A World after COVID-19: Business as Usual, or Building Bolder and Better?

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Abstract
The authors propose a holistic approach to life and living after the coronavirus crisis of 2020 has become history. Their method is to postulate studied reconsideration of the true needs of the human species, new know-how for all, novel codes of behavior, and drastic change to how we treat nature. Their findings name humanity’s ballooning population as problem Number One. Without reverting to former ways, we need to apply our imagination to sound demographic principles, accept modest economic growth, and create much better stewardship of nature. Stated in terms of the futurist, a Great Acceleration should give way to a process we might call the Great Deceleration of humanity’s tempo of life and mode of action. Readers are encouraged to eschew all thought of continuing with ‘business as usual’. A purposeful limitation is the absence of all encouragement towards regrowth of wasteful manufacture and commerce. A systemic shift towards circular and green economies should be a key advance in all business revival. Another mode of being awaits; success of the encounter depends on humankind, not on theory.

Policy Implications

- An overly populated world is not a problem specific to each of the United Nations’ 193 member nations. Each country will, if deemed necessary, formulate its own demographic position free from others’ views. Urgently needed is a global effort, based on multilateral, multi-stakeholder efforts and a new vision for how many humans should inhabit planet Earth, sustain quality of life and live in harmony with nature.
- To prevent the collapse of our civilization we need to use latest knowledge and implement the solutions already available for tackling the major issues of our time, such as global climate change, continued loss of biological diversity, environmental pollution and degradation, poverty, inequalities within and among countries, global health threats, and humanitarian crises.
- Disruptions caused by the COVID-19 emergency, the most severe crisis since the Second World War, have derailed international efforts towards sustainable development as enshrined in the goals of the UN’s 2030 Agenda. At the national level, chaos during this crisis caused immediate changes in public services: emergency healthcare, socioeconomic safety nets, trade abroad. Other services will need revision. Worldwide recovery is now urgently needed, underpinned by relevant policies, from local to global levels.
- Recovery policy should not aim at returning to a situation as before the COVID-19 pandemic, to a business as usual scenario. Rather, the crisis should be seen as an opportunity, an option for a reset and subsequent launch of a Great Transformation towards ‘a better world, a future we want’.
- Worldwide policies should, accordingly, foster a transition from decades of a Great Acceleration across a large range of human activities—through reversing upward trends—to a Great Deceleration. This reversal requires massive change in the dynamics of value chains through slowing down of flows in matter, energy and information.

Our globe is overcrowded. More humans mean more demands on resources—for more food, clothing, housing, farms, workshops and factories, offices. More hospitals, schoolrooms, sports facilities, entertainment; use of energy, transport, communication of every kind. New exploitation of land, oceans and space. Create, develop, innovate without cease. Then consume still more.

Global disruptions and the future
We took pen to paper in the midst of a global emergency: the COVID-19 pandemic. Animal to human transfer of the new virus SARS-CoV-2 may have happened accidentally in China at year-end, 2019. Within a few months, the virus became a colossal health hazard. While the germ continued infecting significant numbers, the world took unprecedented steps to cope with the man-made catastrophe. Entire populations face severe restrictions, public life remains in part inactivated. Some scenes reminded us of movies such as The Andromeda Strain, based on Michael Crichton’s science-based novel of 1969, and Outbreak, modeled on Richard Preston’s The Hot Zone, a nonfiction book published in 1994.
The cinema industry surely plans a block-buster production featuring the new coronavirus.

The emergency has seen an unexpectedly close collaboration between the political and scientific communities, from specialists in virology and epidemics to practitioners in hospitals and homes for the elderly, the most vulnerable age group. Famed research centers such as the Johns Hopkins University public health school in Baltimore and the Robert Koch Institute in Berlin have been major players in announcing new developments in the crisis and counseling leaders of governments. Particularly important in the pandemic were Johns Hopkins’ COVID-19 score-keeping ‘dashboard’, provided by its Center for Systems Science and Engineering. The global disruptions caused by COVID-19 have affected all sectors, in particular those of manufactures and trade, personal revenue, transport, energy, education, and public life in almost its entirety. They also led to postponement of major programs and decisive conferences, including those of the United Nations foreseen for 2020. For the G-20 group of wealthy countries, the rate of GDP erosion is estimated at around 10 per cent for emerging countries, 4 to 5 per cent for the United States and 2 per cent for the Eurozone (Wikipedia, sourced evidently to regional banking authorities).

