratives. Part of the romanticism has been replaced by a demand for empirical proof of what works and what does not.

In a book filled with comforting data, Steven Pinker documents this evolution, with plenty of statistics and information. *Life expectancy* in the mid-eighteenth century in Europe and the Americas was around 35 years. At the beginning of the 21st century, it was over 70<sup>19</sup>. *Malnutrition* still tragically affects 13% of the world's population. Nevertheless, in 1947, the percentage was of 50%<sup>20</sup>. *Extreme poverty* fell from 90% to 10% in 200 years, with the significant change in the curve occurring in the fourth quarter of the 20th century. In addition, technology and globalization have changed what it means to be poor<sup>21</sup>. Despite the many nuances involving persistent inequality, the objective fact is that the GINI coefficient – the international index used to measure social inequality – reveals that it is declining<sup>22</sup>. *Education* still faces serious shortcomings everywhere and there are specific goals laid out in international documents that are yet to be met<sup>23</sup>. Nonetheless, the progress is visible. Literacy, which was the privilege of a few, even as the nineteenth century advanced, now reaches 87% of the world's population<sup>24</sup>. As for peace, permanent war ceased to be the natural state of relations between countries. Moreover, while, sadly, there are still geographically limited wars, almost all the nations in the world are committed to not initiating warfare, except in self-defense or with UN approval<sup>25</sup>.

---

<sup>18</sup> In the words of YUVAL NOAH HARARI, *HOMO DEUS* 21 (HarperCollins Publishers, 2017): “Having secured unprecedented levels of prosperity, health and harmony, and given our past record and our current values, humanity’s next targets are likely to be immortality, happiness and divinity”.

<sup>19</sup> PINKER, *supra* note 16, at 53-55.

<sup>20</sup> *Id.* at 71.

<sup>21</sup> *Id.* at 87, 117.

<sup>22</sup> *Id.* at 105.

<sup>23</sup> In the United Nations 2030 Sustainable Development Agenda, adopted in 2015, Goal 4 is as follows: “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”.

<sup>24</sup> PINKER, *supra* note 16, at 236.

<sup>25</sup> *Id.* 13, 163.

These advances of civilization are confirmed by the HDI – Human Development Index, adopted by the United Nations Development Program, which measures the quality of people's lives based on life expectancy, education and per capita income<sup>26</sup>. The progress referred to above suggests a march in the right direction, though not at the desired speed. Overcoming extreme poverty and reducing inequality remain the unfinished tasks of humanity. Still, it is important to refrain from the belief that the world is in decline, about to fall into the chaotic realm of extreme poverty, wars, revolutions, terrorism, drug traffic, and various sources of intolerance and epidemics. There are times when the picture may look scary, but it is always fundamental to look at the entire film.

### III. The crucial Importance of institutions

One of the lessons of the twentieth century concerns the crucial role of institutions in the political and economic performance of countries. Institutions represent the “rules of the game” and the mechanisms necessary for their enforcement. Such rules, formal and informal, create limits and incentives to human interaction<sup>27</sup>. They are standards of behavior and relationship consolidated through Constitutions, laws, regulations and ethical rules, as well as customs and social practices in the most diverse areas. Social attitudes towards values such as the importance of hard work, justice, trust, integrity and cooperation, among others, also integrate the concept. An essential finding is that when formal institutions do not function in an adequate manner, informal practices, often *contra legem*<sup>28</sup>, are institutionalized. What explains the differences in the levels of achievement of different societies? The role of political and economic institutions in the building of nations, determining their success or failure, is the subject of vast academic literature. One of the most relevant authors on the subject was Douglass C. North, co-winner of the Nobel Prize in Economics in the year of 1993, whose ideas permeate the reflections that follow.

---

<sup>26</sup> See United Nations Development Programme. *Human development index*, HUMAN DEVELOPMENT REPORTS (Aug. 04, 2019), <http://hdr.undp.org/en/content/human-development-index-hdi>.

<sup>27</sup> DOUGLASS C. NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE AND ECONOMIC PERFORMANCE 3 (Cambridge University Press, 1990).

<sup>28</sup> For example, where the justice system works poorly, private violence increases; where the bureaucracy imposes excessive burdens, alternative schemes of bribes are developed; where taxation is disproportionate, the devices for evasion are multiplied. It happens this way, because it always has been.

At the political level, institutions exist to create a stable order that reduces the level of uncertainty in human interactions<sup>29</sup>. In the economic front, institutions are ultimately responsible for the opportunities created in a given society, for they are decisive factors for human behavior and the definition of production and transaction costs<sup>30</sup>. They define and limit the choices that people can make. The incentives resulting from the chosen institutional arrangement are determinant in defining what skills and knowledge will be most valuable and which behaviors reward individuals and companies better<sup>31</sup>. Here are some examples of how the greater or lesser efficiency of institutions determines the fate of nations.

The role of political and economic institutions was the dividing line in the trajectory of countries like Spain and England. At the beginning of the seventeenth century, Spain was the great world power and England, a relatively secondary island in the European context. However, throughout the century, English institutions evolved towards the assertion of Parliament, with a greater protection of property rights, an impartial system of justice, increased political freedom and, above all, economic freedom. Spain, on the other hand, faced the fiscal crisis brought about by successive wars exacerbating monarchical power, increasing taxes, confiscating properties and development of a centralized and monopolistic bureaucracy, focused on protecting the interests of the Crown. When the seventeenth century came to an end, Spain was experiencing a process of stagnation that would last until the fourth quarter of the twentieth century, while England laid the groundwork for the Industrial Revolution, on its way to becoming the world's greatest power of that time.

Another important contrast that proves the crucial role of institutions is between the United States and Latin America. In the United States, given that it was not possible to exploit indigenous labor, the settlers were left to do their own work. In addition, the British idea of

---

<sup>29</sup> North makes an important conceptual distinction between institutions and organizations. Institutions, as seen, are the rules of the game. Organizations (political parties, companies, unions, universities, etc.) are the players. The rules of the game are not confused with the strategies of the players. NORTH, *supra* note 26, at 3, 118.

<sup>30</sup> Transaction cost is the cost of doing business, buying and selling goods or services. They include expenses with communication, legal services, obtaining adequate information, quality control and even transportation. See “*Transaction costs*”, BUSINESS DICTIONARY (July 17, 2019), <http://www.businessdictionary.com/definition/transaction-cost.html>. If in a given market it is difficult to obtain a telephone line, buy a replacement part or see a court case judged within a reasonable time, the transaction costs increases significantly. The work considered seminal in this matter is of Ronald Coase, *The nature of the firm*, 16 ECONOMICA 386 (1937).

<sup>31</sup> NORTH, *supra* note 26, at 78.

limited power and some degree of political participation for citizens, religious pluralism and the protection of property rights defined a trajectory that would result in a written Constitution, separation of Powers, declaration of rights, autonomy of the states and economic strength. The institutional framework offered the required incentives to stimulate productive economic activity, so that not even one of the worst civil wars in history changed this reality. In most of Latin America, on the other hand, forced labor was imposed on native populations, who were also forced to convert to Christianity. In addition, the continent was heir to an authoritarian and centralized form of government, in which the Church was not separated from the State and the Crown controlled all economic activities, allocated to individuals through different methods of favoritism<sup>32</sup>.

The study of the foundational role of institutions was resumed in Daron Acemoglu's and James A. Robinson's deservedly acclaimed book, *Why Nations Fail*<sup>33</sup>, whose ideas are the guiding thread of the following paragraphs. The central thesis of their work is that the source of nations' power, prosperity and poverty is not – at least not in its most relevant part – in geography, culture or ignorance as to what is the right thing to do. The real reason for the success or failure of countries lies in the existence or nonexistence of inclusive political and economic institutions. Political institutions establish and govern the distribution of power in society and the purposes for which that power will be employed. Therefore, although economic institutions determine a country's wealth or shortages, they are the product of political decisions made by ruling elites. Consequently, there is intense synergy between the two of them: generally, inclusive political institutions generate inclusive economic institutions and, conversely, extractive political institutions generate extractive economic institutions<sup>34</sup>.

The conclusion that geography and culture do not play the role traditionally accredited to them in determining the destiny of nations can be easily made with real and powerful – for the argument's sake – cases. A graphic one can be found in Nogales, a city that is cut in half by a fence, separating the part in Arizona, in the United States, from the part in Sonora, Mexico. In

---

<sup>32</sup> *Id.* at 116-17. After independence, Latin American countries imported, in a general way, the American constitutional model. This fact, however, was unable to ensure the effectiveness of the new norms, or to change the dysfunctions that were ingrained in Spanish and Portuguese institutions, which have been perpetuated in time and still take their toll.

<sup>33</sup> DARON ACEMOGLU & JAMES A. ROBINSON, *WHY NATIONS FAIL: THE ORIGINS OF POWER, PROSPERITY AND POVERTY* (Profile Books, 2013).

<sup>34</sup> *Id.* at 43, 80, 81.



Nogales, Arizona, the average annual household income is US\$ 30,000 and the city has good electricity, telephony, health and transportation services, as well as law and order. In Nogales, Sonora, the situation is much worse: the average annual income per household is one-third of that from the other side of the border; public services are of poor quality, crime rates are high and opening a business is very risky. An aerial picture of both sides of the fence shows different worlds. Similar and even more dramatic contrasts can be made in the comparison between South Korea and North Korea. The standard of living in the South is similar to that of Portugal and Spain. In the North, it is close to that of sub-Saharan Africa, equivalent to one-tenth of the South Korean standard. Satellite night pictures illustrate the point in a disconcerting way: while the territory of South Korea appears illuminated to its full extent, North Korea is a dark patch, with scarce points of light in the capital. In the same line of comparison, the indicators for West and East Germany were significantly different. In all these cases, geography and culture were the same<sup>35</sup>.

But what exactly are inclusive political and economic institutions? Starting with political institutions. The English, American and French Revolutions took power away from the elites that historically controlled it (absolutists, colonialists, nobility and clergy) and progressively granted political rights to citizens. Political power has been limited, fundamental rights have been expanded and governments have become more responsive to popular will. Lands were distributed in a relatively fair way<sup>36</sup> and property rights, including intellectual property rights, were valued and respected. An independent and efficient judiciary arbitrated conflicts among private individuals, or between them and the State. It should be noted that liberal democracy is not in itself a guarantee that political institutions will be inclusive. It is true, however, that periodic elections, with free and plural political competition, have a natural tendency to produce this result<sup>37</sup>.

---

<sup>35</sup> *Id.* at 7-9, 71-73.

<sup>36</sup> ACEMOGLU & ROBINSON, *supra* note 32, at 37, contrast the United States with Latin America, the mode of land distribution in one and the other: “In the United States a long series of legislative acts, ranging from the Land Ordinance of 1785 to the Homestead Act of 1862, gave broad access to frontier lands. Though indigenous people had been sidelined, this created an egalitarian and economically dynamic frontier. In most Latin American countries, however, the political institutions there created a very different outcome. Frontier lands were allocated to the politically powerful and those with wealth and contacts, making such people even more powerful”.

<sup>37</sup> *Id.* at 102-103, 105, 197, 243.

Economic institutions, in turn, started to become inclusive throughout the historical process that led to the English Revolution (1689). The *Glorious Revolution* established a clear limit to the king's powers and empowered Parliament, which began to exercise control over economic institutions. This was followed by the policy of ending domestic and international monopolies, with a significant opening of the economy to different segments of society, serving as an incentive for investment, trade and innovation. Arbitrary and confiscatory taxation also ended. Such reforms transformed the economic landscape, fostered entrepreneurship and paved the way for the Industrial Revolution, which was the milestone for experiences of sustainable development that followed across the world. The first beneficiary of these changes was, of course, Britain, followed by other countries in Western Europe, which joined the trend of economic freedom and technological innovation. The extractive absolutist models, such as the Austro-Hungarian Empire, the Ottoman Empire, Russia and China, to name a few, were left behind<sup>38</sup>.

