The Limits of the Human Species in the Face of Sustainable Development

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A Multidisciplinary Approach

By

Alberto Roghi

Cambridge Scholars Publishing

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On the cover, Applique of Bora, the North-East Wind. Roman Art,
II century B.C. National Archaeological Museum of Aquileia, Italy.
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To my nephews: Giulio, Daphne, Leonardo, Giorgio and Petra

Come gather around people, wherever you roam
And admit that the waters around you have grown
And accept it that soon you'll be drenched to the bone
If your time to you is worth savin'
Then you better start swimmin' or you'll sink like a stone
For the times they are a-changin'

—Bob Dylan, *The Times They Are A-Changin'*

CONTENTS

Acknowledgement ix

Prologue x

Introduction 1

Chapter 1 4
A wrong development model

Chapter 2 17
Culture, religion, violence and nature: An unsolved conflict

Chapter 3 28
The demographic explosion: Was Malthus right?

Chapter 4 33
Diet, hunger, obesity and other stories

Chapter 5 41
Global warming

Chapter 6 55
The agri-food chain, the mother of all stories

Chapter 7 65
The Italian Po Valley: Exemplary history of environmental pollution

Chapter 8 74
The Plasticocene, a brief history of garbage

Chapter 9 82
Water, the new oil

Chapter 10 89
SARS, MARS, SARS-CoV2: But what will SARS-CoV3 be like?

Chapter 11 104
One health, a blasphemous concept

Chapter 12 114
What to do?

Conclusion 120

Bibliography 122

Glossary 127

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PROLOGUE

The war in Ukraine is a drama that has plunged Europe into a context of violence that was considered impossible after the two world wars of the 1900s. The prophetic suggestions of the *Ventotene Manifesto*, written during the Second World War by Altiero Spinelli and Ernesto Rossi (Spinelli and Rossi, 1941), two intellectuals forced into confinement by the fascist regime, which called for the development of a Federation of the United States of Europe as the only antidote to the intrinsic violence of Sovereign States, have also proved to be bitterly current with regards to the drift of ex-communist regimes towards the dictatorial and militaristic. In addition to the direct disastrous effect of war, it is a powerful element of mass distraction from issues relating to the ongoing environmental catastrophe, caused by human activities, and from the search for the causes of the still ongoing Covid-19 pandemic, not only for scientific reasons, but to prevent and fight the next ones. The skyrocketing cost of fossil sources (gas and oil) used for energy production caused by the war has already prompted the reopening of coal-fired power plants and the resumption of gas and oil extraction programs around the world with the consequent moving away from global warming containment goals.

Homo sapiens is faced with global challenges that require integrated responses which, in order to be effective, can no longer be limited to the borders of individual states or regions.

The atavistic limits of the species, tribalism and violence, are probably inadequate to guarantee the tools to overcome obstacles that have taken on planetary scale dimensions and open scenarios of potential mass extinction.

The curiosity of a medical researcher and a clinician led me to try to understand the causes of the Covid-19 pandemic. Beyond the tragedy that was sweeping Lombardy from early March 2020, I was struck by seeing the "butterfly theory" realized in front of my eyes: the flapping of wings spreads thousands of kilometers and transforms the world, from a distance, in a devastating hurricane. Why had the fate of a Chinese pangolin or a Malaysian bat become so important as to condition my Milanese imprisonment? At the beginning of what was to become a long multidisciplinary journey, I began to study methodically and, I believe, profitably.

I was surprised to discover my ignorance relating to entire areas of research, such as agri-food, veterinary medicine, and the ecosystems of air, water and land. I found in a medical clinic that zoonoses had been transmitted to humans by bred pets. I found that much of this information had been gleaned from research conducted several decades ago and that much of this was known to the ruling classes of the world's leading countries. I found that many researchers had done excellent work on the damage caused by environmental devastation, on the related causes and on the interventions necessary to repair them or, if this were impossible, to mitigate their effects. However, the most interesting thing that I realized as I proceeded was that the compartmentalization by disciplines of the various research activities, so characteristic of the modern age for the necessary super-specializations, had not allowed us to understand in its entirety the domino effect triggered by the disruption of natural balances matured over billions of years. It is not understood that it was this chain of effects that generated a series of macroscopic events as a result of global warming to the first pandemic of the twenty-first century, a prelude to even more serious future events.