The initiatives for global sustainable development, the challenges of climate change and biodiversity loss – and many other problems – seem to have disappeared from daily debate and the media. Pathology took over; the most minuscule microbiota took charge. The entire world fell victim to a multiplying cataclysm. Heads of state or government – excepting those of Belarus, Brazil, and Hungary – consider the epidemic the worst disaster since the Second World War.

The UN’s Secretary General’s report of March 2020 Shared Responsibility, Global Solidarity (United Nations, 2020a, p. 23), is a clarion call to action:

With the right actions, the COVID-19 pandemic can mark the rebirthing of society as we know it today to one where we protect present and future generations. It is the greatest test that we have faced since the formation of the United Nations, one that requires all actors – governments, academia, businesses, employers and workers’ organizations, civil society organizations, communities and individuals – to act in solidarity in new, creative, and deliberate ways for the common good and based on the core United Nations values.

Indeed, lessons learned from the COVID-19 experience may be a reset button for our future – an option for not continuing along the present pathway but charting the way towards a sustainable future of and for a reduced humanity. Along complementary lines of thought the World Economic Forum has launched its Great Reset Initiative and plans for a twin summit under this theme in January 2021, bringing global governmental and business leaders together with a multi-stakeholder network (for details see https://www.weforum.org/great-reset).

This article is not, we remind, about the crisis but argues the science-foresight continuum and its importance as a tool for anticipating alternatives for the future of humanity, thus designing the process towards future trajectory of the human species. Its ingredients may be sustainability, peace, justice, the goal being the launching of transformative change for a mistreated Mother Earth and, lastly, aiming at lifestyles in harmony with nature.

Foresight interrupted, even halted?

The impetus given to environmental rescue during the new century’s second decade has been remarkably strong. Will the coronavirus disable or kill both enthusiasm and planning? We add this interrogation to the risks specified throughout this essay.

The author, film producer, social critic and public philosopher Bernard-Henri Lévy asks the question with due gravity. In a radio broadcast from Paris on 1 June 2020, Lévy stated (we paraphrase for brevity) that COVID-19 has ‘globalized fear’. With the virus active, he said, political leaders will not make decisions about mass protection without several epidemiologists and virologists standing by. But why should doctors supplant the elected? Lévy added, ‘They disagree among themselves as much as we philosophers’.

The critique is punitive, while its sense connotes confusion of priorities in the minds of both leadership and the public. The United Nations’ Agenda 2030 should be pursued and met in whole.

Point of departure: global impact of the COVID-19 pandemic

The World Health Organization (WHO), founded in 1948 and headquartered in Geneva, is one of the UN’s specialized agencies whose mandate is international public health. WHO has 194 member states and has played a key role in informing and advising the world community on the COVID-19 pandemic. It also issues a score-keeping record and regular situation reports (for an example, see Table 1).

Table 1. Data on COVID-19 pandemic. Source: WHO Situation Report – 113 of 12 May 2020

| Region          | Cases       | Deaths    |
|-----------------|-------------|-----------|
| Globally        | 4,088,848   | 283,153   |
| Africa          | 46,829      | 1,449     |
| Americas        | 1,743,717   | 104,549   |
| Eastern         | 274,027     | 9,138     |
| Mediterranean   | 274,027     | 9,138     |
| Europe          | 1,755,790   | 157,880   |
| South-East Asia | 105,901     | 3,597     |
| Western Pacific | 161,872     | 6,527     |

Notes: Data as received by WHO from national authorities by 1000 CET, 12 May 2020. Total affected: 215 countries, areas or territories with cases. Situation in numbers (by WHO world regions). Source: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200512-covid-19-sitrep-113.pdf?sfvrsn=feac3b6d_2
COVID-19 has had calamitous consequences for all areas affected. The disease has truly spread over the globe, with unexpected impacts in countries of the North and the South alike. The spread of the virus has even seriously affected countries leading worldwide in their health systems and sanitation standards. Time will show how the virus will affect the most vulnerable living in countries with either poor capacities in their health systems, as in Africa, or where many people live in high densities and under poor conditions as in favelas and townships. These places are expected to turn into hotspots of COVID-19. In addition, particularly severe is the situation for migrants and refugees, new waves of migration may be seen, directly resulting from conditions in the refugee camps where people are exposed to infection by the virus (for an overview of the migration problem see Erdelen and Richardson, 2020).