The natural environment of inclusive economic institutions is that of the market economy, in which individuals and companies can produce, buy, and sell whatever products and services they desire. On the reverse side of the coin, are the extractive political institutions, which generate equally extractive economic institutions, which transfer wealth and power to the elites. Nations fail today when they cannot give its citizens legal certainty, confidence and equal opportunity to save, invest, undertake projects and innovate. Countries that have lagged behind in history have been led by extractive and self-referential elites, who control a privately appropriated state and distribute among a few individuals the products of the limited economic progress it is capable of producing. Mechanisms for such include monopolies, concessions, licenses, the granting of public loans, state-owned enterprises, and a profusion of freely appointed public officers. Throughout history, extractive institutions have prevailed in Latin America, Africa, Asia and Eastern European countries<sup>39</sup>.

Would poverty and backwardness, then, be irreversible and pre-determined by history? The answer is no. It may not be easy, but it is always possible to transform extractive institutions into inclusive ones, aimed at taking the route to prosperity. History is a chosen path, not a destiny to be fulfilled. Inclusive institutions, as seen, favor economic growth and technological

---

<sup>38</sup> *Id.* at 50, 62, 68, 396.

<sup>39</sup> *Id.* at 372, 401.

advancement. The innovations produced in this environment are accompanied by what the famous Austrian economist Joseph Schumpeter called “creative destruction”, marked by the replacement of the old with the new<sup>40</sup>. New technologies and new companies are attracting investments, promoting the redistribution of power and wealth. This process, as intuitive, has winners and losers<sup>41</sup>. On the other hand, where extractive institutions prevail, the dominant elites not only do not encourage creative destruction, but, more than that, strive to prevent transformation. The fact, however, is that there is no growth without creative destruction and true innovation<sup>42</sup>.

For this reason, fundamental institutional changes are usually brought about by *critical junctures* that put institutions in check, undermining the existing political and economic equilibrium<sup>43</sup>. When these turning points occur, a window of opportunity opens for the replacement or transformation of political and economic institutions. Events such as the Black Death, the Industrial Revolution, the Great Depression, the end of World War II, the end of African colonialism, the overcoming of military dictatorships in Latin America and the fall of the Berlin Wall are examples of these moments of profound transformation. While critical junctures may be the likely scenario of institutional change, there is, of course, no guarantee that it will occur<sup>44</sup>. It must also be noted that even when a drastic event breaks the pillars of the old order, the process of change and its consolidation occurs incrementally, not as an instantaneous fact on a given date<sup>45</sup>.

---

<sup>40</sup> JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 83 (HarperCollins, 2008) (1942): “The fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers’ goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates”.

<sup>41</sup> The steam-loom, landmark of the Industrial Revolution, removed the traditional cotton industry from the market. In the music industry, the CD rocked the vinyl and was virtually eradicated by digital downloads and streaming apps. The print media, such as newspapers and magazines, lives the crisis brought about by the predominance of online information in real time. The telephone companies suffer the competition of alternative means of communication, like WhatsApp, Skype and others.

<sup>42</sup> See ACEMOGLU & ROBINSON, *supra* note 32, at 84, 207, 442.

<sup>43</sup> *Id.* at 432-433: “Critical junctures are major events that disrupt the existing political and economic balance in one or many societies. (...) Critical junctures themselves are historical turning points”.

<sup>44</sup> *Id.* at 111, 431.

<sup>45</sup> NORTH, *supra* note 26, at 6: “Moreover, institutions typically change incrementally rather than in discontinuous fashion”.

## Part II

### TRANSFORMATIONS AND AFFLICTIONS OF THE 21ST CENTURY

---

#### I. The Technological Revolution<sup>46</sup>

It all started about 13.5 billion years ago, when the *Big Bang* occurred and the universe emerged with its fundamental elements: matter, energy, time and space. Just over 9 billion years later, the solar system was formed. With it, came the Earth, where the first signs of organic life date back to 4 billion years. The remotest ancestors of humans supposedly appeared 2.5 million years ago. Our direct ancestor's lineage, the *homo sapiens*, has its origins traced back to about 70,000 years. We are children in the universe. Writing was invented between 3,500 and 3,000 B.C. Until then, emblematic works of the history of humankind, such as the Hebrew Bible, the Greek Iliad, the Indian Mahabharata and the first Buddhist scriptures were transmitted across generations as oral narratives. Three great revolutions shaped the history of humanity: the Cognitive Revolution, the Agricultural Revolution, and the Scientific Revolution<sup>47</sup>.

The *Cognitive Revolution* came about 70,000 years ago, truly marking the beginning of history. From that moment on, the essential distinctive trait of the human condition, which is communication, language, and the ability to transmit information, knowledge and ideas, developed. Wisdom that passes down through generations, without genetic transmission via DNA<sup>48</sup>. The *Agricultural Revolution* took place about 10,000 years ago, with the mastery of planting techniques and the domestication of animals. The ability to produce food instead of having to search or hunt for it allowed human groups to settle in certain places, which in turn made them sedentary people, not nomads anymore. Cities, States, and Empires began to emerge. Finally, came the *Scientific Revolution*, which began at the end of the Renaissance, from the fifteenth to the sixteenth century, and lasts until today. A rich period in the history of humankind, which included the publication of Nicholas Copernicus's revolutionary work and

---

<sup>46</sup> The information on the cosmic and human evolution presented in this topic was collected for the most part in: YUVAL NOAH HARARI, *SAPIENS: A BRIEF HISTORY OF HUMANKIND* (HarperCollins Publishers, 2015) and *HOMO DEUS* (HarperCollins Publishers, 2017); MARCELO GLEIZER, *criação imperfeita* [Imperfect Creation] (Record, 2012); and STEPHEN HAWKING, *Brief Answers to the Big Questions* (Bantam Books, 2018).

<sup>47</sup> YUVAL NOAH HARARI, *SAPIENS: A BRIEF HISTORY OF HUMANKIND* 3, 15, 77, 122, 127, 130, 247 (HarperCollins Publishers, 2015); GLEIZER, *supra* note 45, at 110, 237, 240; HAWKING, *supra* note 45, at 47, 71, 73.

<sup>48</sup> HAWKING, *supra* note 45, at 76.

the conquest of the moon, the Enlightenment and the Industrial Revolution, until becoming a world connected by computers. There were 500 million people in the end of the Middle Age, in 1500. We are 7 billion today<sup>49</sup>.

According to conventional wisdom, there have been three Industrial Revolutions. The first, began in the second half of the eighteenth century and continued throughout the nineteenth century, with its main milestones being the development of new equipment in the textile industry, advancements in iron production techniques, railroad construction, the use of water and, above all, the use of steam as a source of energy for the mechanization of production in general. The Second Industrial Revolution took place between the late nineteenth century and the first decades of the twentieth century, with the expansion of industries, such as those of steel and oil, and had as symbols the telephone, electric lamp, internal combustion engine, car, the airplane and, in particular, the use of electric energy for mass production. The Third Industrial Revolution occurred from the middle to the end of the twentieth century, extending until present days. It was characterized by progresses in the electronics industry, mainframe computers, and the emergence of digital technology in replacement of the analogue system. Also known, for this very reason, as a Digital Revolution, the new technologies have enabled the massive use of the personal computer, the smart cell phone and the internet, which connects billions of people around the world. Whoever wants to choose a leading force for each of the three revolutions could try steam, electricity and the worldwide computer network.

The digital revolution meant a profound transformation in the way one conducts a research, buys goods, books a flight or listens to music, to name a few examples. Contemporary society lives under the aegis of a new vocabulary, a new semantics and a new grammar. The language of our day includes a relevant set of newly incorporated terms, without which we no longer know how to live. To quote a few: Google, Windows, Mac, WhatsApp, Telegram, Uber, Dropbox, Skype, Facetime, Facebook, Twitter, Instagram, Waze, Spotify, Amazon, Google maps, Google translator, iTunes, Netflix, YouTube. For those who are single, there is also Tinder. There is no sector of the traditional economy that has not been affected by these new conditions. Individuals and companies are looking to adapt, innovate and create new business models. As a compass on this path, we also seek a new ethic that can combine creativity,

---

<sup>49</sup> HARARI, *supra* note 46, at 247.

boldness, freedom and, at the same time, privacy, credibility, and protection against hackers and online crime.

The old economy did not die. There are still people who go to supermarkets, bookstores and shopping malls. But the unsurmountable fact is that an economy based on personal interactions, as well as on agricultural and industrial production, the transformation of raw materials and the elaboration of material goods – gold, oil, factories, wheat – has been giving way to a new economy, whose main source of wealth is intellectual property, knowledge and information<sup>50</sup>. A century ago, one commodity was responsible for the exponential growth of an industry: oil. Antitrust regulators had to intervene to avoid excessive concentration of economic power. Nowadays, the concerns once raised by oil companies at the beginning of the last century have shifted to a new focus: the data industry. There are a number of concerns, including competition, taxation, privacy and unemployment. Amazon, Apple, Facebook, Microsoft and Google are among the most valuable companies in the world. This is the data economy<sup>51</sup>.

By now, we are already talking about a Fourth Industrial Revolution, as a result of the Digital Revolution. According to Klaus Schwab, founder of the World Economic Forum and author of an article and book on this specific subject, the Fourth Industrial Revolution is a product of the fusion of technologies, which is blurring the boundaries among the physical, digital and biological spheres and, to some extent, redefining what it means to be human. Compared to previous Revolutions, this one develops at an exponential, rather than linear, speed<sup>52</sup>. Technological innovations and advancements build this admirable new world<sup>53</sup> of biotechnology, artificial intelligence, robotics, 3-D printing, nanotechnology, quantum

---

<sup>50</sup> As Tom Goodwin has put it: “Uber, the world’s largest taxi company, owns no vehicles. Facebook, the world’s most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world’s largest accommodation provider, owns no real estate. Something interesting is happening”. See Tom Goodwin, *The battle is for the customer interface*, TECHCRUNCH (Mar. 3, 2015), <https://techcrunch.com/2015/03/03/in-the-age-of-disintermediation-the-battle-is-all-for-the-customer-interface/>.

<sup>51</sup> *The world’s most valuable resource and Fuel of the future*, THE ECONOMIST, May 6-12, 2017, at 9, 19-22.

<sup>52</sup> KLAUS SCHWAB, THE FOURTH INDUSTRIAL REVOLUTION (Crown Business, 2017). Klaus Schwab, *The fourth industrial revolution: what it means and how to respond*, WORLD ECONOMIC FORUM (Jan. 14, 2016), <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>.

<sup>53</sup> As described in Part I of this article, *Brave New World* is the title of a classic science fiction book by Aldous Huxley that has as its background the risks of the evolution of biotechnology. For young people, books are a means of transmitting knowledge and information printed on paper and bound, which could be acquired in stores called bookstores, of which there are still some remnants.

computing, autonomous cars and the internet of things. Algorithm is becoming the most important concept of our time<sup>54</sup>. Not even the near future is predictable.

In summary: for much of human history, the main asset was land ownership. In the modern era, especially after the Industrial Revolution, machines, factories, energy sources and the means of production in general became more important. In the 21<sup>st</sup> century, information technology and control over data have become the major assets. Economic evolution, therefore, underwent four stages: hunting and gathering, agriculture, industry and information. By now, the fusion between information technology and biotechnology beckons with a new era, that anticipates an integration between the physical and the virtual worlds, human and mechanical activities. Natural selection is being replaced by intelligent design<sup>55</sup>. A world of promises, challenges and new risks.

## II. The crisis of democracy

The twentieth century witnessed the rise of several dictatorships on both sides of the political spectrum. Some were ferocious and genocidal, based on broad and expansionist ideologies, such as Hitler's Germany and Stalin's Soviet Union. Others were by-products of the Cold War and political instability, such as the military regimes of Latin America, Africa, and Asia. Also, there were theological dictatorships, erected on religious fundamentalism, like Iran of the ayatollahs. Democratic redemption came in two different waves<sup>56</sup>. One, after Second World War, with the reconstitutionalization of countries like Germany, Italy and Japan. The other, in a time span from the 1970s to the 1990s, beginning with the 1974 Carnation Revolution in Portugal, to the re-democratization of several Latin American countries in the 1980s, such as Brazil, Argentina, and Uruguay, and finally of countries of Central and Eastern Europe, such as Hungary, Poland and Romania, after the dissolution of the Soviet Union in the 1990s, also reaching South Africa. Having competed with various different projects – fascism,

---

<sup>54</sup> HARARI, *supra* note 17, at 83: “An algorithm is a methodological set of steps that can be used to make calculations, resolve problems and reach decisions”.