Reflecting on the extensive documentation available, I discovered a common thread that holds together apparently unrelated things: the bleaching of the coral reef and the intensive breeding of cattle and pigs, the proximity to wild bats, viral reservoirs responsible for dangerous zoonoses, and the acidification and warming of the oceans, the increase of greenhouse gases from the atmosphere and the annual circulation of 70 billion farm animals. I realized with terror that the *fil rouge* that explains environmental pollution, the emission of greenhouse gases, global warming and the present and future pandemic risk with a single discourse is the domino effect of the devastating distortion of the agri-food supply chain, determined by the demographic explosion of the last fifty years, with all its related activities: deforestation, crops, livestock, transport, industrial processing, energy production and trade. Distortion is under the eyes of anyone who knows how to see it, but which, so far, does not seem to have been grasped in its entirety. I, therefore, asked myself the reasons for the perceptual narcosis that has prevented the vast majority of us from understanding what is happening and why, and I believe I have found the answer in modern anthropology: the environmental disaster we have caused and which we continue stubbornly to aggravate is explained by our progressive detachment from nature that finds its reason in Western ontology and the dominant “single thought”, son of the capitalist development model now adopted throughout the planet. The comparison with other ontologies that survived colonial domination suggests the existence, at least in the past, of models of interaction with the biosphere

that is more respectful of the non-human and of reality made up of animals, plants, wind, oceans and mountains.

The observation that many years ago some researchers had already raised the alarm to the scientific community and the political community angers me, although their references had the limit of being sectorial (global warming, zoonoses and pollution) and easily ignorable by distracted public opinion and political leadership incapable of strategic vision.

For all these reasons, I found it difficult to place this essay in a traditional classification context: the multidisciplinary path that I face, trying to simplify contents that may seem trivial to sector specialists, aiming to show the close connections between topics which appear very distant; the reader will discover that they are not and will be guided in a virtual treasure hunt that has, as its goal, a greater awareness of the situation of that awaits us in the near future and of why an operational and concrete adherence to the United Nations sustainable development project launched in 2015 is so important.

INTRODUCTION

Two variables that recently appeared in the short history of mankind, technological development and the population explosion, have changed our impact on the biosphere, with effects of such magnitude as to cause serious imbalances on the entire system. The dynamic equilibrium of the biosphere was described in the 1970s with the introduction of the *Gaia model* by the English chemist, James Lovelock (Lovelock, 1979, 1-170).

Unprecedentedly, a holistic thesis was developed that proposed the interlacing of all variables of the biosphere, water, air, earth, flora and fauna in a single living organism. According to Lovelock, the only "goal" of Gaia is to preserve the balance that allows the development of life: the mixture of gases we breathe, and the biochemical and biophysical characteristics of the oceans and the waters of rivers, lakes and water sources.

The mechanisms for maintaining the balance of the biosphere, complex and still partly unknown, have developed over the course of 2.5 billion years of life on the planet, resisting a dozen catastrophic events that have cancelled the evolutionary path of the most developed animal and plant species. During their 300,000 years of life, homo sapiens has not significantly disturbed this balance, except with small local perturbations caused by, for example, the extinction of animal species too intensely hunted, such as the Mylodon, a herbivorous bear that disappeared a few thousand years ago, or from intensive logging to build military fleets in the Mediterranean. Then, in the nineteenth century, the industrial revolution followed in the twentieth by the technological revolution dramatically enhanced the capacity of the species to deeply affect the equilibrium of the biosphere. The demographic explosion, which began in the middle of the last century, has tripled the size of the human population in just a few decades. If, on the one hand, the current model of development has allowed extreme poverty to be halved in the last twenty years and access to a better quality of life for billions of individuals, on the other hand, it has presented an unsustainable environmental cost due above all to the distortion of the agri-food chain: massive deforestation of tropical forests, loss of biodiversity caused by the extinction of thousands of animal and plant species, massive pollution of drinking water sources, air and vast anthropized territories. Not to mention that the

flaws in the system have still left a billion people in conditions of extreme poverty, an ideal natural reservoir for future pandemics with the mechanisms of spillover of viruses and bacteria already experienced several times over the last twenty years and become increasingly effective by the inexorable laws of natural selection.

The most serious consequence of this development model is represented by global warming, induced by the effect of greenhouse gases. Global warming is actually the final product of a complex intertwining of causal events, one of the most important of which is the use of fossil sources for energy generation. Despite the recent development of greater awareness of this fact, 80% of energy needs are still met by coal and oil.

The recent Coronavirus-19 pandemic represents a sort of litmus test of the limits of homo sapiens, unable to recognize it as a challenge for his survival and to react with adequate measures. Humans have time horizons and can perceive epochal changes such as those occurring, limitedly. However, the technical times to remedy the damage of the current model of development—before periodic pandemic phenomena are triggered, forcing catastrophic interruptions of economic and industrial activities—are small.

Theoretically, it could be possible that the rapidity of the evolution of the current crisis, due to the simultaneous precipitate of the effects of the pandemic and the economic crisis, induces a radical change in the perception of the gravity of the moment by world elites and favors the rapid implementation of interventions necessary for the survival of the species.

I think this is very unlikely.