Major systemic impacts of COVID-19 are summarized in Box 1. It is essential to know that plagues are a continuing danger in the nature/human relationship. Emergence from any single attack does not, cannot signal immunity or lessened infection from the next epidemic. While we fought COVID-19 our other major challenges did not disappear: global climate change, biodiversity loss, environmental pollution, political conflict and wars in several of the world’s regions. (In the last case, we witnessed again severe problems with the functioning of the UN Security Council to stop all political wars during the COVID-19 crisis.)

The World Economic Forum’s latest Global Risks Perception Survey (WEF (World Economic Forum), 2020; overview in Box 2) remarked ‘For the first time [in the history of the Survey] environmental concerns dominate the top long-term risks’. Next to climate change, biodiversity loss is ‘the second most impactful and third most likely risk for the next decade’. Almost in anticipation of the corona crisis are the report’s comments on health care: ‘Health systems around the world are at risk of becoming unfit for purpose [and as] existing health risks re-ignite and new ones emerge, humanity’s past successes in overcoming health challenges are no guarantee of future results’. — As we have just experienced, indeed, with the COVID-19 pathology.

We are not only somewhat diverted from major dangers; we may realize — as soon as the pandemic has come ‘under control’ — that such occurrences have worsened.

To extend our germane risk enquiry, it is the authors’ turn to probe the role of technically innovative capitalism as potentially a fast lane to cataclysm. Free-wheeling capitalism — and its undying faith in economic growth — remain birthmarks of the post-industrial revolution. Or, should we speak of turbo-capitalism, with systems out of control provoking unrest?

Had such sequels never appeared, would natural disaster (e.g., pandemic infection) cause planet-wide havoc? To reply, there is no choice between yes and no. It is fact, instead, that our material world has become more complex.

Box 1. Systems affected by COVID-19.

Authors’ general impressions:

- We met and coped with a virus, but without medication or vaccine.
- The world experienced its first act of major confinement against disease.
- Past visions of epidemics tended to be economics-concentrated.
- Environmental policy was often the victim of political defeat or compromise.
- Public health and medical research suddenly benefited from new intensities.
- Food resources and their distribution chains underwent new structuring.
- We re-learned the critical value of revenue for individuals and families; optimal economic intercourse is vital to our species’ existence.
- Classroom-oriented learning began to lose much of its rote domination.
- Conceiving laws and regulations moved downwards from top to more local.
- So did the management and control of services at the level of locality.
- The societal values of culture and sports were newly appreciated.
- New initiatives emerged for performance assessment of police, security and defense forces.
- The societal performance of mass media improved most positively.
- The future imposed itself on the present; history moved a trifle closer to the past.

Systemic effects on:

- Family life.
- Public and social life.
- Education systems at all levels – from pre-school to university.
- Professional life and employment situation (in America, the worst since the 1930s’ Depression).
- Collective life of neighborhood, village, city, nation, territorial region, world.
- Functioning of health systems or the lack thereof came to the fore.
- Applied economies (transport, energy, industry, financial markets, GDP).
- Functionality of political systems ‘on the test bench’.
- COVID-19 has demonstrated the vitality of well-functioning science-policy (research) systems.
- International collaboration, work of the UN (e.g. key events had to be postponed to 2021).
- Global environmental problems, e.g. climate change, biodiversity loss, environmental pollution, were largely ignored during the crisis.
Objectors will protest, ‘Yes, perhaps; but you overlook human progress in medicine and cure’. Industrialized phar-maco-medicine has become indispensable, it is true. But the sector is also too much, too fast, too costly as industrial economics that many cannot afford. Better to understand the total picture, we need only appraise the pitiable status of the automotive and aeronautical markets catering to mass consumption. Too much may become too little.

Box 2. Global Risk Report 2020 of the World Economic Forum.