<sup>55</sup> *Id.* at 73.

<sup>56</sup> See Samuel P. Huntington, *The third wave: democratization in the late twentieth century* 2 JOURNAL OF DEMOCRACY 12 (1991). Huntington was the first to use the idea of “waves of democratization”: the first wave would have occurred in the first half of the nineteenth century, when countries increasingly adopted the idea of universal suffrage; the second occurred after the end of World War II; and the third from the 1970s. The text predates the flowering of democracies after the end of the communist model.

communism, military regimes, and Islamic fundamentalism – it is legitimate to say that constitutional democracy was the victorious ideology of the twentieth century<sup>57</sup>.

In recent times, however, something seems to be a little off. Focusing on the period beginning in the middle of the first decade of the 21st century and up to the present day, authors have been referring to a *democratic recession*<sup>58</sup> or *democratic retrogression*<sup>59</sup>. Examples have been mounting over the years: Hungary, Poland, Turkey, Russia, Georgia, Ukraine, Philippines, Venezuela, and Nicaragua. In all these cases, the erosion of democracy has not occurred through *coups d'état*, under the arms of some general and his commanders. In the above mentioned examples, the process of democratic subversion came at the hands of presidents and prime ministers duly elected by popular vote<sup>60</sup>. Step by step, starting from election day, measures are taken to lay the groundwork for authoritarianism: power concentration in the Executive, persecution of opposition leaders, changes in electoral rules, curtailment of freedom of expression, new constitutions or constitutional amendments enacted with the exercise of abusive power by majorities, emptying or *packing* of supreme courts with submissive judges, among others. The great difficulty with the construction of these *illiberal*<sup>61</sup> democracies is that each brick, individually, is placed with no direct violation of current law. The final project, however, results in the suppression of freedoms and truly free and competitive elections. This process has been characterized as *autocratic legalism*<sup>62</sup>.

Backing these current threats to the social prestige of democracy, are a set of events and circumstances that mark the contemporary world: globalization and its impact on employment and wage levels, waves of immigration, terrorism, climate change, racism, weakness and low representativeness of political parties, religious fundamentalism, the feminist movement, the achievements of LGBT groups, among many others. The reaction to the sum of these

---

<sup>57</sup> See LUÍS ROBERTO BARROSO, CONSTITUCIONALISMO DEMOCRÁTICO: A IDEOLOGIA VITORIOSA DO SÉCULO XX [*Democratic constitutionalism: the victorious ideology of the 20th century*]. (Migalhas, 2019). See also Bruce Ackerman, *The rise of world constitutionalism*, 83 VIRGINIA L. J. 771, 772 (1997). Published at the end of the last century, the author wrote: “The Enlightenment hope in written constitutions is sweeping the world”.

<sup>58</sup> See Larry Diamond, *Facing up to the democratic recession*, 26 JOURNAL OF DEMOCRACY 141 (2015).

<sup>59</sup> See Aziz Huq & Tom Ginsburg, *How to lose a constitutional democracy*, 65 UCLA L. R. 78, 91 (2018).

<sup>60</sup> STEVEN LEVITSKY & DANIEL ZIBLATT, *HOW DEMOCRACIES DIE* 3 (Crown, 2018).

<sup>61</sup> Apparently, the term was first used by Fareed Zakaria, *The rise of illiberal democracies*, 76 FOREIGN AFFAIRS 22, 1997.

<sup>62</sup> See Kim Lane Scheppele, *Autocratic legalism*, 85 UNIVERSITY OF CHICAGO L. R. 545 (2018).



heterogeneous elements explains the advance of conservative populism in the politics of different countries around the world, including the United States (Trump), Great Britain (Brexit), Continental Europe (Victor Orbán) and Brazil (Bolsonaro). It is possible to organize these different factors into three categories: political, economic-social, and cultural-identity<sup>63</sup>. The *political* causes can be found in the crisis of representation of contemporary democracies, where the electoral process fails to give voice and relevance to citizenship. “They don’t represent us” is the motto of current times<sup>64</sup>. Partly because the political establishment has become increasingly detached from civil society, out of reach to normal citizens, and partly because of the feeling that globalized economic-financial power is truly calling the shots<sup>65</sup>. Hence, the rise of those who resort to anti-*establishment*, anti-globalization and “against all that is out there” sentiment as the cornerstone of their political rhetoric.

The *economic and social* causes of these threats lie in the large group of workers and professionals who have lost their jobs<sup>66</sup> or have reduced their prospects for social progress<sup>67</sup>, becoming of little relevance<sup>68</sup> in a world marked by globalization, new knowledge economy and automation, all of which weaken industries and traditional activities<sup>69</sup>. Not to mention the austerity policies advocated by international organizations and countries with economic leadership<sup>70</sup>, which reduce social safety nets. Finally, the *cultural identity* causes, which, to

---

<sup>63</sup> About the different factors that triggered the conservative populist wave, see MANUEL CASTELLS, RUPTURA: A CRISE DA DEMOCRACIA LIBERAL [Rupture: the crisis of liberal democracy] (Zahar, 2018); see also Ronald F. Inglehart & Pippa Norris, *Trump, Brexit, and the rise of populism: economic have-nots and cultural backlash*, HKS WORKING PAPER SERIES RWP16-026 (July 29, 2016).

<sup>64</sup> See CASTELLS, *supra* note 62, at 103.

<sup>65</sup> In this sense, see Stephen Holmes, *How democracies perish*, in CAN IT HAPPEN HERE: AUTHORITARIANISM IN AMERICA 401 (Cass Sustein ed., HarperCollins, 2018): “[A]fter the electorate votes, markets vote or banks vote or Brussels votes. The second series of votes are the ones that count”.

<sup>66</sup> Jamie McGeever, *Brazil’s unemployment rate rises to 12.7%, reflects weak labor market*, REUTERS (Apr. 30, 2019, 10:08 AM), <https://www.reuters.com/article/brazil-economy-unemployment/update-1-brazils-unemployment-rate-rises-to-127-reflects-weak-labor-market-idUSL1N22C0G7>.

<sup>67</sup> Samuel Issacharoff, *Populism versus democratic governance*, in CONSTITUTIONAL DEMOCRACY IN CRISIS? 447 (Mark A. Graber et al., Oxford University Press, 2018): “The combination of the economic downturn after 2008 and the impact of globalized trade on wages in the advanced industrial countries tarnished the legitimacy of democratic regimes as an insider’s game, a means of institutionalizing elite prerogatives”. See also *Global Inequality*, INEQUALITY.ORG (July 30, 2019), <https://inequality.org/facts/global-inequality/#us-wealth-concentration>.

<sup>68</sup> See YUVAL NOAH HARARI, 21 LESSONS FOR THE 21<sup>ST</sup> CENTURY 34 (Spiegel & Grau, 2018).

<sup>69</sup> Inglehart & Norris, *supra* note 62, at 2.

<sup>70</sup> See Andrew Trotman, *Angela Merkel: “Austerity makes it sound evil; I call it balancing the budget”*, THE TELEGRAPH (Apr. 23, 2013), <https://www.telegraph.co.uk/finance/financialcrisis/10013814/Angela-Merkel-Austerity-makes-it-sound-evil-I-call-it-balancing-the-budget.html>; Laurens Cerulus, *Sigmar Gabriel: ‘Merkel’s*

some extent, also result from a generational clash. There is a middle-aged or elderly group of people who do not profess the cosmopolitan, egalitarian and multicultural creed that drives the progressive agenda of human rights, environmental protection, racial equality, feminist policies, gay marriage, protection of native populations and drug decriminalization, among other modern social movements. These people, who feel negatively affected and excluded in the so-called “politically correct” world, cling to traditional values that offer security and a nostalgic dream of recovering from lost hegemony<sup>71</sup>. Some authors claim to have collected evidence that the advance of populism is mainly due to the cultural changes that have caused the erosion of values and customs in Western societies<sup>72</sup>. In some countries, as has been the case in Brazil – and also in Latin America, Asia and even in parts of Europe – the reaction against structural and systemic corruption has been added to this already complex mix, due to the frustration of expectations once placed on progressive parties, which failed to escape from the force of gravity of the old habits of old politics.

It is too soon to conclude that democracy is truly decadent. In a rapidly changing world, it is inevitable that it will undergo upheavals and adjustments. The two pillars of liberal democracies, as laid down in the 1789 Declaration of Human Rights and Citizenship<sup>73</sup>, are no longer what they were: (i) the separation of powers coexists with the institutional rise of constitutional courts and the Judiciary in general; and (ii) fundamental rights have expanded to embrace universal suffrage, privacy, gender and racial equality, freedom of sexual orientation and, in many parts of the world, social rights. There is still, in the present day, the China factor: an authoritarian alternative model, tainted by corruption, but of vertiginous economic and social success. In short, a time of complexities and perplexities. Nevertheless, it is worth highlighting the famous passage by Alex de Tocqueville, referring to the French Revolution, but with a

---

*austerity is driving EU to brink of collapse'*, POLITICO (Jan. 8, 2017), <https://www.politico.eu/article/sigmar-gabriel-angela-merkel-austerity-is-driving-eu-to-brink-of-collapse/>.

<sup>71</sup> See CASTELLS, *supra* note 62, at 178: “This crisis of the representation of interests joins an identity crisis as a result of globalization. The less control people have over the market and their state, the more they gather in their own identity that cannot be dissolved by the vertigo of global flows. They shelter in their nation, in their territory, in their god”.

<sup>72</sup> Inglehart & Norris, *supra* note 62, at 30.

<sup>73</sup> Declaration of Human Rights and Citizenship: “Art. 16. The society in which the guarantee of the rights is not ensured and the separation of the powers is not established does not have Constitution” (1789).

timeless and universal lesson: a regime is only overthrown if it has already eroded on the inside<sup>74</sup>.

Although troubling, it is possible that the temporary ebb of democratic vigor is only the pendular movement of life and history. And it should not be ruled out that this is a moment of bitterness for progressive thinking due to the prevalence of conservative ideas in many parts of the world, which are not sympathetic to environmental, gender, cosmopolitan, multicultural flags, as well as feminist, pro-gay and indigenous populations social movements. However, this is democracy: sometimes you win, sometimes you lose.

### III. The global warming

Climate change has been identified as the most relevant environmental problem of the 21st century and one of the issues that defines our time<sup>75</sup>. Numerous authors have referred to the matter as “the tragedy of the commons”, meaning a situation where individuals, attending only to self-interest, use scarce resources in a manner that is contrary to the common good<sup>76</sup>. Addressing environmental issues requires cooperation between countries, for natural resources and the factors that affect them are not contained by borders. Two features of the climate debate make it harder to construct the proper solutions. The first, derives from a mixture of ignorance and skepticism, added to the economic and political costs of the necessary measures. The second, is that the effects of carbon emissions made today will only be felt by future generations, a circumstance that serves as an incentive to postpone decisions that are, in fact, urgent. The central concept here is still “sustainable development”, which is long-standing understood as the development that “meets the needs of the present without compromising the

---

<sup>74</sup> JON ELSTER, *TOCQUEVILLE: THE ANCIEN RÉGIME AND THE FRENCH REVOLUTION 170-85* (Trans. Arthur Goldhammer, Cambridge University Press ed., 2011).

<sup>75</sup> KATHRYN HARRISON & LISA MCINTOSH SUNDSTROM, *GLOBAL COMMONS, DOMESTIC DECISIONS: THE COMPARATIVE POLITICS OF CLIMATE CHANGE* ix (MIT Press, 2010). According to Nobel laureate WILLIAM NORDHAUS, *THE CLIMATE CASINO: RISK, UNCERTAINTY, AND ECONOMICS FOR A WARMING WORLD* (Yale University Press, 2013): “Global warming is one of the defining issues of our time”.

<sup>76</sup> About the concept of *tragedy of the commons*, see WILLIAM FORSTER LLOYD, *TWO LECTURES ON THE CHECK TO POPULATION* (Oxford University, 1833), [https://archive.org/stream/twolecturesonch00lloygoog/twolecturesonch00lloygoog\\_djvu.txt](https://archive.org/stream/twolecturesonch00lloygoog/twolecturesonch00lloygoog_djvu.txt); Garret Hardin, *Tragedy of the commons*, 162 *SCIENCE* 1243 (1968); ELINOR OSTROM, *GOVERNING THE COMMONS* (Cambridge University Press, 1990).

ability of future generations to meet their own needs”<sup>77</sup>. One of the goals of sustainable development, approved by the UN in 2015, is precisely the “action against global climate change”<sup>78</sup>.