In 2015, 193 countries approved the 17 objectives identified by the United Nations (United Nations. 2015. Sustainable Development Goals. Accessed ‘n.d.’https://sdgs.un.org/goals) for a sustainable development model, objectives that had been selected by qualified experts and widely shared by the international community. The fact that nothing has changed since then is indicative of the inanity of the species, unable to find the convergences necessary to quickly implement the agreed programs. The global socio-political order represents a serious obstacle to the necessary interventions. First, multinational companies optimize their profits by exploiting human and natural resources, with total indifference to the accumulated social and environmental costs. Second, the nation-state's fierce tribal conflict substantially makes the propositions to change the situation ineffective and

vain, as happened with the Paris agreements regarding greenhouse gases reduction.

If we fail to select women and men capable of inventing a model of sustainable and circular development, capable of quickly recovering the flaws of the old and restoring a balanced relationship with the biosphere that hosts us, our time will soon be over. In the next millions of years, natural selection will favor the development of a new species endowed not only with powerful technological tools, but also with a greater ability to understand and respect the environmental context in which it will grow.

CHAPTER 1

A WRONG DEVELOPMENT MODEL

The development model of homo sapiens has been the same since the advent of agriculture and foresees the exploitation of man by man and of nature. Western ontology distances man from Nature and exalts its powers of exploitation and domination through industry and technology. The one billion people in conditions of extreme poverty, exposed to conflicts and extreme environmental events represent a pandemic reservoir, a potential danger for humanity.

According to the guidelines of modern anthropology, homo sapiens has developed different ways of relating to reality that have given rise to multiple ontologies with very different principles of identifying the self and the other. According to Western naturalist ontology, the relationship between man and nature is marked by a dualism characterized by the fact that only homo sapiens is endowed with interiority (soul, free will), while sharing the commonality of physical laws and matter with nature. Non-humans by definition do not belong to the social organization and its legislative and representative appendices, which remain prerogatives reserved for man. The narrowness of this ontological vision is already present in Greek thought, which introduces, with Aristotle, a taxonomy of the different forms of life, initiating a fracture between man and nature that was enriched by further contributions: the Roman rural civilization distinguishes the cultivated and ordered by the forest inhabited by barbarians and wild beasts; Christianity sanctions the diversity and uniqueness of man-made in the likeness of God and blesses his dominion over other living beings and over nature in the Genesis of the Old Testament; Galileo's scientific revolution of the seventeenth century strengthens for justified reasons of study, what the anthropologist Philippe Descola (Descola, 2013) defines as the Great Division between culture and nature. The history of economic thought over the last two centuries has clearly outlined the advantages and limitations of the Western naturalist ontological model. From the recent appearance of agriculture (about 10,000 years ago) onwards, homo sapiens has learnt to accumulate and not have to depend on hunting

and collection, developing the sedentary connotations of urbanization and commerce that have characterized the subsequent developments with the conquest of free time to devote to idleness, thought, arts and creativity. The mechanism by which these advantages have always been reserved only to a few is substantially based on force exerted in the first person, and then by proxy with the creation of the military structures necessary to subdue the enemies and, above all, the slaves, the real engine of development models of the various civilizations that grew up in the temperate belt of the subtropical zones of the planet. The Egyptian civilization, the Greco-Roman, the Indo-Chinese and that of the Aztec and Mayan empires developed over the course of a few millennia precisely along this temperate geographical band. As illustrated by Diamond in "Guns germs and steel" (Diamond, 2000) why civilizations have developed only in these areas of the Earth is due to a series of climatic variables and natural resources (minerals, plants and domesticable species) that have made large-scale agriculture and livestock farming possible using slaves as labor at no cost. The different perceptions of the world have certainly contributed to the difficulty of spreading cultivation, domestication and breeding techniques that may have encountered obstacles not only of an environmental nature, but also of an exquisitely ontological nature.

The decline of the Roman Empire with the advent of Christianity and the barbarian invasions saw the gradual consolidation of a new stratification of hegemonic and subordinate classes. In the Middle Ages, the serfs took over slaves as a new workforce. Although they had the apparent status of free men, they were in reality so dependent on the relationship of strength with the feudal lord owner of the lands and infrastructures in that their quality of life could not differ from that of slaves of the Greco-Roman and Egyptian civilizations.

The breakthrough in the historical scenario of European civilization at the end of the fifteenth century imposed, for the first time, the supremacy of technology as an instrument of domination (firearms, steel) associated with the contagion of communicable diseases as an unwitting weapon of mass destruction. The epic of the explorations conducted by sea and land by the great European navigators, from Colombo to Pizarro, and to Cook and Livingstone, allowed for the colonization of the world by the European empires that accumulate immense fortunes through the dispossession of the new discovered territories. This source of wealth, which was the engine of industrial development, was also derived from the slave trade, a flourishing activity between the fifteenth and eighteenth centuries by English, French, Dutch, Portuguese and Belgian trading companies. The development model,

in fact, has not changed and is still based on the exploitation of huge masses of slaves who, for centuries, will be imported from Africa where they were needed.

Then, the first organized forms of opposition to the conditions of exploitation were born, which achieved significant goals: the abolition of the slave trade by England was in 1807, while in the United States, one had to wait for the conclusion of the civil war (1861–1865) to acknowledge, at least, the formal abolition of all forms of slavery. In many nations, subject to European colonial empires, the slave relationship with the populations continued for most of the twentieth century until the agreed or violent liberation of colonies.