General information

The World Economic Forum (WEF), is a non-profit NGO founded by its member companies and based in Switzerland. Founded by Klaus Schwab in 1971, the Forum celebrated its 50th anniversary in 2020. The mission of the organization is to improve ‘the state of the world by engaging business, political, academic, and other leaders of society to shape global, regional, and industry agendas’ (https://www.weforum.org). WEF has become most well-known for its annual meetings, held at the end of January in Davos, a Swiss health resort, and its annual global risks reports.

Global Risk Reports

The Global Risks Report is a study published by the World Economic Forum ahead of the Forum’s annual conference in Davos. Based on the work of the Global Risk Network, the report describes changes occurring in the global risks landscape from year to year. The report also explores the interconnectedness of risks, and considers how the strategies for the mitigation of global risks might be structured. Sources for the report include an assessment by several major insurance and reinsurance companies and focus workshops, interviews and a survey of internationally recognized experts. The report is intended to raise awareness about the need for a multi-stakeholder approach to risk analysis and mitigation of risks the world over. (Source: https://en.wikipedia.org/wiki/Global_Risks_Report).

Risks

What is risk? The authors suggest that risk is a wager of foreseeability against probability that danger or peril lies ahead – yet we bet that it will delay or fail to occur. We often win the gamble.

Risks as discussed in WEF’s reports are worldwide in nature and impact. In addition, risks should affect several industries, there should be uncertainty how they might develop during the next decade and what their impacts might be. Risks are highly complex, both with regard to their drivers and their interrelationship with other risks. The Forum established a Global Risk Network in 2004. This monitors risks in the five areas of economics, environment, geopolitics, society, and technology. Based on annual assessments, a risk landscape is drawn up which considers the likelihood and effects of risks. WEF’s 2020 Report is the 15th edition of its Global Risks Report.

The Report of 2020

The outstanding result of this document is that for ‘the first time in the history of the Global Risks Perception Survey, environmental concerns dominate the top long-term risks by likelihood among members of the World Economic Forum’s multi-stakeholder community; three of the top five risks by impact are also environmental’ (WEF, 2020, p. 7; see also Table 2).

Below, an overview of the topmost global risks (from figure I of the 2020 report). Note the prevalence of environment-related risks (in italics). If WEF had considered water crises and infectious diseases as environmental risks as well (see asterisks), this prevalence would be even stronger.

Table 2. Likelihoods and impact of global risks (from WEF, 2020)

| Ten most possible risks in terms of likelihood | Top ten risks in terms of impact |
|-----------------------------------------------|---------------------------------|
| 1. Extreme weather                            | Climate action failure          |
| 2. Climate action failure                      | Weapons of mass destruction     |
| 3. Natural disasters                          | Biodiversity loss               |
| 4. Biodiversity loss                           | Extreme weather                 |
| 5. Human-made environmental disasters          | Water crises*                   |
| 6. Data fraud or theft                         | Information infrastructure breakdown |
| 7. Cyberattacks                                | Natural disasters               |
| 8. Water crises*                               | Cyberattacks                    |
| 9. Global governance failure                   | Human-made environmental disasters |
| 10. Asset bubbles                              | Infectious diseases*            |
Terminologies and innovations from science
Readers will understand our search for disturbers of our common environment. Science has become ever more important in shaping our lives. Major decisions in our societys great challenges need to be based on science, so-called evidence-based decision making. Science has developed new tools for anticipation, e.g. UNESCO’s (2018) Transforming the Future, for foresight, scenario building, all united under the term Futures Studies (overview in Gidley, 2017). These approaches to designing and deciding on future inventiveness are needed more than ever, especially in view of human impacts on planet Earth in the Anthropocene (brief in Lewis and Maslin, 2018).

Fiction – future – science
Isn’t this the time to develop bolder visions for our common future? Following Arthur C. Clarke’s lines of thought in his ‘Third Law’ that Any sufficiently advanced technology is indistinguishable from magic might coincide with using the five ‘tools’ compiled above as a powerful vehicle to take us into the years ahead (Box 3).