Global warming is directly associated with the so-called “greenhouse effect”. Greenhouse effect is the natural process of heating Earth's surface. When solar energy reaches Earth's atmosphere, part of it is reflected back into space and part is retained in the atmosphere by the greenhouse gases. These gases – of which carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, ozone and CFCs are examples – trap part of the Earth's radiated heat, preventing it from reaching space. This absorbed energy keeps the planet warm and maintains the temperature at levels that allow for the existence of life. The current problem is that human activities, notably the burning of fossil fuels (coal, oil and natural gas), but also agriculture, livestock, deforestation, etc., have significantly increased the concentration of greenhouse gases in the atmosphere, increasing the retention of heat<sup>79</sup>. This phenomenon has been defined as global warming. In 1972, the Club of Rome published a seminal report entitled “The Limits of Growth”, in which it claimed that climate change was caused by carbon dioxide (CO<sub>2</sub>) and could have an impact on economic growth. Since then, the climate issue has been on the radar of different countries, raising concerns from governments, international organizations and scientists.

Since 1972, starting with the United Nations Conference on the Human Environment, held in Stockholm, most countries in the world have come together in successive conferences, producing relevant documents and guidelines. The most relevant ones are: the United Nations Conference on the Environment and Development, in Rio de Janeiro, in 1992; the Kyoto Protocol and the Conference, in 1997; the United Nations Conference on Sustainable Development of 2012, known as Rio + 20 and the 21st Climate Conference, in 2015, which resulted in the Paris Agreement. All of these meetings, declarations and treaties had as their

---

<sup>77</sup> Report of the World Commission on Environment and Development: Our Common Future, *United Nations*, (1987) <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>.

<sup>78</sup> See The 2030 Agenda for Sustainable Development, *Goal 13*, UNITED NATIONS (2019) <https://sustainabledevelopment.un.org/?menu=1300>.

<sup>79</sup> The technical information in this paragraph was taken from: *Global climate change*, NASA (Mar. 17, 2019) <https://climate.nasa.gov/evidence/>; *Greenhouse effect*, NATIONAL GEOGRAPHIC (Mar. 17, 2019) <https://www.nationalgeographic.org/encyclopedia/greenhouse-effect-our-planet/>; Department of the Environment and Energy, Australian Government, *Greenhouse effect*, AUSTRALIAN GOVERNMENT (Mar. 17, 2019) <http://www.environment.gov.au/climate-change/climate-science-data/climate-science/greenhouse-effect>.

main objective to raise the world's attention to the environmental issue, introduce the concept of sustainable development and face the problem of global warming, mainly by limiting the emission of gases that aggravate the greenhouse effect, notably carbon dioxide (CO<sub>2</sub>). The United Nations Intergovernmental Panel on Climate Change (IPCC) was established in 1988 to provide scientific information to countries on climate change, its implications and potential risks, and to present alternatives for the mitigation of the problem and for the necessary adaptations<sup>80</sup>. The IPCC conclusions reflect the overall scientific consensus on the subject<sup>81</sup>.

Nowadays, the vast majority of scientists agree that the ongoing global warming process is a result of man's interference<sup>82</sup>. According to the Fourth Report of the Intergovernmental Panel on Climate Change, the occurrence of global warming is unequivocal and the probability of man's responsibility is greater than 90%<sup>83</sup>. The global scientific community has endorsed this conclusion. However, there is not a consensus on the theme<sup>84</sup>. In politics, leaders like Donald Trump and Jair Bolsonaro have denied or minimized climate risks. In academia, acknowledged scholars, despite accepting that man contributes to global warming, reject the urgency of policies that address the problem<sup>85</sup>. Others challenge the findings and predictions of the Intergovernmental Panel<sup>86</sup> or simply deny that global warming is caused by human actions. For people that hold this view, the world climate has always had alternating cycles, so that the current moment of heating is only one of its phases<sup>87</sup>. Adding controversy to the debate, studies have shown that groups opposed to reducing fossil fuel production have used the mass media

---

<sup>80</sup> The Intergovernmental Panel on Climate Change, official site (Mar. 18, 2019), <https://www.ipcc.ch>.

<sup>81</sup> *Climate: Get the big picture*, UNFCCC (Apr. 14, 2019), <https://unfccc.int/resource/bigpicture/>.

<sup>82</sup> See Naomi Oreskes, *The Scientific Consensus on Climate Change: how do we know we're not wrong?*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN (Joseph F. DiMento & Pamela Doughman eds., MIT Press, 2007).

<sup>83</sup> IPCC Summary for Policymakers.

<sup>84</sup> See Oreskes, *supra* note 81. In this paper, the author states that there is a "scientific consensus on climate change". In a survey of more than 900 articles written between 1993 and 2003, none of them denied both global warming and human influence on climate change. See also AKIMASA SUMI & NOBUO MIMURA, *From climate change to global sustainability* Introduction, in CLIMATE CHANGE AND GLOBAL SUSTAINABILITY: A HOLISTIC APPROACH (Akimasa Sumi et al. eds., United Nations University Press, 2011).

<sup>85</sup> See Richard S. Lindzen, *There is no 'consensus' on global warming*, THE WALL STREET JOURNAL (June 26, 2006), <https://www.cpp.edu/~zywang/lindzen.pdf>.

<sup>86</sup> See PATRICK J. MICHAELS, MELTDOWN: THE PREDICTABLE DISTORTION OF GLOBAL WARMING BY SCIENTISTS, POLITICIANS, AND THE MEDIA (Cato Institute, 2004).

<sup>87</sup> See FRED S. SINGER & DENNIS T. AVERY, UNSTOPPABLE GLOBAL WARMING: EVERY 1,500 YEARS (Updated and expanded ed., Rowman & Littlefield, 2007).

to instill uncertainty and reduce support for measures against climate change<sup>88</sup>. Notwithstanding opposing positions and reactions, the prevailing view is that the situation is serious, the risks are real and the steps must be taken urgently.

It is not easy to predict the real impacts of climate change. Not only because of the uncertainties surrounding the effects of greenhouse gas emissions and climate cycles, but also because it is difficult to assess the capacity of humans and other species on Earth to react to them<sup>89</sup>. This scenario of uncertainty is enhanced by what the literature calls “climate lag”: scientists estimate that the impact of emissions will only be fully felt between 25 and 50 years after their occurrence. It is beyond doubt, however, that the planet is warming up and that the consequences of this phenomenon can already be felt in different parts of the world<sup>90</sup>. These include global warming, ocean warming, ice sheet melting in Greenland and Antarctica, glacial retreat, the loss of snow cover in the Northern Hemisphere, sea level rise, loss in the extent and thickness of the Arctic sea ice, species extinction and increasing numbers of extreme weather conditions (such as hurricanes, floods and heat waves)<sup>91</sup>. In the Amazon, the largest biodiversity repository and largest carbon storage in the world, the original forest area has been reduced in a staggering scale and is seriously affected by activities such as agriculture, livestock, timber exploitation and mining. There is a real risk of death of the forest in a not too distant future<sup>92</sup>. Some predict that climate change could hurt global food production and water supplies<sup>93</sup>.

---

<sup>88</sup> See ROSS GELBSPAN, *THE HEAT IS ON: THE HIGH STAKES BATTLE OVER EARTH'S THREATENED CLIMATE* (Addison-Wesley Pub, 1997); see also Julia B. Corbett & Jessica L. Durfee JL, *Testing Public (Un)Certainty of Science: media representations of global warming*, 26 SCIENCE COMMUNICATION 129, (2004).

<sup>89</sup> WILLIAM NORDHAUS, *THE CLIMATE CASINO: RISK, UNCERTAINTY AND ECONOMICS FOR A WARMING WORLD* 49 (Yale University Press, 2013).

<sup>90</sup> E.g., in France, according to Météo France, the average temperature in more than 70 cities rose between 2° and 3° C. See Pierre Breteau, *Comment le réchauffement climatique se ressent-ils dans votre ville?*, LE MONDE, Sept. 8, 2018.

<sup>91</sup> See James Hansen et al., *Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2° C global warming could be dangerous*, 16 ATMOSPHERIC CHEMISTRY AND PHYSICS 3761 (2016); see also NASA, *Global climate change* (Mar. 17, 2019), <https://climate.nasa.gov/evidence/>.

<sup>92</sup> WALTER VERGARA & SEBASTIAN M. SCHOLZ (EDS.), *ASSESSMENT OF THE RISK OF AMAZON DIEBACK* (The World Bank, 2011). See also *Deathwatch for the Amazon: the threat of runaway deforestation*, THE ECONOMIST, August 3<sup>rd</sup>, 2019, digital.

<sup>93</sup> STEWART J. COHEN & MELISSA W. WADDELL, *CLIMATE CHANGE IN THE 21ST CENTURY* 4 (McGill-Queen's University Press, 2009); Christopher Flavelle, *Climate change threatens the world's food supply*, *United Nations warns*, THE NEW YORK TIMES, Aug. 8, 2019.

## Part III

# THE CHALLENGES OF OUR TIME: LIMITS AND POSSIBILITIES OF THE LAW

---

## I. Some risks of the technological revolution

*“Our future is a race between the growing power of our technology and the wisdom with which we use it. Let’s make sure that wisdom wins”.*

Stephen Hawking

The Digital Revolution and the developments announcing the Fourth Industrial Revolution – with the synergy between information technology and biotechnology – bring the allures of modern life and the promises of longevity and new levels of comfort. But they also bring inconveniences, threats and real dangers to civilized life and the human condition, including new war tactics such as cyber attacks<sup>94</sup>. The Law has to deal with challenges that test its limits and possibilities. The following is a reflection on some of them.

The internet and social networks, for example, have given way to deviations such as hate speeches and disinformation campaigns. How do we protect communication in the world of fake news and deep fake, in which false videos reproduce the image and voice of real people in unusual and untrue situations? Companies that offer platforms for digital media are understandably reluctant to function as private censors. On the other hand, state interference in the area of freedom of expression is always risky. Given this framework, there are no fully effective or politically simple legal remedies. Another important point concerns market domination and the concentration of economic and political power in the hands of a few companies<sup>95</sup>. Regulators around the world have turned to this problem<sup>96</sup>. Wealth, which

---

<sup>94</sup> Arun Vishwanath, *The internet is already being weaponized. The U.S. cyberattack on Iran won’t help*, THE WASHINGTON POST, July 9, 2019.

<sup>95</sup> In this regard, one should check out the blunt article of the Facebook co-founder, defending the limitation of its economic power, which also includes the control of Instagram and Whatsapp. See Chris Hughes, *It’s time to break up Facebook*, THE NEW YORK TIMES, May 9, 2019.

<sup>96</sup> E.g., Ryan Tracy, *Big techs summoned to Washington for antitrust hearing*, THE WALL STREET JOURNAL, July 9, 2019; Richard Waters, Shannon Bond e Hannah Murphy, *Global regulators’ net tightens around big tech*, FINANCIAL TIMES, June 5, 2019.

previously accumulated with the ownership of land and the means of production, has now been transferred to the ownership of data. Its proper regulation, therefore, is imperative to prevent the concentration of wealth and power in the hands of a small elite<sup>97</sup>. Still in the field of distributive justice, there is also the question of the fair taxation of large technology companies, often accused of tax evasion<sup>98</sup>.

Of all the vicissitudes brought about by technological advances, the risks to privacy have been one of the main concerns of society and government authorities. At its core, privacy means the existence of a sphere in the life of every individual that is protected against invasion by other individuals, corporations or the state<sup>99</sup>. From its initial recognition in the middle of the last century<sup>100</sup> to the present day, the scope of the right to privacy has varied enormously. In current times, one of the most complex dimensions of privacy involves the use of technology in the world of the internet and social networks. In this scenario, there are two different situations to consider: (i) the personal identification of the user, including information such as name, address, marital status, occupation, financial data, statements to the tax authority etc; and (ii) information about each person's behaviors, preferences, interests and concerns obtained from online navigation. The Internet is fueled, in large part, by the exploitation of such data and control over them has become one of the vital issues of our time.