With industrial development, part of the rural workforce is urbanized for conversion to activities related to the extractive production chain, and the end of the nineteenth century saw the transformation of the relationship of slavery into a relationship of exploitation of the urban proletariat in heavy and manufacturing industries and of peasants in the countryside. The history of the same period narrates the terrible events linked to the class struggle of the urban proletariat and the peasant masses to obtain acceptable living and working conditions, with the development of trade union associations, the cooperative movement, the first struggles against large estates and industrial exploitation (Hobsbawm, Eric, 1988, *The Age of Capital).*

The ruling classes and capitalists have always defended properties and interests by any means, often using war as a tool for resolving conflicts, as in the case of the First World War, unleashed by the ruling classes of the European central empires with hegemonic aims over the rest of the world. The capitalist model of development allowed for the accumulation of immense fortunes, even in wartime, through the rapid conversion of industrial apparatuses to the production of weapons and ammunition, while millions of slave-proletarians/peasants were sent to the slaughter, despite fierce opposition from political organizations and socialist trade unions active in many warring countries (Hobsbawm, Eric, 1987, *The Age of Empire*).

The criticalities induced by the war caused the Bolshevik revolution to explode, the first attempt at rebellion by masses of subordinate subjects (workers, peasants, soldiers) aimed at conquering a new model of society based on the satisfaction of needs in a context of collectivism (common property of means of production and arable land, redistribution of resources). After the war, the European urban and peasant proletariat also tried to emancipate itself, *to do like Russia*, but the ruling classes, frightened by the revolutionary uprisings, responded financially and politically by supporting

the new fascist and national-socialist movements, thinking they could easily guide their fate. The *two-year red period* in Italy (1919–1920) and the Weimar Republic in Germany (1918–1933) therefore ended in tragedies with the advent of Mussolini and Hitler, while the crisis of 1929 plunged the world economy into an epochal catastrophe. The transformation of the fascist and national-socialist movements into dictatorships that planned aggression and prevarication on the rest of the world with esoteric-racist motivations that raved about the genesis of a new super race destined for the domination of humanity marks the end of parliamentary democracies and prepares the ground for the Second World War (Hobsbawm, Eric, 1995, *Age of Extremes, The short Twentieth Century*).

Moreover, the transformation of the Soviet Bolshevik revolution into a frightening monochromatic dictatorship took place in the 1930s with the advent of Stalin, the mock trials of the opponents sent to die in the Siberian Gulags and the murder of those as the former commander of the Red Army Lev Trockij had embarked on the path of exile. This early involution, partly masked by Nazi aggression, closes all hope of seeing the rise of an alternative development model to the dominant capitalist. The Soviet model, forced by the war into a profound productive and organizational distortion, developed after the war with characteristics based on the exploitation of the human and natural resources of the countries subject to the Warsaw Pact, with centralized and highly bureaucratized economic planning that extinguishes any entrepreneurial initiative and does not generate any wealth. The few profits were absorbed by military spending to support the nuclear arms race characteristic of the Cold War. The impact of the Soviet socialist economy on the biosphere was devastating and left, as perennial relics, nuclear pollution (Chernobyl, nuclear submarines sunk in the Baltic, land-based nuclear military bases) and the pollution of vast industrial and extractive areas in Eastern Europe, Ukraine, Russia and Siberia. An example is the story of the Aral Sea, one of the largest freshwater reserves on the planet, where Soviet economic planning imposed the diversion of the two tributary rivers to support the irrigation of vast cotton monocultures. The result was the transformation of the lake into a polluted desert that forced the migration of the coastal population and the interruption of flourishing fishing activities (40,000 tons/year). After the fall of the Berlin Wall (1989) and the failed attempt at democratic change by Gorbachev (Perestroika), the rise of Putin, a former official of the Soviet secret services (KGB), reoriented the former USSR in a logic of regional power with a dictatorial political order and an economic one that is neither socialist nor capitalist, favoring oligarchies that enrich themselves by exploiting the immense natural resources of the country. The aggression against Ukraine,

in defiance of international law and respect for the self-determination of peoples, reveals the tragic face of the Russian post-Soviet dictatorship and proposes scenarios of war in the heart of Europe that were unimaginable after the two world wars. The risks of an extension of the conflict up to the explosion of a third world war with the use of thermonuclear weapons, considered political fiction until yesterday, have become topical topics of the strategic briefings of the political-military elites from all over the world.