Recent conceptual developments in science – naturally incomplete a note
Science, despite its disparagement by a few world leaders, plays a growingly influential role in all our debates. This refers not only to the process of improving our understanding of nature but – most significantly in recent times – also for responding to humanity’s worst ignorance. Since the 2000s new concepts have developed, triggering a paradigm change in the way we use science today. We base our discussion on a very broad concept: science includes not only the natural sciences, the social sciences and the humanities, but also the medical and engineering sciences as well as skilful foreseeing and innovating unexplored hypotheses and even tentative notions of what is possible.

With the prospect of the third millennium the face of science, formerly alongside technology-engineering-innovation – one of the major drivers of the industrialization process – has changed drastically (see Richardson and Erdelen, 2020, in press, for details). Science has also a firm standing within the UN’s major effort towards sustainable development (e.g. Erdelen and Richardson, 2019).

We consider a few scientific concepts which are of special relevance to casting new trajectories for a sustainable future, after – or with – COVID-19. Their origins and further development have all been linked to the evolution of a new science of the Earth, commonly referred to as Earth System Science (ESS) (Box 4; overviews in Lenton, 2016; Steffen et al., 2020). ESS aims at an understanding of our planetary systems (see also discussion in Richardson and Erdelen, 2020). The conceptual model of the Earth System as introduced by Will Steffen and his collaborators comprises three interacting components characterizing the Earth System: geosphere, biosphere and anthrophosphere. The model, accordingly, not only includes our understanding of the Earth System as a complex and adaptive system of systems but goes beyond the biogeoophysical domains by fully integrating the human dimensions. This includes all human-related systems, from STI to institutional setups as well as cultural and value systems (for details, see figure 3 of Steffen et al., 2020).

The people, and our numbers
The first census, Wikipedia informs, probably took place in the Babylonian Empire in 380 BCE. We do not learn its purpose; modern thought will opt for taxation. In Rome, the enumeration of households during the Republic served to list young males subject to conscription. Our story jumps, next, to the first thinkers who gave growing census tallies in their cause-and-effect connotations.

Thomas Malthus (1766–1834), an Anglican clergyman turned sociologist-philosopher, worried that the world’s growing numbers would deplete food supplies. He recommended smaller families for his British congregation and others in Europe. Economist Adam Smith (1723–1790) rationalized that the industrial revolution and its factories craved the need for a large laboring force (and thus more poor). Smith’s wealthy economist colleague and friend David Ricardo (1772–1823) had no reason to dissent. Population was not yet the notion that it would become.

Closer to our time, the British Raj in India attempted in vain to curb India’s birthrate, as did the new Indian state after 1947. In communist China after 1949, a policy of one couple/one child was abandoned after several decades of
Box 4. Earth system related scientific concepts and key sources.

| Biiosphere | Vemadowsky, 1926 |
|-----------|-----------------|
| Gaia Hypothesis | Lovelock, 1972, 1974 (with Margulis) |
| Anthropocene | Crutzen and Stoermer, 2000 and Crutzen, 2002 |
| Tipping points, tipping elements | Lenton et al., 2008 |
| Planetary boundary concept | Rockström, 2009 |
| Earth System Science | Steffen et al., 2020 |

For a summary discussion of these notions, their relationship to ESS and relevant reference materials see Steffen et al. (2020) and Richardson and Erdelen (2020).

Scenarios for the future

Principal pathways and options

Compared with when we were in the midst or – globally – still at the beginning of the COVID-19 pandemic, the future could follow one of three scenarios.

1. Chaos, global unrest, wars, anarchy – a collapse of our systems (political, economic, social, cultural, and environmental).

2. As before the crisis, we continue following the least resistance, the business as usual (BAU) struggling further with what had already been considered our global challenges Before Corona.

3. The world experiences a great transformation, and we identify a worldwide advance based on the principles of sustainability and a world society with global citizenship, responsibility and ethics (Raskin, 2016). Such revamping might include first attempts at population limitations: how we birth, live and die. We base this mention on our fullest respect for Homo sapiens.