Various episodes of misuse of information triggered reactions from international, regional and local government bodies to discipline the use of data and the right to privacy. The most rumored scandal broke out in March 2018, involving Cambridge Analytica, a political consulting firm that operated in several election campaigns and was accused of acquiring and using personal

---

<sup>97</sup> See HARARI, *supra* note 67, at 77 and 80; Mathias Risse, *Human rights and artificial intelligence*, 4 PUBLICUM 1, 11 (2018).

<sup>98</sup> See Phillip Inman, *IMF chief joins calls for big tech firms to pay more tax*, THE GUARDIAN, Mar. 25, 2019; Andrew Hill, Mehreen Khan and Richard Waters, *The global hunt to tax big tech*, FINANCIAL TIMES, Nov. 2, 2018; and Tom McKay, *G20 countries agree on approach to shut down big tech's tax loopholes*, GIZMODO, Sept. 7 2019.

<sup>99</sup> In the United States, the idea of privacy, as established in cases such as *Griswold v. Connecticut*, 381 U.S. 479 (1965) and *Roe v. Wade*, 410 U.S. 113 (1973), involves issues that in other constitutional jurisdictions are addressed in the context of individual freedoms and equality.

<sup>100</sup> The first reference to this right was made in the famous article by Samuel D. Warren and Louis Brandeis, *The right of privacy*, 4 HARVARD L. R. 193, (1890). In the text, quoting Judge Thomas Cooley, the authors referred to the right to privacy as the "right to be let alone". In US case law, it only became the express ground of a decision in *Griswold v. Connecticut*, cited above (381 U.S. 479). The right to privacy is now explicitly recognized in the Constitution of 181 countries. See "right of privacy", CONSTITUTE PROJECT, <https://www.constituteproject.org/search?lang=en&key=privacy>.



data from 87 million Facebook users, obtained from an outside researcher who, allegedly, collected them for academic purposes<sup>101</sup>. Since 2013, the OECD has revised its Privacy Guidelines to adapt to “technological changes, markets, user behavior and the growing importance of digital identities”. The European Union has published the General Data Protection Regulation (GDPR), which came into force on May 25, 2018, whose essence is to ensure the sovereignty of each individual over the data that concerns him or her, with right of access and rectification, as well as the requirement of prior consent for use. The document, with 99 articles, also contemplates the controversial right to be forgotten and rules on the protection of competition. In the United States, following the steps of the European Union, the State of California has approved the California Data Privacy Protection Act, effective as of January 1, 2020. In Brazil, the fourth country in the world in terms of number of Internet users, with 181 million<sup>102</sup>, the General Data Protection Law was approved in 2018 and is expected to become effective in August 2020.

Even more intricate legal and ethical issues involve the advances of biotechnology. For example, since the sheep Dolly was cloned in 1996, *human cloning* has been the subject of intense debate among lawyers, scientists and ethicists around the world. Despite various efforts to draft an international convention banning human cloning, no consensus has been reached. In 2005, the UN approved an *ambiguous*<sup>103</sup> declaration, banning cloning “inasmuch as they are incompatible with human dignity and the protection of human life”<sup>104</sup>. The declaration is not binding. Most countries in the world, however, explicitly prohibit reproductive cloning, although some admit it for therapeutic purposes<sup>105</sup>. The trading of human organs has also been

---

<sup>101</sup> Nicholas Confessore, *Cambridge Analytica and Facebook: the scandal and the fallout so far*, THE NEW YORK TIMES, Apr. 4, 2018.

<sup>102</sup> Léo Rodrigues, *Number of Internet users grows 10 million in a year in Brazil*, AGÊNCIA BRASIL (Dec. 20, 2018), <http://agenciabrasil.ebc.com.br/economia/noticia/2018-12/numero-de-usternarios-de-internet-cresce-10-milhoes-em-um-ano-no-brasil>. Brazil is only behind China, India and the United States.

<sup>103</sup> See Adèle Langlois, *The global governance of human cloning: the case of UNESCO* 3 PALGRAVE COMMUNICATIONS 17019 (2017), <https://www.nature.com/articles/palcomms201719>.

<sup>104</sup> United Nations. *General Assembly adopts United Nations declaration on human cloning by vote of 84-34-37*, PRESS RELEASE (Mar. 8, 2005), <https://www.un.org/press/en/2005/ga10333.doc.htm>.

<sup>105</sup> On the difference between the two types of cloning: “Reproductive cloning involves creating an animal that is genetically identical to a donor animal through somatic cell nuclear transfer. In reproductive cloning, the newly created embryo is placed back into the uterine environment where it can implant and develop. (...) In therapeutic cloning, an embryo is created in a similar way, but the resulting “cloned” cells remain in a dish in the lab; they are not implanted into a female’s uterus”. See *What is the difference between reproductive and therapeutic cloning?*, NEW YORK STATE STEM CELL SCIENCE (July 11, 2019), <https://stemcell.ny.gov/faqs/what-difference-between-reproductive-and-therapeutic-cloning>.

traditionally banned in almost all countries, although organ trafficking is a serious problem in many parts of the world<sup>106</sup>. This theme will soon be impacted by advances in regenerative medicine and the prospect of human tissue production in laboratory<sup>107</sup>.

Especially delicate is the subject of *genetic engineering*, an expression that identifies different methods of manipulating or modifying the genes of a given organism in order to improve it or create new organisms. Biotechnology here has the potential to reshape life and change the very nature of humans, a fact that, of course, affects people's ethical values and religious beliefs. There are those who predict that *homo sapiens* itself, with its essential characteristics, will disappear<sup>108</sup>. Scientists in general are skeptical about the effectiveness of laws that would prohibit the use of genetic engineering, not because they find it necessarily a positive thing, but because they believe it is impossible to avoid it. Firstly, because of the obvious appeal of its use for the treatment of diseases that can be cured by the correction of gene mutations. Besides, and in a much more dangerous fashion, due to the temptation to improve human characteristics, such as the size of the memory, the resistance to illnesses and the length of life<sup>109</sup>. The consequence would be the emergence of super-men, empowered by biotechnology and algorithms, which would constitute an elite, with all the risks this entails of increasing inequality and exercising oppression over other common humans<sup>110</sup>.

Finally, a reflection on artificial intelligence, whose breakthrough is allowing the transfer of typically human decision-making activities and capabilities to machines that are fed with data, statistics, and information. At the present stage, machines have no ideas of their own and no discernment as to what is right or wrong<sup>111</sup>. That is to say: artificial intelligence depends entirely on the human intelligence that feeds it, including ethical values. The utilities of artificial

---

<sup>106</sup> “*Organ trade*”, WIKIPEDIA (July 24, 2018), [https://en.wikipedia.org/wiki/Organ\\_trade](https://en.wikipedia.org/wiki/Organ_trade); see also Greg Moorlock, *A look inside the murky world of the illegal organ trade*, INDEPENDENT, July 24, 2018.

<sup>107</sup> According to the site *Nature Research*, *regenerative medicine* “is the branch of medicine that develops methods to regrow, repair or replace damaged or diseased cells, organs or tissues. Regenerative medicine includes the generation and use of therapeutic stem cells, tissue engineering and the production of artificial organs”.

<sup>108</sup> HARARI, *supra* note 67, at 121-22.

<sup>109</sup> HAWKING, *supra* note 45, at 81, 195.

<sup>110</sup> HARARI, *supra* note 67, at 75.

<sup>111</sup> Patrick Henry Winston, *Artificial intelligence desmystified 2* (Unpublished, draft of September 30, 2018): “They (the programs) do not perceive like us and they do not think like us; in fact, they do not think at all”. For a different view on this matter, see JERRY KAPLAN, *ARTIFICIAL INTELLIGENCE: WHAT EVERYONE NEEDS TO KNOW* 69-88 (Oxford University Press, 2016).

intelligence are immeasurable and range from robots that perform delicate surgeries with higher precision, to autonomous cars that cause far fewer accidents than those driven by humans. The risks are also high, some immediate and others long-term. Among the contemporary threats are, firstly, the disappearance of jobs, the replacement of human workers with machines<sup>112</sup>, the social exclusion of those who are no longer able to adapt to the new demands of the market<sup>113</sup>. Second, in a world where artificial intelligence is already being used by various courts around the globe, there is a fear that it may reinforce prejudices and discriminations as computers are fed with the dominant values, feelings and impressions in society<sup>114</sup>.

The long-term dangers are even more alarming. First, liberal democracy itself – which is founded on individual freedom and autonomy of the will – is called into question. In fact, once the major decisions of one's life (or of society as a whole) are more effectively taken by an external, heteronomous will, free will, one of the pillars of liberalism, will be compromised<sup>115</sup>. In addition, it is necessary to consider the threat that, in the future, computers can effectively develop their own intelligence – which would be, according to Stephen Hawking, “the biggest event in human history” – to have an autonomous will and escape human control<sup>116</sup>. Such fear resembles a science fiction movie plot, but the warning comes from world-renowned scientists. Basically, it will all boil down to who will control who<sup>117</sup>.

## II. Democracy and its internal enemies

*“Democracy is about promising, disappointing and managing the disappointment”.*

---

<sup>112</sup> For a detailed study of the impact of computerization on employment, see Carl Benedikt Frey & Michael A. Osborne, *The future of employment: how susceptible are Jobs to computerisation?* OXFORD MARTIN SCHOOL (Sept. 17, 2013), [https://www.oxfordmartin.ox.ac.uk/downloads/academic/The\\_Future\\_of\\_Employment.pdf](https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf).

<sup>113</sup> Risse, *supra*, at 2. As HARARI notes, *supra* note 67, at 8-9, the working masses, who once feared exploitation, now fear irrelevance.

<sup>114</sup> See Risse, *supra*, at 10. See also Steve Lohr, *How do you govern machines that can learn? Policymakers are trying to figure that out*, NEW YORK TIMES, Jan. 20, 2019.

<sup>115</sup> HARARI, *supra* note 67, at 55-56.

<sup>116</sup> It is what is called “singularity”: the idea that at some point machines will become intelligent, self-develop and escape human control. See KAPLAN, *supra* note 110, at 138.

<sup>117</sup> HAWKING, *supra* note 45, at 184-186.

As noted, contemporary democracies face problems that result from varied causes, arising from technological innovations, social transformations and changes in the way people live. The three branches of government face questioning and feelings that include mistrust, dysfunctionality and inefficiency. The following is a brief reflection on three factors that challenge contemporary democracies: citizen's declining support, inequality and corruption. The first two factors are global and affect even the most developed nations. The third, although present in varying degrees on a global scale, is a dramatic cause of the backwardness of emerging countries, from Latin America to Asia, from Africa to the countries of Central and Eastern Europe.

In what regards the decline in support for democracy, researches in different parts of the world reveal the loss of prestige of governments based on popular sovereignty<sup>119</sup>. Democracy has lived more effusive days. Public law – both constitutional and administrative – will need to invest energy in the search for an institutional design capable of reviving democratic institutions and mobilizing citizenship to renew their belief in the ideas that began their trajectory in the English Revolution of 1689 and lived a heyday at the turn of the twentieth to the twenty-first centuries: rule of law, majority rule, limitation of power, respect for fundamental rights and free enterprise. Such innovations shall include a new look at the separation of powers doctrine – conceived for a post-medieval and pre-Industrial Revolution world –, a profound revision of the forms of political representation and the development of more efficient mechanisms of governance, not only in the Executive, but also in the Legislative and Judiciary branches.

At a certain point, the diffusion of access to the Internet generated the expectation of more political participation, better governance and greater accountability of political actors in general. Many imagined that in the world interconnected by computers it would be possible to create a comprehensive digital public sphere capable of facilitating the exercise of deliberative

---

<sup>118</sup> Talk on Youtube on “How democracies die” (July 12, 2019), <https://www.youtube.com/watch?v=nHr6Mcqq-Ek>.