The Chinese development model, from the capitalist turn of Deng Xiao Ping in the late 1970s to the present day, is characterized by a liberalization of the market that has allowed Western multinationals to find cheap labor compared to the Western, unionized and expensive ones and to have a free hand in the construction of industrial plants and the logistics chain essential for their operation. China quickly transformed into the largest manufacturing company in the world, allowing the achievement of decent living conditions for hundreds of millions of Chinese living in extreme poverty. A positive side effect of improving living conditions is lowering the fertility rate, which is now below the threshold of two children per family. The Chinese version of the capitalist development model, defined by Branko Milanovic (Milanovic, Branko, 2019) as political capitalism, is characterized by a delicate balance between development, the efficiency of the Party-State and the bureaucratic apparatus, the reduction of civil liberties and widespread corruption. The absence of the rule of law and the presence of multiple opaque forms of ownership make the rise of a capitalist bourgeoisie capable of conditioning the party-state difficult, if not impossible. Despite joining the Paris Agreements on the reduction of greenhouse gas emissions, China has long remained indifferent to environmental issues, which are considered an inevitable price to pay for development. Over the last decade, the environmental damage caused by the massive use of fossil sources for energy production (80% of coal) and by the heavy distortion of the agri-food chain, biased towards water-pumping and highly polluting productions, has led to greater attention to the environment with interventions aimed at controlling air pollution in large urban areas and underground water reserves through capillary monitoring systems. Two of the three coronavirus epidemics that have occurred in this century developed in China (SARS in 2002, Covid-19 in 2019), indicating that there are still huge natural incubators of potential spill-overs in the country (leap of species) represented by millions of people living conditions, such as exposure to relationships of close contact between wild and domestic species. To meet the food needs of a population that has reached, the food industry has been oriented towards gigantic animal husbandry and agriculture towards extensive monoculture (soy and corn) to support the production of feed. The reconversion of the

agri-food chain would require radical measures to meet the 2050 target proposed by the International Commission on Nutrition EAT-Lancet (Willett, Rockstrom, Loken, Springmann et al. 2019, 447-492) in January 2019. The search for arable land has led China to penetrate the African continent with the aim of introducing colossal monocultures aimed at producing feed to support the domestic agri-food chain. The neocolonial penetration of China in Africa is supported by a commercial exchange that has exceeded 100 billion dollars/year with interventions in all sectors: industry, telecommunications, infrastructure, agriculture and finance. The primary objective remains the acquisition of the raw materials necessary for the technological development of the Asian giant: oil, copper, lithium, coltan, cobalt, uranium and gold. The secondary objective is to develop hegemonic relations for controlling trade through a complex network of communication routes (the new silk road), which requires the control of ports, railways, roads and telecommunications.

However, the neo-colonization of Africa is not just happening on the part of China. Many Western and Asian multinationals have taken part in land grabbing (theft of land) achieved by renting or buying huge arable land for insignificant amounts through the easy involvement of local ruling classes, often corrupt and/or blackmailed (Liberti, Stefano, 2013). This depredation is favorite by the regulatory confusion resulting from the uncertainty about the ownership of land, which, in the absence of cadastral registers, is generally attributed to the State. Western and Asian multinationals in the agri-food sector have thus been able to reconvert African territory with monocultures in the palm oil sectors for the production of fuel (biodiesel), floriculture with the installation of highly technological greenhouses, greenhouse crops of fruit and vegetable products, soy and corn and rice monocultures. The vast majority of the products in this supply chain are destined for export to rich countries (the United States, Europe, Saudi Arabia and the Emirates of the Persian Gulf) or to India and China. The reconversion of the territory has had deadly effects. It has seriously damaged local agriculture, although very fragile, due to the lack of infrastructure and logistics, and has seriously damaged biodiversity due to deforestation and interference with the nitrogen cycle and phosphorus used as fertilizers.

Even the multinationals that control the extractive activities of the African continent move with the logic of robbery of the human and natural resources used throughout the planet, taking advantage of the political instability and easy conditioning of the vast majority of African countries. The working conditions of the children employed in the coltan mines (a mineral used in

smartphone batteries) in the Democratic Republic of Congo are quite similar to those of David Copperfield's proto-industrial London.

All available indicators—from the per capita consumption of electricity to the individual consumption of red meat to that of gallons of gasoline—identify the United States as the world's largest producer of greenhouse gases, the largest energy consumer, and the worst polluter as far as it concerns the agri-food chain and the extractive industry. One example among many concerns is the hydraulic fracking technique (whereby large quantities of water and chemicals under high pressure underground are used to crush shale rocks rich in gas and oil) used by the North American mining industry. Data relating to the damage caused by this system are not yet completely available, but the local communities where the extractive industry has spread report very serious damage to the aquifers and to the soil that is impregnated both on the surface and in depth with the wastewater and the chemicals used. Josh Fox's 2010 documentary film GasLand exemplifies the story of some of these communities that can light fire with water coming out of sink taps (Fox, Josh, 2015. Accessed November 21th 2015.http://one.gaslandmovie.com).