In parallel Paul Raskin (2016), in his Journey to Earthland, presents a Taxonomy of the Future with three forthcoming pathways emerging from all current trends and driving forces: (1) Barbarization comprising breakdowns and a fortress world, (2) Conventional Worlds, driven by policy reform and market forces, and (3) Great Transitions based on a new paradigm and eco-communalism. These great transitions should be based on the values of human solidarity, quality of life, and ecological sensibility in contrast to prevailing individualism, consumerism, and domination of nature. To this end, Raskin (2016, p. 37) suggests a ‘full-scale Policy Reform mobilization [to] bend the curve of history toward a just and sustainable future’. The idea of a global citizenship is central to realize Raskin’s vision of Earthland. One of his concluding statements may guide us into the right future:

The vision of an organic planetary civilization lies before us as possibility and exigency. We may never reach that distant shore, but what matters most is imagining its contours and traveling in its direction’ (Raskin, 2016, p. 113).

This might be the motto for the bolder and more visionary approach we suggest for humanity’s post-COVID-19 voyage into a sustainable future. To this audacity, the authors wish to venture the question: Could not a Great Transition be first steps in the Earth’s depopulation?

If the notion is of such importance, why is it not aired in official dialogue among nations? In the early days of the UN, there were attempts to understand the problem because of the pressure of water availability, soil fertility, famine, and cultural pressures. It quickly developed that a number of countries refused to comment on their demographics. The issue remains moot, beyond the protocol of acceptable diplomatic discourse. Change of this undocumented code is needed. Note, however, that the UN maintains a Population Division at its New York headquarters, a reliable source of current data.

Agenda 2030 – status, implications deriving from the corona pandemic

The dramatic COVID-19 shock may affect implementation of all Sustainable Development Goals (SDGs) of the UN’s Agenda 2030 (United Nations, 2015). The report of the UN Secretary General of March 2020 (United Nations, 2020a, p. 11) takes another look into the past:

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characterized by weak, fragmented health systems that do not ensure the universal access and capacity needed to face the COVID-19 health crisis.

The report also states that the COVID-19 crisis may have profound and negative effects on sustainable development efforts. The report stresses, furthermore, the need to ‘recover better and build sustainable societies’ and that the ‘crisis has brought into sharp focus the inadequacy of the global response to the climate and biodiversity emergencies’ (United Nations, 2020a, p. 22). Ideally, the insight into the contributions of deforestation, biodiversity loss and environmental pollution to the spread of the virus will provide new impetus to resolving these and other global challenges at the earliest. Despite the fact that ‘about one billion cases of illness and millions of deaths occur every year from zoonoses’ (United Nations, 2020b, p. 38) we still understand the linkages between nature and health very poorly.

The UN’s follow-up report of April 2020, titled ‘A UN framework for the immediate socio-economic response to COVID-19’ (United Nations, 2020b, p. 4), clearly articulates the need for change:

Once the health crisis is over, we cannot have business as usual practices that increase emission and other environmental externalities like pressure on wildlife and biodiversity. The performance and resilience of our socio-economic systems depend on the state of the natural environment and ecosystems.

In sum, the Corona pandemic is not only linked to our environmental shortcomings but is also a result of the slow process of implementing Agenda 2030. As we indicated elsewhere (Richardson and Erdelen, 2020), we must do much more and embark on a process of radical change, the farsighted Great Transformation, the Transformative Change or whatever other designations may be in use, to make sustainable development become reality for the human planet.

Life after COVID-19 – Have we learned any lessons?

Is there a time we may later refer to as After Corona? Or will it be rather a time of continued coexistence with the virus – and with adequate immunological and vaccination measures in place to prevent further pandemic outbreaks? Alternatively, as asked in Richardson and Erdelen (2020), ‘Is Covid-19 one of many harbingers of systemic disruptions affecting global movements towards sustainable development . . . ?’ Will such pandemics occur more frequently in the future – even more drastically disrupting ‘political, economic, social and cultural life as well as regional and global relationships with others’?

We should accept, repeating an earlier admonition, the pandemic not only as a warning to prepare ourselves for further and possibly even more severe epidemics to come, but also as an opportunity to use not only the experience during the crisis, both as regards the crisis itself and what has become ‘global challenges suspended’, to guide humanity towards a better track to a sustained future.

We should respect, furthermore, the same precautionary attitude to five major sectors of the international economy: energy transfer, manufacture, agriculture, tourism, and the education ‘industry’. This relates most closely to a direct set of measures of change in times after corona: the future trends in socio-economic and Earth System metrics as shown in the Great Acceleration graphs, developed within the former International Geosphere-Biosphere Programme (IGBP). The upward trends in these graphs were primary evidence for the new epoch, the Anthropocene (Steffen et al., 2020).