<sup>119</sup> See Roberto Stefan Foa & Yascha Mounk, *The democratic disconnect*, 27 JOURNAL OF DEMOCRACY 5, 8 (2016): “Only one in three Dutch millennials (those born since 1980) accords maximal importance to living in a democracy; in the United States, that number is slightly lower, around 30 percent”. A survey by Latinobarómetro reveals that support for democracy in Latin America fell to 48% in 2018. The maximum support was 63% in 1997. See LATINOBARÓMETRO (2018), <http://www.latinobarometro.org/lat.jsp>.

democracy, based on a broad public debate between free and equal individuals, where reasons would be presented and the best argument would prevail<sup>120</sup>. In real life, however, there has been a certain degree of frustration over these high expectations: so far, the internet did not encourage a rational dialogue on matters of collective interest, but, to the contrary, it gave way to a phenomenon that has been labeled as *tribalization*, by which people with homogeneous – and often radical – opinions speak only among themselves<sup>121</sup>. Not to mention the campaigns of disinformation, with deliberate circulation of fake news, as well as hate speeches. One should not, however, generalize this perception of the internet as a space of inevitable polarization of groups incapable of interacting constructively. Not only is it possible to believe in a gradual civilizing progression towards greater rationality and tolerance, but there are already positive experiences of such use, such as the digital constituent processes of Chile<sup>122</sup> and Iceland<sup>123</sup>, the practice of digital governance in Estonia<sup>124</sup> or the participatory budgeting in cities such as Berlin, Lisbon and Porto Alegre, among others<sup>125</sup>. To sum it up, the fact that the internet, in a more general assessment, has not yet succeeded in converting social participation into high-

---

<sup>120</sup> *Deliberative democracy* is an umbrella expression that comprehends uncountable variations. On this topic, see especially JURGEN HABERMAS, *BETWEEN FACTS AND NORMS: CONTRIBUTIONS TO A DISCOURSE THEORY OF LAW AND DEMOCRACY* (The MIT Press, 1998). For other approaches, see Joshua Cohen, *Deliberation and democratic legitimacy* 67-91, in *DELIBERATIVE DEMOCRACY: ESSAYS ON REASONS AND POLITICS* (James Bohman & William Rehg eds., The MIT Press, 1997); Philip Pettit, *Deliberative democracy and the discursive dilemma* 138-162, in *DEBATING DELIBERATIVE DEMOCRACY* (James Fishkin & Peter Laslett eds., Blackwell, 2003); A. GUTMANN & D. THOMPSON, *WHY DELIBERATIVE DEMOCRACY?* 125-138 (Princeton University Press, 2004); Bruce Ackerman & James S. Fishkin, *Deliberation Day*, 10 *THE JOURNAL OF POLITICAL PHILOSOPHY* 129 (2002); Jane Mansbridge, *Deliberative democracy or democratic deliberation?*, in *DELIBERATION, PARTICIPATION AND DEMOCRACY: CAN THE PEOPLE GOVERN?* (Shawn W. Rosenberg ed., Palgrave Macmillan, 2003).

<sup>121</sup> On the “polarization of groups” and the emergence of “deliberation enclaves”, see the following writings of Cass Sunstein: *The law of group polarization*, 10 *THE JOURNAL OF POLITICAL PHILOSOPHY* 175, 177 (2002); *Neither Hayek nor Habermas*, 134 *PUBLIC CHOICE* 87 (2008); *The daily we*, *BOSTON REVIEW*, (Summer, 2001). See also Holmes, *supra* note 64, at 401: “But the extraordinary proliferation of media platforms today has produced a distorted caricature of media pluralism, fragmenting political space into mutually sealed-off ideological fortresses between which no serious communication is possible”.

<sup>122</sup> Observatory of the Chilean Constituent Process. *An Assessment of the Chilean Constituent Process*, FORD FOUNDATION 19-32 (2018), <http://redconstituyente.cl/wp-content/uploads/2018/04/An-assessment-of-the-Chilean-constituent-process-web.pdf>.

<sup>123</sup> Helene Landemore, *Inclusive Constitution-Making: the Icelandic experiment*, 23 *THE JOURNAL OF POLITICAL PHILOSOPHY* 166 (2015).

<sup>124</sup> Hille Hinsbert et al., *E-Participation Policy in Estonia* 17-29, in *CITIZEN CENTRIC E-PARTICIPATION: A TRILATERAL COLLABORATION FOR DEMOCRATIC INNOVATION*, (Joachim Astrom et al. eds., Praxis Policy Center, 2013), <http://www.diva-portal.org/smash/get/diva2:638808/FULLTEXT01.pdf>.

<sup>125</sup> ANJA ROCKE, *FRAMING CITIZEN PARTICIPATION: PARTICIPATORY BUDGETING IN FRANCE, GERMANY AND THE UNITED KINGDOM* (Palgrave Macmillan, 2014); Giovanni Allegretti et al., *To transform the territory promoting citizenship: methodology of evolution in the participative budgets of Lisbon and Cascais* 148, *REPOSITÓRIO DO CONHECIMENTO DO IPEA* (2016), <http://repositorio.ipea.gov.br/handle/11058/6858>; Prefeitura de Porto Alegre, *Orçamento Participativo, 25 anos* (2014), [http://www2.portoalegre.rs.gov.br/smg/default.php?p\\_secao=86](http://www2.portoalegre.rs.gov.br/smg/default.php?p_secao=86).

quality decision-making – and thereby fostering democratic goals – does not justify abandoning the constructive possibilities it offers<sup>126</sup>.

*Inequality*, in turn, is the dramatic symbol of our time, the unfinished agenda of the civilizing process. Inequality that deserves to be stigmatized is not the one that privileges talent, knowledge or hard work. The focus here is a state of affairs that reproduces social exclusion and denies to many access to education, basic healthcare and minimum existential conditions that ensure life with dignity and the full exercise of citizenship. The enemy is inequality that reinforces and reproduces situations of poverty, such as, for example, tax systems that concentrate, rather than redistribute, wealth and public policies that favor dominant sectors of society. The idea of democracy translates into a common project of self-government, in which everyone must feel involved and have a sense of belonging. If people feel excluded, they leave the project. This is what many opinion polls have revealed. It is true that the world at the beginning of the 21st century is significantly more equal if compared to the beginning of the twentieth century. However, despite the positive impact of globalization and technological progress on world poverty, data shows that, especially since 1980, there has been an increase in income concentration, both among countries and within them<sup>127</sup>.

In a highly successful book since the launching of the English version in 2014, Thomas Piketty sought to demonstrate that inequality is not an accident, but a feature of the capitalist mode of production that only state intervention can contain<sup>128</sup>. In the book, he recognizes that in free-market societies, incentives to knowledge and individual empowerment allow for greater equality. Nonetheless, he points out what he calls a central contradiction of capitalism and not

---

<sup>126</sup> On this subject, see Vanessa Wendhausen Cavallazzi, *Deliberative democracy: the digital social deliberation and the democratic legitimacy of the budget choices for the implementation of social rights*, 2019. Masters degree dissertation presented to Centro Universitário de Brasília – UniCEUB, under my supervision.

<sup>127</sup> Rupert Neate, *Richest 1% owns half the world's wealth, study finds*, THE GUARDIAN, Nov. 14, 2017. The information is from the Global Wealth Report, prepared by Bank Credit Suisse, and refers to the year 2017. The picture did not change in the Global Wealth Report of 2018. Even more staggering: the 62 richest people in the world combined were worth as much as the poorest 3.6 billion. See HARARI, *supra* note 17, at. 352. This data, however, cannot be entirely generalized. See Joe Hasell, *Is income inequality rising around the world?*, OUR WORLD IN DATA, Nov. 19, 2018: “It's a mistake to think that inequality is rising everywhere. Over the last 25 years, inequality has gone up in many countries and has fallen in many others. It's important to know this. It shows that rising inequality is not ubiquitous, nor inevitable in the face of globalisation, and suggests that politics and policy at the level of individual countries can make a difference”.

<sup>128</sup> THOMAS PIKETTY, *CAPITAL IN THE TWENTY FIRST CENTURY* 1 (Belknap, 2014).

a market imperfection: the fact that the average rate of return on capital (profits, dividends, interest, rents) is, for most of history, higher than the rate of growth. This means that the wealth accumulated in the past grows faster than productivity and wages. In this atmosphere, entrepreneurs become rentiers and dominate those who only possess workforce<sup>129</sup>. According to him, this implies a return to “patrimonial capitalism”, in which much of the economy is dominated by inherited wealth, or, as Paul Krugman wrote, “the cradle counts more than effort and talent”<sup>130</sup>. Although the diagnosis, based on substantial data, has received enthusiastic support of many<sup>131</sup>, the solution Piketty proposes – imposing an annual tax of up to 2% on capital – was met with much criticism<sup>132</sup>. Other authors advocate for social expenditures such as education and health, and universal basic income programs as more effective remedies against poverty and inequality<sup>133</sup>.

Finally, *corruption* produces consequences of diverse natures, all of which are capable of compromising the values of democracy, undermining its credibility among citizens. Not by chance, throughout history, countless *coups d'état* and the overthrowing of constitutional regimes have been carried out in the name or with the pretext of fighting corruption. Corruption has economic, social and moral costs. It is not easy to measure the economic costs accurately, for they materialize in the misuse of resources and, even more seriously, in wrong and inefficient decisions made to meet personal or private interests<sup>134</sup>. The social costs are also visible: funds diverted or allocated to pharaonic and unnecessary projects are lacking for health,

---

<sup>129</sup> *Id.* at 25, 571-573.

<sup>130</sup> Paul Krugman, *Wealth of work*, THE NEW YORK TIMES, Mar. 23, 2014, <https://www.nytimes.com/2014/03/24/opinion/krugman-wealth-over-work.html>.

<sup>131</sup> Ryan Cooper, *Why everyone is talking about Thomas Piketty's Capital in the twenty-first century*, THE WEEK (Mar. 25, 2014), <https://theweek.com/articles/448863/why-everyone-talking-about-thomas-pikettyps-capital-twentyfirst-century>.

<sup>132</sup> E.g., Daron Acemoglu & James A. Robinson, *The rise and decline of general laws of capitalism*, 29 JOURNAL OF ECONOMIC PERSPECTIVES 3 (2015).

<sup>133</sup> See PINKER, *supra* note 16, at 108-110, 119; BRUCE ACKERMAN et al., *REDESIGNING REDISTRIBUTION: BASIC INCOME AND STAKEHOLDERS GRANTS AS CORNERSTONES FOR AN EGALITARIAN CAPITALISM* (Verso, 2006). The idea of universal basic income is not immune to controversy. See OECD, *Basic income as a policy option: technical background note illustrating costs and distributional implications for selected countries* (May, 2017), <https://www.oecd.org/els/soc/Basic-Income-Policy-Option-2017-Brackground-Technical-Note.pdf>. For a fierce opposition to the idea, see Daron Acemoglu, *Why universal basic income is a bad idea*, PROJECT SYNDICATE (June 7, 2019), <https://www.project-syndicate.org/commentary/why-universal-basic-income-is-a-bad-idea-by-daron-acemoglu-2019-06>.

<sup>134</sup> On this subject, see Maria Cristina Pinotti, *Corruption and economic stagnation: Brazil and Italy*, in *CORRUPTION: CAR WASH OPERATION AND CLEAN HANDS* (Cristina Pinotti ed., Portfolio-Penguin, 2019).

education, the recovery of roads or improvement of urban mobility. The moral costs are enormous and irreversible: corruption creates a culture of extortion, kickbacks and general dishonesty that undermines the self-esteem of society and encourages deviant behavior at all levels.

Many nations in the world, including the most developed, have faced, at some point in their history, the vicious circle of corruption<sup>135</sup>. In this area, the role of law and courts is decisive. Interestingly, although the problem is as old as humanity, corruption has only come to be seen as a serious issue in the last decades of the last century. In international law, the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions (OECD Anti-Bribery Convention)<sup>136</sup>, was adopted on 17 December 1997 in Paris. Shortly thereafter, on November 15, 2000, the United Nations Convention against Transnational Organized Crime was adopted in New York, with specific rules on the criminalization of corruption and money laundering. Finally, on November 15, 2003, the United Nations Convention against Corruption was adopted, with detailed provisions and comprehensive measures to address the problem. At the domestic level, the quest for integrity and the fight against corruption has as a landmark the Foreign Corrupt Practices Act - FCPA, that came into effect in the United States in 1977. In the UK, adopting the same lines of the FCPA, the UK Bribery Act - UKBA, of 2010, considered paying or receiving bribes to/from public officials a crime. Several countries in Europe, such as Germany, Portugal and Spain, have laws or legal provisions imposing compliance rules. In Brazil, amidst dramatic corruption scandals by public officials, numerous legislative innovations against corruption were approved.