The development model that homo sapiens have pursued does not have only negative aspects: the Swedish doctor Hans Rosling (1948-2017), interpreted a positive thought that explains our incomprehensibility of the world and why things are better than how we think. *Factfulness* (Rosling, 2018), the book that collects his thoughts, is a true source of positive data rigorously certified by authoritative international agencies and permeated by a rational Enlightenment thought that underlines the fragility of our emotional perception: when our emotional perception is exposed to media bombardment, between good and bad news, it always chooses the one that excites the most—the negative one. Rosling enjoyed condensing this dispersion of collective consciousness into 13 questions, which he was eager to ask the world elites of politics and finance in exclusive conferences. However, he always got disappointed and had great concern for the general inconsistency of the answers, which shows a profound ignorance of the indicators of the state of the world that those elites are called to govern. The legacy of his thought has been collected by the Gapminder Foundation, which has activated a website (Gapminder. 2023. Accessed ‘n.d.’. http://www.gapminder.org) where data (available to various international agencies such as the World Bank, United Nations, World Health Organization, Food and Agricolture Organization, Global Burden Disease) is continuously updated and arranged in graphs and histograms, giving anyone the opportunity to download information for educational or exhibition purposes. In light of Rosling’s

thinking, the current development model is not only represented by the environmental disaster, the result of the predation of the planet's resources and human exploitation, but also by real positive data:

- In low-income countries around the world, 60% of girls finish primary school and most of them follow educational cycles of at least nine years, slightly lower than those of male companions;
- Most of the world population lives in middle-income countries, and in the last 20 years, the proportion living in conditions of extreme poverty, defined by the World Bank as a daily income of less than 2 dollars, has almost halved;
- Life expectancy is 70 years, although there are still important differences between rich and poor countries;
- 88% of the 2 billion children between 0 and 15 years who populate the planet have received at least one vaccination;
- The demographic explosion characteristic of the last 60 years is in a phase of exhaustion, consistent with the improvement of living conditions. The average number of children per woman of childbearing age is 7 in the billion people with incomes of less than 2 dollars a day, but it drops sharply to 2 or less than 2 in the rest of the world population;
- According to the projections of the UN, the world population will reach the maximum expansion ceiling at the end of the century with 11 billion people, with an increase of 4 billion due to, essentially, the increase in the adult population between 15 and 74 years of age;
- The Global Burden of Disease, in its periodic report on the causes of death by geographical area and by single country in 2019 (*Global Burden of Disease Study*, 2020, 1135-59), highlights for the first time that the main causes of death are no longer communicable diseases (diarrhea, pneumonia, malaria, etc.) but degenerative diseases, as has been happening for a long time in the richest countries (cardiovascular and oncological diseases, diabetes mellitus, etc.).

The radical change in the causes of death reflects the marked improvement in the living conditions of the world population, also represented by the access for 80% of humanity to sources of electricity, drinking water and some form of advanced technology (cell phones 65%, Internet 48%, according to 2017 data). Rosling, therefore, does not deny the negative aspects of the development model, in particular global warming, environmental

pollution and the share of humanity struggling for survival, but frames these critical issues in a context in which confidence is expressed in the system's ability to find positive solutions.

Rosling was a great expert on epidemics. Regarding Ebola, he left directly in the field the problems relating to the fight against the spread of the infection, saying that the difficulties were not only of a technical nature, but also included aspects of a social and cultural nature, such as those relating to the cult of the dead and the risks of contagion associated with funeral ceremonies.

He would have analyzed the Covid-19 pandemic based on scientific evidence supported by his vast epidemiological experience and would certainly have contributed to less emotional and approximate information than that provided by the media around the world.

According to the most recent projections of the World Bank (World Bank, *Poverty and Shared Prosperity*, 2022) the immediate effect of the Covid-19 pandemic will be to increase the earth's population living in extreme poverty by approximately 150 million (income less than $ 2/day per capita, no form of education, lack of basic infrastructure, access to drinking water, sewage and electricity) (Fig. 1.1). Most of the people living in these conditions of extreme poverty are found in sub-Saharan Africa (Fig. 1.2), where two other characteristic criticalities coexist: the presence of tribal conflicts and civil wars and the effects of climatic instability due to global warming (drought and floods) (Fig. 1.3–1.4) (World Bank, *Poverty and Shared Prosperity,* 2020). The populations living in these conditions are generally ruled by corrupt and undemocratic regimes that often foment tribal wars to stay in power and are unable to oppose the penetration of terrorism by radical jihadist formations. The ruling classes of this area are easy prey to the neo-colonial policies of Western and Asian multinationals, interested in the massive exploitation of the region’s natural resources and in the sale of arms to support regional regimes and wars (Liberti, Stefano, 2013)