These developments have been a result of global change processes which have reached unprecedented levels in post-1945 times – the process of the Great Acceleration caused by the rise in human population, industrialization, the production of goods, and massively increased use of energy and natural resources (see e.g. Lewis and Maslin, 2018).

The trend factors listed below (Box 5, from Steffen et al., 2015) may be useful indicators for future success in the transformative change needed, especially now – after having experienced the COVID-19 pandemic.

Is the global community going to take serious measures to ‘bend the curves’ in these trends and launch the process of the Great Deceleration?

Problems are manifold, including the world’s per capita consumption rates which have skyrocketed. We have absolutely no incentive for deceleration. Economies continue to push acceleration (von Weizsäcker, pers. comm.). On the other hand, with today’s knowledge a fivefold (up to twenty-fold) increase in resource productivity seems possible. The major obstacle is that our systems are designed to maximize profit only (von Weizsäcker et al., 2009).

Box 5. Socio–economic and Earth system metrics characterizing the Great Acceleration (from Steffen et al., 2015)

| Socio-economic trends | Earth System trends |
|-----------------------|---------------------|
| 1. Population         | 1. Carbon dioxide   |
| 2. Real GDP           | 2. Nitrous oxide    |
| 3. Foreign direct investment | 3. Methane         |
| 4. Urban population   | 4. Stratospheric ozone |
| 5. Primary energy use | 5. Surface temperature |
| 6. Fertilizer consumption | 6. Ocean acidification |
| 7. Large dams         | 7. Marine fish capture |
| 8. Water use          | 8. Shrimp aquaculture |
| 9. Paper production   | 9. Nitrogen to coastal zone |
| 10. Transportation    | 10. Tropical forest loss |
| 11. Telecommunications| 11. Domesticated land |
| 12. International tourism | 12. Terrestrial biosphere degradation |
The potential of a new agenda for the years ahead

The Neworld

The UN system sought, during the new century’s second decade, to formulate a medium-term plan known as Agenda 2030 (United Nations, 2015). This is a step-by-step strategy based largely on the Development Goals and Targets formulated earlier under the Millennium Development Goals (MDGs). The scheme is logical and coherent, but may lack a driving force for its attainment only nine years from now. This is chiefly why we need to push harder, especially for the time ahead in the double decade 2030–2050.

In Neworld, we envisage an intricately associated paradigm of efforts based on human-nature comprising, inter alia:

- circular and truly green rather than linear economies, intended to reduce waste significantly, aiming at zero waste production in the long-term,
- the North/South fracture gone, or a mechanism in its place to bridge the divide,
- the SDGs attained or replaced by more ambitious aims (Future Development Goals or FDGs?) with tight timelines,
- multilateralism massively reinforced, including through new variants of governance mechanisms (see, for instance, Governance Space in Richardson and Erdelen, 2020), and
- key environmental problems successfully solved (Barnosky et al., 2016; they list, for example, climate disruption, extinctions in addition to wholesale loss of ecosystems, pollution, human population gains and consumption patterns, and disease as issues of top concern; see their tables 1 and 2; the latter also provides ‘broad-brush’ solutions).

We think the problems we face are understood well enough to work on the solutions already known, too. Many publications resemble in their demands what Barnosky et al. (2016) propagate. Specific examples would be the Planetary Emergency Plan of the Club of Rome (2019), many of the UN’s documents (as in particular the reputed Agenda 2030), and reports published by the UN’s Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), respectively.

In their book Come On!, to mark the Club of Rome’s fiftieth anniversary, Ernst Ulrich von Weizsäcker and Anders Wijkman (2018, p. 95) even suggest that the advanced technical world may need a new Enlightenment, based on the principles of ‘complementarity, balance, and the wisdom of synergies between contrasts’.