More recently, in various countries, judges and courts have treated white-collar crimes and corruption as serious crimes, punishing them adequately. In most emerging countries, extractive elites protected themselves by enacting laws that minimized the crimes that their members could commit, in addition to their co-optation of the Judiciary itself<sup>137</sup>. Laws strengthening the

---

<sup>135</sup> One of the most complete studies on this subject is SUSAN ROSE-ACKERMAN & BONNIE J. PALIFKA, *CORRUPTION AND GOVERNMENT: CAUSES, CONSEQUENCES, AND REFORM* (Cambridge University Press, 2d ed. 2016).

<sup>136</sup> According to the Preamble of the Convention, corruption “raises serious moral and political concerns, undermines good governance and economic development, and distorts international competitive conditions”.

<sup>137</sup> An emblematic example is the Brazilian law, which provides for the extinction of the punishment for evasion once the tax is paid, even if this happens after a final criminal sentence. It can be said: evasion is a low risk bet.



punishment for bribery, combating money laundering, regulating whistleblowing, tightening regulation on election funding, and imposing stricter rules on compliance begin to multiply in countries that had, until recently, been devastated by corruption.

As seen, the global phenomenon of recession of democracy, with the rise of authoritarian and populist leaders, has many causes, direct and indirect, including loss of trust by citizens, persistent inequality and high perception of corruption<sup>138</sup>. Law alone will not be able to provide effective responses to solve these problems. This, however, does not mean that there is nothing to be done in the face of illiberal threats. Constitutional courts, for example, can act as important veto players, blocking attempts to create unreasonable restrictions to rights and freedoms, to weaken the rule of law and concentrate powers. In addition, the legal system can make political parties and institutions more responsive to citizens' demands. For this, in the first place, electoral systems need to be revised to become more inclusive and representative. Secondly, mechanisms for direct democratic participation must be developed using Information and Communication Technologies (ICTs), opening the way for e-democracy<sup>139</sup>.

In regard to inequality – to which the problem of violence is closely related –, the legal system can play several roles. An important measure is the creation and strengthening of affirmative action policies to increase the access of minorities (and poor people more generally) to education and the labor market. In addition, the law can provide solutions for improving the quality and transparency of public spending, through monitoring and control instruments by civil society. Another solution is the improvement of the tax system, making it less regressive, reducing the weight that in many countries is given to consumption taxation, and, on the other hand, increasing the share of taxation on property and income. With respect to corruption, serious and effective criminal repression is undoubtedly very important. However, there should be investment on preventive safeguards, with the adoption of integrity programs in public and

---

<sup>138</sup> The Corruption Perceptions Index is an indicator of corruption in the public sector calculated since 1995 by Transparency International, a nongovernmental organization based in Berlin, Germany. In 2018, Denmark was in the best position, United Kingdom and Germany tied for 11th place, United States 22nd, Argentina 85th and Brazil 105th.

<sup>139</sup> In this regard, there are already some innovative ideas, such as *deliberative polling*, *crowdsourcing e minipublics*. See James S. Fishkin, *Consulting the public through deliberative polling*, 22 JOURNAL OF POLICY ANALYSIS AND MANAGEMENT 128 (2003). Equal Citizens, *On Iceland's crowdsourced constitution*, MEDIUM (May 14, 2016), <https://medium.com/equal-citizens/on-icelands-crowdsourced-constitution-ad99aae75fce>. Archon Fung, *Minipublics: designing institutions for effective deliberation and accountability*, in ACCOUNTABILITY THROUGH PUBLIC OPINION 183-202 (Sina Odugbemi & Taeku Lee eds., World Bank, May 2011).

private business management and the imposition of duties of impartiality, neutrality and transparency.

### III. The efforts against global warming

*“Despair I can handle. What scares me is this hope”.*

Millôr Fernandes

As mentioned earlier, climate change is a serious and real problem, and the main responsibility for its occurrence lies within human activities. The major cause of global warming is the emission of greenhouse gases, notably carbon dioxide (CO<sub>2</sub>), from the production and use of energy from fossil fuels, as well as from the way the soil is used. In a more analytical approach, this means the set of activities related to industry, transportation, agriculture, farming, deforestation and waste management, only to mention the most relevant. The phenomenon is global, and the emission of these gases affects the entire atmosphere, regardless of the geographical area in which it occurs. For this reason, solutions to global warming need to be sought at global, regional, national and local levels. In addition, they require not only the engagement of international organizations and governments, but also the conscientization of individuals and companies. In terms of individual and corporate behavior, there are countless recommendations from environmental scientists, entities and organizations, that go from avoiding the waste of water, to planting trees, using renewable energy sources (such as solar and wind), using LED bulbs that consume less energy, to options for appliances such as refrigerators, air conditioners or washing machines that are “energy efficient” and for “fuel efficient” cars. In addition to changing eating habits and limiting the use of individual transportation.

Although voluntary social behavior deriving from environmental awareness is important, it is clearly not enough. Law, with its normative force and mechanisms of incentives and sanctions, will play a decisive role in dealing with the subject. Some of the major initiatives on global warming have its origins in international law, starting with the 1992 United Nations Framework Convention on Climate Change (UNFCCC Convention). The purpose of the Convention was “to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent

dangerous anthropogenic (*i.e.* human-caused) interference with the climate system”. The Framework Convention, which came into force in 1994 and was ratified by 197 countries, established comprehensive principles, general obligations and negotiation processes to be detailed in subsequent conferences between the parties. Its advanced and premonitory character should be noticed, given that it was elaborated and ratified in an era when there was greater degree of scientific uncertainty on the subject. The Kyoto Protocol and the Paris Agreement came next, completing the UN’s normative regime on climatic changes.

The Kyoto Protocol was concluded on 11 December 1997. Its ratification process, however, was quite complex, only coming into force on February 16, 2005. Currently, 192 countries have joined it. The Protocol sought to achieve the objectives set forth in the Framework Convention by establishing the parties' commitment to limit and reduce greenhouse gas emissions. In its Annex B, the Kyoto Protocol set specific reduction targets to be met by 36 industrialized countries and the European Union, which are considered primarily responsible for causing global warming. Developing countries were excluded from this specific obligation, based on the principle of “common but differentiated responsibility and respective institutional capacities”. The Protocol also provided for some market mechanisms to achieve its objectives, based on the trade of *emission allowances*. Three of them deserve an express reference. The first is the EU Emission Trading Scheme (ETS), which is an example of what is known as the “cap and trade system”: companies have a maximum emission limit, but if they do not achieve it, they can sell the remainder to companies that exceeded their limit<sup>140</sup>. The second is the Clean Development Mechanism (CDM), whereby developed countries invest in developing countries in exchange for credits for their emissions<sup>141</sup>. The third is Reducing Emissions from Deforestation and Forest Degradation (REDD), which is a compensation system for countries that are committed to the conservation of their forests<sup>142</sup>.

---

<sup>140</sup> For an explanation on how the system works, see European Commission, *EU Emissions Trading System (EU ETS)*, [https://ec.europa.eu/clima/policies/ets\\_en](https://ec.europa.eu/clima/policies/ets_en).

<sup>141</sup> United Nations. *What is the CDM, CLEAN DEVELOPMENT MECHANISM* (Jan. 23, 2019), <https://cdm.unfccc.int/about/index.html>. *E.g.*: to invest in a rural electrification project by using solar panels, in order to get credits to discount from the limits imposed by the assumed obligations, as provided by the protocol.

<sup>142</sup> See Un-redd-website, *Our Work*, UN-REDD PROGRAMME (2019), <http://www.un-redd.org/how-we-work-1>. The overall development goal of the Programme is to reduce forest emissions and enhance carbon stocks in forests while contributing to national sustainable development.

The Paris Agreement, also celebrated under the United Nations Framework Convention on Climate Change, came into force on 4 November 2016. In March 2019, it had 185 ratifications<sup>143</sup>. Its main objectives, as stated in art. 2 of the Agreement, are: (a) to contain the global average temperature rise, keeping it within certain limits; (b) to enhance adaptability to the adverse impacts of climate change; and (c) to promote financial flows that achieve the above two objectives<sup>144</sup>. Unlike the Kyoto Protocol, which set binding emission limits, the Paris Agreement sought to work on a more consensual basis, stipulating that each country will voluntarily submit its “nationally determined contribution”. In this manner, they communicate the “ambitious” and progressive efforts they will be making to achieve the intended objectives. The Agreement does not distinguish between the roles of developed and developing countries, as did the Kyoto Protocol. The implementation of the Agreement will be evaluated every five years, with the first evaluation scheduled for 2023. The two central concepts here are mitigation and adaptation. Mitigation identifies actions to reduce greenhouse gas emissions and to increase carbon sinks. Adaptation comprises measures to respond, increase resilience and reduce vulnerability to impacts of climate change.

The destruction of forests, although the intensity has reduced in recent times, remains a dramatic environmental problem for a variety of reasons. According to FAO (Food and Agriculture Organization of the United Nations), about 7.3 million hectares of forests, equivalent to the size of Panama, are lost annually<sup>145</sup>. Between 1970 and 2013, an area equivalent to twice the size of Germany was deforested in the Amazon. If current levels of deforestation are maintained,

---

<sup>143</sup> *Paris Agreement – Status of Ratification*, UNFCCC (2019), <https://unfccc.int/process/the-paris-agreement/status-of-ratification>.

<sup>144</sup> Article 2,1 of the Paris Agreement establishes as follows: “This Agreement, in strengthening the implementation of the Convention, including its objective, aims at strengthening the global response to the threat of climate change, in the context of sustainable 2,1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”.

<sup>145</sup> FAO, *Forests and agriculture: land use, challenges and opportunities* 88 (2016), <http://www.fao.org/3/a-i5588e.pdf>.

tropical forests may disappear in the next 100 years<sup>146</sup>. The causes are many, with emphasis on agriculture, livestock, logging, mining and urban expansion. The consequences are serious and affect the subsistence of numerous species, water cycles, soil erosion and the way of life of native populations. The impact is especially critical for greenhouse gas emissions and global warming, as tropical forests account for about ¼ of the climate mitigation under the Paris Agreement<sup>147</sup>. This is due to its ability to absorb carbon dioxide from the atmosphere during photosynthesis, in a process known as carbon sequestration. Conversely, tearing down forests releases into the atmosphere the carbon that it stored.

As stated above, the UN climate change regime is based on three pillars: The Framework Convention, the Kyoto Protocol and the Paris Agreement. It is relevant to mention that the Paris Agreement is widely recognized as a significant breakthrough in this matter. The harsh reality, however, according to scholars, is that countries have made promises that they will not be able to honor<sup>148</sup>. It must be remembered that, under the Agreement's logic, countries have the flexibility to set their own commitments and there are no coercive enforcement mechanisms. In this context, two are the problems that have been detected: emission reduction targets will not be reached, and, in addition, they have proved to be insufficient. The whole picture is negatively affected by the decision of President Donald Trump, announced on June 1st, 2017, to withdraw the United States from the Paris Agreement. Such withdrawal, however, according to art. 28 of the Agreement, can only take place on November 4, 2022, the day after the presidential elections. In addition to the problem of emissions itself, funding mechanisms such as ETS and CDM have been mentioned in corruption allegations<sup>149</sup>. REED, on its turn, was not able to prevent the continuation of deforestation without compensatory reforestation.

---

<sup>146</sup> John Vidal, *We are destroying rainforests so quickly they may be gone in a 100 years*, THE GUARDIAN (Jan. 23, 2017), <https://www.theguardian.com/global-development-professionals-network/2017/jan/23/destroying-rainforests-quickly-gone-100-years-deforestation>.

<sup>147</sup> David Gibbs et al., *By the numbers: the value of tropical forests in the climate change equation*, WORLD RESOURCES INSTITUTE (Oct. 4, 2018), <https://www.wri.org/blog/2018/10/numbers-value-tropical-forests-climate-change-equation>.

<sup>148</sup> David G. Victor et al., *Prove Paris was more than paper promises*, 548 NATURE 25 (2017).