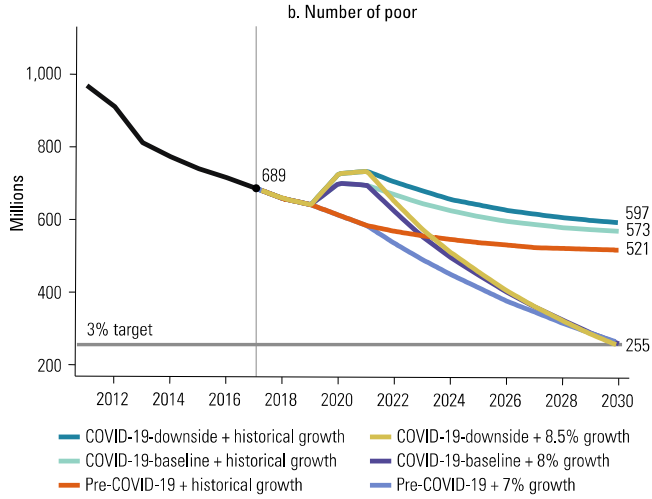

Fig. 1.1 Population in extreme poverty in relation to COVID-19 and growth: reduced hopes of reaching the 3% target by 2030
Poverty and Shared Prosperity 2020: Reversals of Fortune.
Washington, DC. World Bank. doi: 10.1596/978-1-4648-1602-4.
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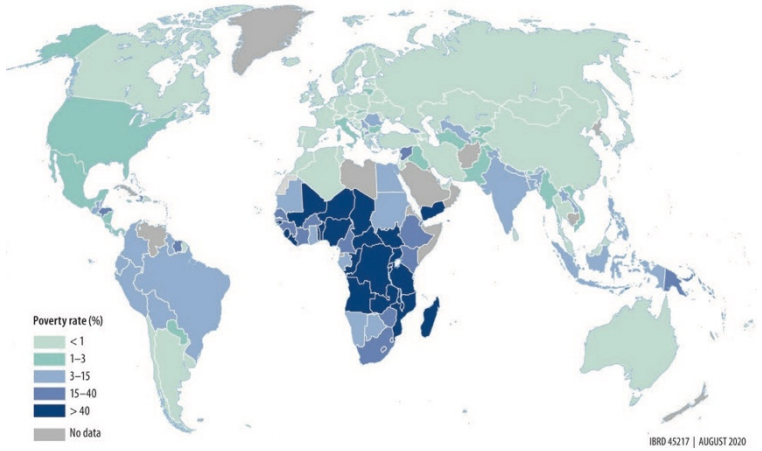

Fig. 1.2 Distribution of poverty.40% of the population of sub-Saharan Africa lives on <2 dollars a day per capita. Syria and Yemen are the other countries in extreme poverty due to the ongoing conflicts.
Poverty and Shared Prosperity 2020: Reversals of Fortune. *Washington, DC: World Bank. doi: 10.1596/978-1-4648-1602-4.*
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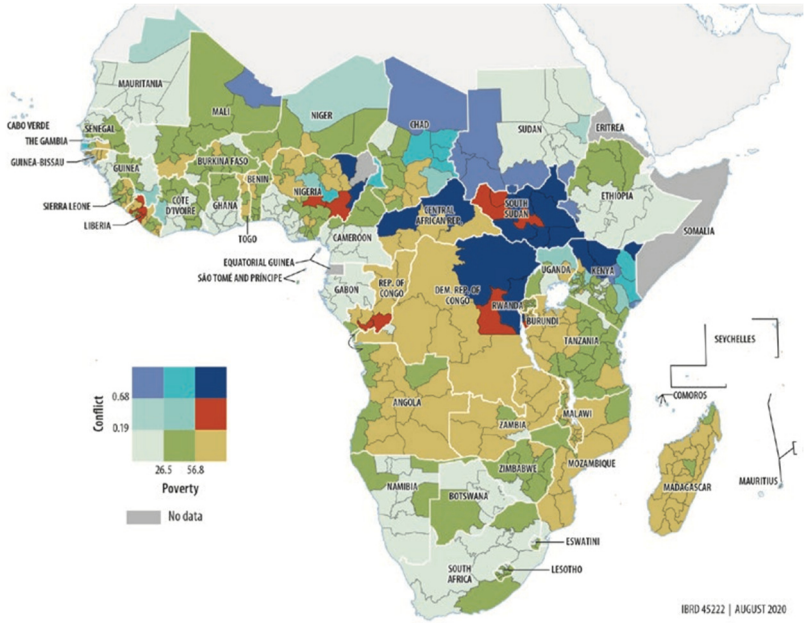