<sup>149</sup> Aude Mazque, *Multi-billion euro carbon-trading fraud trial opens in Paris*, FRANCE 24, 3 mai. 2016, <https://www.france24.com/en/20160503-france-trial-multi-billion-carbon-emissions-trading-fraud-opens-paris>.

At the domestic level, most of the countries that enacted or reformed their Constitutions after World War II included environmental protection standards in their texts<sup>150</sup>. In the infra-constitutional level, countries such as Brazil, Mexico and the United Kingdom have passed climate laws. The United States, Indonesia, and Russia adopted executive measures, while Germany and South Africa were guided by strategic policymaking documents<sup>151</sup>. Strict limits on carbon emissions and targets for increasing renewable energy and “energy efficiency”<sup>152</sup> have been adopted in the European Union. It is worth mentioning that China, which, along with the United States, is responsible for half of global greenhouse gas emissions, has radically changed its discourse since 2014 and has declared a “war on pollution”. In addition, since the Paris Agreement, it has in fact been reducing its emissions and investing in renewable energy<sup>153</sup>.

In the judicial sphere, a significant number of lawsuits has been filed worldwide<sup>154</sup>. In what regards cases brought before international courts, we must highlight, in the first place, the important Advisory Opinion 23/17 of the Inter-American Court of Human Rights, establishing the interconnection between the protection of the environment and other human rights, and imposing protection duties on member states<sup>155</sup>. On the other hand, the Court of Justice of the European Union, in a lawsuit filed by ten families from different countries seeking more stringent greenhouse gas emissions reduction targets, dismissed the case on procedural grounds. The Court concluded that plaintiffs did not have standing to bring the case because climate change affects every individual in one manner or another and they were not able to demonstrate any circumstances that were peculiar to them<sup>156</sup>.

---

<sup>150</sup> JAMES R. MAY & ERIN DALY, *GLOBAL ENVIRONMENTAL CONSTITUTIONALISM* 60 (Cambridge University Press, 2014).

<sup>151</sup> ALINA AVERCHENKOVA et al., “Introduction”, in *TRENDS IN CLIMATE CHANGE LEGISLATION* 14 (Edward Elgar, 2017).

<sup>152</sup> Robert V. Percival, *The climate crisis and constitutional democracy*, in *CONSTITUTIONAL DEMOCRACY IN CRISIS?* (Mark A. Graber et al. eds., Oxford University Press, 2018).

<sup>153</sup> Percival, *supra* note 150, at 620-622.

<sup>154</sup> According to the United Nations Environment Programme, 884 lawsuits had been filed until March 2017. Most of them (654) were filed in the United States; 80 in Australia; 49 in the United Kingdom and 40 at the European Court of Justice. See United Nations Environment Programme, *Status of Climate Change Litigation*, 10 (2017), <http://wedocs.unep.org/bitstream/handle/20.500.11822/20767/climate-change-litigation.pdf?sequence=1&isAllowed=y>.

<sup>155</sup> See [http://www.corteidh.or.cr/docs/opiniones/seriea\\_23\\_esp.pdf](http://www.corteidh.or.cr/docs/opiniones/seriea_23_esp.pdf). On this subject of climate change and human rights, see HENRY JIMENEZ GUANIPA & EDUARDO VIEDMA (COORDS.), *ENERGÍA, CAMBIO CLIMÁTICO Y DESAROLLO SOSTENIBLE: IMPACTO SOBRE LOS DERECHOS HUMANOS* (Fundación Heinrich Böll, 2018); and SÉBASTIEN DUYCK et al., *ROUTLEDGE HANDBOOK OF HUMAN RIGHTS AND CLIMATE GOVERNANCE* (Routledge, 2018).

<sup>156</sup> T-330/18 (2019), *Carvalho v. European Parliament and Council of the European Union* (Second Chamber), 2019, E.C.J.

Regarding domestic litigation, several lawsuits have challenged governmental responses to climate change. In the United States, the Supreme Court has ruled that the Environmental Protection Agency has the authority to regulate tailpipe emissions of greenhouse gases and should articulate a reasonable basis for not doing so<sup>157</sup>. In other instances, lower courts have dismissed lawsuits that sought emission reductions, on grounds of lack of standing and deeming the claims non-justiciable, for presenting political questions that should be resolved by the political branches of government<sup>158</sup>. However, in *Juliana v. United States*, the Oregon District Court, after acknowledging that the right to a climate system capable of sustaining human life was a fundamental right, allowed the case to proceed<sup>159</sup>. In the Netherlands, a legal decision ruled that the government should reduce emissions to 25% below the level observed in 1990, considering the proposed 17% cut to be insufficient<sup>160</sup>. Similar actions were instituted in Norway, Austria, Switzerland and Sweden<sup>161</sup>. Particularly interesting, for representing a major shift in conventional wisdom, are the cases in which elements of nature – *i.e.*, non-human entities, like rivers – have been recognized as subject to rights to protection and have been admitted as plaintiffs in lawsuits<sup>162</sup>. Finally, lawsuits against private parties responsible for emissions are also beginning to be filed, with no relevant results yet<sup>163</sup>.

A general evaluation of the results of the Paris Agreement is expected in 2023. There are few doubts that much broader efforts will be needed to achieve the proposed goals. Nothing about this subject is simple, starting with the tensions it generates within the very idea of democracy. This is because short-term electoral cycles do not favor decisions whose positive consequences are only felt in the long-term. In addition, most people who will be affected by climate change

---

<sup>157</sup> *Massachusetts v. Environmental Protection Agency*. 549 U.S. 497 (2007).

<sup>158</sup> *Aji P. v. State of Washington*. 2018 WL 3978310 (Wash. Super.).

<sup>159</sup> 217 F. Supp. 3d 1224 (D. Or. 2016).

<sup>160</sup> *Urgenda Foundation v. Kingdom of the Netherlands* (2015). A summary of the case can be found at <http://www.lse.ac.uk/GranthamInstitute/litigation/urgenda-foundation-v-kingdom-of-the-netherlands-district-court-of-the-hague-2015/>.

<sup>161</sup> See United Nations Environment Programme, *Status of Climate Change Litigation*, 15 (2017) <http://wedocs.unep.org/bitstream/handle/20.500.11822/20767/climate-change-litigation.pdf?sequence=1&isAllowed=y>.

<sup>162</sup> Corte Constitucional [C.C.] [Constitutional Court, 10 nov. 2016, Julgamento T-622 (Colom)]; Suprema Corte de Justicia [SCJ] [Supreme Court of Justice] da Colômbia, 5 abr. 2018, Julgamento STC – 4360 (Colom). See also Lidia Cano Pecharroman, *Rights of Nature: Rivers That Can Stand in Court*. 7 RESOURCES 13 (2018).

<sup>163</sup> *E.g.*, *Native Village of Kivalina v. ExxonMobil Corporation*. 696 F.3d 849 (9th Cir. 2012).

have no voice or vote, either because they are very young or because they have not even been born. Add to this the fact that intricate technical and scientific issues rarely attract popular mobilization<sup>164</sup>. Finally, because it is a global problem, it does not involve strictly national solutions, which makes some nationalist politicians prefer to believe that the problem does not exist<sup>165</sup>. For this reason, addressing and solving global warming problems requires awareness and engagement of citizens, businesses and governments, because it implies profound economic and behavioral changes, ranging from the way people move to how they eat. What is at stake here is intergenerational justice, in order not to leave a degraded planet to posterity. There are even those who already speculate about the need to colonize space, in search of other habitats<sup>166</sup>.

## Conclusion

---

An analysis of the twentieth century allows us to draw some important lessons. The first, is that civilizing achievements are always partial and we must constantly strive to preserve them. Although constitutional democracy was the victorious ideology at the end of the century, history has not ended, and authoritarian threats lurk in many places in the planet. The second lesson is that, despite wars, genocides and several crises, the Enlightenment values – reason, science, humanism and progress – have advanced. Certainly not at the desired pace, but there is undeniably less malnutrition in the world, less poverty, greater access to education and health, and greater recognition of rights, especially of historically stigmatized minorities. Finally, the third lesson is that institutions matter. Poverty and backwardness are reversible. The creation of inclusive political and economic institutions can occur at any time and change the course of the history of nations.

The twenty-first century has been the stage of profound changes and different afflictions for humanity. The Digital Revolution and the prospects of the Fourth Industrial Revolution, which

---

<sup>164</sup> On the relationship between democracy and climate change, see Halina Ward, *The future of democracy in the face of climate change: how might democracy and participatory decision-making have evolved to cope with the challenges of climate change by the years 2050 and 2100?*, FOUNDATION FOR DEMOCRACY AND SUSTAINABLE DEVELOPMENT (2012), <http://www.fdsd.org/site/wp-content/uploads/2014/11/Democracy-and-climate-change-scenarios-final-with-foreword.pdf>.

<sup>165</sup> See HARARI, *supra* note 67, at 121.

<sup>166</sup> HAWKING, *supra* note 45, at 151 e 210. See *The next 50 years in space*, and *Star laws*, THE ECONOMIST, July 20<sup>th</sup>-26<sup>th</sup>, 2019, at 9, 50.



integrates the physical and the virtual, the human and the mechanic, unveil a world of promises, challenges and risks. Democracy is experiencing a period of recession in several corners of the globe, exhibiting material fatigue and grasping for new institutional designs. And global warming, one of the most dramatic issues of our time, coexists with ignorance, skepticism and the abuse of common resources, which hinder sustainable development and jeopardize the future of next generations. Mass unemployment, authoritarianism and environmental degradation are real fears that demand reflection and attitude.

Law, in general, and public law, in particular, has sought, in various parts of the world and at different levels, to structure inclusive political and economic institutions, to establish proper public policies, and to govern individual and governmental behavior in order to deal with the innovations, disruptions and threats of the new times. Throughout the present essay, numerous treaties, laws and regulations, as well as measures *de lege ferenda* have been indicated, in order to (i) neutralize the negative side effects of the Digital Revolution and its repercussions; (ii) strengthen democratic sentiment and overcome dysfunctions such as inequality and corruption; and (iii) effectively address the phenomenon of climate change. The unsurmountable truth is that the speed, extent, and depth of the transformations of the contemporary world test the limits and possibilities of the normative performance of the State and international organizations. The Law cannot take care of everything. It is fundamental that the civilizing evolution and the ethical elevation of society come to its assistance.

In a scenario full of asymmetries among countries, marked by globalization, transnational problems and extraterritoriality of solutions, public law lives an important moment and is in search of new horizons. The nineteenth century was the century of private law – the property holder and the contractor. The twentieth century witnessed the rise of public law, the welfare state and the expansion of constitutional jurisdiction. The 21st century coexists with the expectations of a global society, which demands, in relation to specific issues, an equally global law. This is not a philosophical or doctrinal choice, but an inevitable scenario: social networks via the Internet, carbon monoxide and campaigns to destabilize democracy do not respect borders or sovereignties.

In short: complex historical processes such as those we are experiencing are not linear. Crucial civilizing improvements coexist with dramatic risks, combining fear and hope. The future is

unpredictable, there are no pre-arranged roadmaps and, for that reason, it is necessary to have goals that inspire and motivate us. Some of them underlie the ideas in this article: (i) humanity's survival (climate dystopia would destroy life on Earth); (ii) peace among nations (a nuclear war could represent the end of the human condition); (iii) preservation of democracy (popular sovereignty, freedom, equality and rule of law are some of the greatest achievements of civilization); (iv) sustainable development (preservation and renewal of resources is a matter of intergenerational justice); (v) seeking equal opportunities for people and nations (people and nations should be free, equal and have access to the products of progress); (vi) social protection nets for less fortunate people and aid mechanisms for countries that have fallen behind (solidarity with people and countries is a moral duty for all). Finally, in a world where defeating death and colonizing space are already being considered realistic possibilities, the only safe guidance are the perennial values shared by humanity since ancient times, amongst which are: good, justice and respect for others, as cornerstones of the emancipation of people and the protection of human dignity.

A large, light gray watermark of the Harvard University crest is centered on the page. The crest features a shield with a banner at the top containing the word 'VERITAS' in three open books. Below the banner are seven horizontal stripes, alternating in color (though here they are all gray).

Carr Center for Human Rights Policy  
Harvard Kennedy School  
79 John F. Kennedy Street Cambridge, MA 02138

[www.carrcenter.hks.harvard.edu](http://www.carrcenter.hks.harvard.edu)