Fig. 1.3 Distribution of regional conflicts in sub-Saharan Africa: relationship between poverty and conflict index (1= highest degree of the index that takes into account the years of conflict and mortality per thousand inhabitants) The blue and red zones are those characterized by the greatest conflict and poverty, gray areas are not classified due to lack of data.
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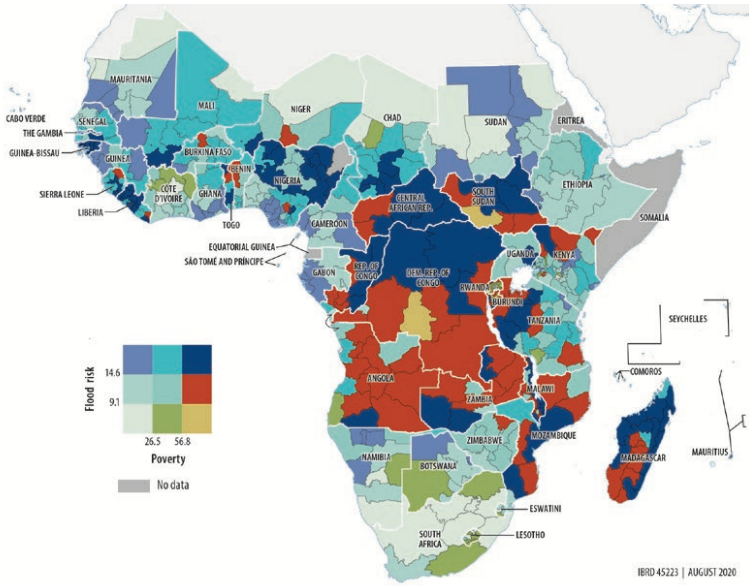

Fig. 1.4 Distribution of flood risk areas in sub-Saharan Africa: relationship between poverty index and flood risk indicator (1 = maximum risk). The blue and red areas are those characterized by greater poverty and flood risk. Those in gray are not classified due to lack of data.
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CHAPTER 2

CULTURE, RELIGION, VIOLENCE AND NATURE: AN UNSOLVED CONFLICT

Western ontology, supported by a coherent philosophical, religious and scientific thought, has progressively detached homo sapiens from nature, also thanks to the particularly aggressive development model based on the exploitation of man and devoid of respect for the environment. Environmental devastation and its epiphenomena, global warming and pandemics, require global coordinated responses that the species cannot give due to the atavistic limitations of tribalism, violence and greed. The social and political articulations of humanity are inadequate to give deep answers with the speed necessary to the critical issues of the situation.

If hominids, such as Neanderthals or Cro-Magnons, who lived with us for a long time until their extinction, which occurred about 28,000 years ago, had survived until today, we would probably have a more conscious relationship with nature than that matured with the evolutionary path made so far. The distance with the primate closest to us, the chimpanzee, is minimal from a genetic viewpoint (we share 98.5% of the DNA with them), but enormous from an intellectual viewpoint. The spectacular development of the neocortex and frontal lobes of our brain allows us articulated forms of thought that anthropologists and neuroscientists encode as the theory of mind: our ability to articulate intentional thoughts (I think (1) that Tom is deceiving (2) John to allow (3) Peter to try (4) the motorcycle stolen from Bob) can easily reach the fifth degree of relationship, while in chimpanzees it does not exceed the first. According to Robert Dunbar (Dunbar, 1998), the keystone represented by language development allows a significant increase in our ability to maintain effective emotional bonds with at least 150 individuals, while the absence of language obliges primates to use physical contact of grooming to maintain social relationships, which forces them into a much more limited number of relationships. The limit of 150 contacts defined by Dunbar's research is not exceeded by that recently proposed by

social experts because the follower can never be equated with an emotional relationship that provides for a much more complex intimacy. Dunbar (Dunbar, 2004) correlates this number to brain volume, and the research of paleontologists and anthropologists seems to confirm this correlation, which explains our inability to deal with emotional and/or social confrontations that go beyond this threshold. Faced with a dramatic event that occurs outside this circle of ancestral "tribal" dimensions, we feel no emotion other than rational participation, more or less politically correct. The development of our social relations, strongly conditioned by these limits, is not suitable for supporting actions in solidarity and sharing the critical issues presented by the globalization of crises caused by environmental devastation.

Culture and religion

The relationship with the nature of homo sapiens and his perception of reality have been the subject of speculation for millennia. The current dominant ontology is constructed by Western thought: it proposes a "single thought", which, thanks to the power of technology and the capitalist development model, reduces man's only reason for living to the production of consumer goods, relegating nature and non-humans to the role of extras. According to the orientations of modern anthropology, which compares the perceptual models of different communities of homo sapiens, Western thought perceives nature in its material physicality, regulated by common laws and distinguishes it from man, the only being endowed with a soul, free will and interiority (understood as a set of conscience, spirit and soul). Hence, anthropologists, such as Philippe Descola, paradoxically defined Western ontology as naturalist, distinguishing it from other ontologies, such as animist or totemic, which are much more interlaced with the nature of non-human beings and objects.

What remains of the nomadic populations that still live by hunting and gathering has allowed modern anthropologists to study their ways of perception and relationship with reality, and the multilateral comparison between the various disciplines involved in this difficult analysis has induced interesting results. In the first place, regarding the racist conception of nineteenth century anthropologists, English Edward Taylor, who first introduced the term "animism", understood this as the attribution of spiritual properties to objects, places or living beings: the representation of thought animist of the good savage as a primitive proto-religious form, then illuminated by the light of truth with the advent of the monotheistic Christian religion, proved to be totally false.