Utopia – our vision

Establishment of the Neworld entity should be facilitated not only through measures to influence human population growth but also to rethink human carrying capacity – or revert to earlier thought – in short by tackling the Global Population Problem. As Joel E. Cohen had titled his book published a quarter-century ago, How Many People Can the Earth Support? (Cohen, 1995). Thought about limiting the human population has been a taboo in international debate, in particular within the UN. Can we afford de-emphasizing Homo sapiens’ most pressing systemic problem any longer? Daily and Ehrlich (1992, p. 762) relate Cohen’s question to the ecological concept of carrying capacity: ‘Ecologists define carrying capacity as the maximal population size of a given species that an area can support without reducing its ability to support the same species in the future’. Doesn’t this read amazingly similarly to the concept of sustainable development?

A brief look at the present situation: the UN’s World Population Prospects provides the most specific, current data on human demographic trends (see https://population.un.org/wpp). From, for example, the 2019 report:

1. The world’s population will continue to increase, with growth rates varying greatly across regions.
2. The global population is projected to grow from 7.7 billion in 2019 to 8.5 billion in 2030 (10 per cent increase), and further to 9.7 billion in 2050 (26 per cent) and then to 10.9 billion in 2100 (42 per cent).
3. The population of sub-Saharan Africa is projected to double by 2050 (99 per cent).

Barnosky et al. (2016), in their outlook to 2050 titled Avoiding collapse: Grand challenges for science and society to solve by 2050, suggest initiating an end to the world’s population growth and thinking of a gradual decline. They identify achievable targets as 8.5 billion (by 2050), a peak population of less than 9 billion, which should diminish to less than 7 billion by 2100 (see their table 2). In the past, even more radical reductions of the human population have been suggested. A recent book is titled A Planet of 3 Billion: Mapping Humanity’s Long History of Ecological Destruction and Finding our Way to a Resilient Future, by Chris Tucker (2019), chairman of the American Geographical Society. Earlier the well-known Ehrlich couple of population specialists had suggested an optimal population size of around 2 billion people – less than a third of the population at the time of their publication (Ehrlich and Ehrlich, 2004, p. 365). In their notes, they even proposed that

to allow a large margin of safety against an unexpected overshoot, 1.5 billion would be more in accordance with the precautionary principle. That would be the number at the turn of the twentieth century.

Still valid is, however, what Ehrlich and Holdren (1971) already pointed out about half a century ago: It is not so much the question of how many people but how they live and the resulting demands on the world’s ecosystems.

Whatever the contemporary view on the desirable size of the human population may be, the growth problem has been compelling for a long time. Although ethics, morals,
common sense and sheer survival may give meaning to corrective measures, the magnitude of too many people would dwarf other human challenges.

Reducing our population on planet Earth is a process catalyzed by building awareness about the problem, fostering responsibility and learning from early childhood onwards, throughout the entire lifespan. Education — both in the family environment (‘parental vigilance’, understanding and exchange between parents and children) and within an educational context comprising all levels and kinds of education — is *sine qua non* for success in this endeavor. We talk about a process which must be global, transdisciplinary, transcending cultural boundaries and belief systems. Time is of the essence. The process of limiting the human population on Earth, its planet of origin, must start now (*sensu* discussions in Barnosky et al., 2016; Cohen, 1995; Tucker, 2019). Time lags in our complex systems, the need to build the capacities and capabilities needed for such a worldwide transformation and the lack of political will and commitment may be seen as *Our Future Eaters* already at work, to borrow from one of Tim Flannery’s book titles.

It is high time now for the United Nations as a whole, together with their governmental and non-governmental partners, to initiate dialogue — along these lines of thought — about limits to growth of the human animal, aligning models for action. Can our collective ego prove to be objectively self-deceiving?

**Towards Newworld – our ‘science fiction journey’**

How can humans foresee and intelligently plan for their global population of the future? The answer to this question will be decisive and most pressing in the process of realizing sustainable development globally. Humanity’s trajectory may critically depend on whether we are:

- aware that the COVID-19 pandemic may be seen as a wakeup call for change in how we live, consume, use energy and deal with nature, i.e. how we act as part of the fabric of life on Earth,
- take a foresight-based approach in a process of transformative change,
- cast, adopt and adaptively manage a new framework, i.e. a bold vision and related goals humanity should aim at — built on justice and sustainability — while retaining the best from the past,
- embark on a multiple change process, based on tools, expertise and capacities already available or to be developed in the course of this transformative process, and
- ultimately, create the new *Utopia* in which humans are cognizant that they are part of the diversity of life on planet Earth and, therefore, aiming at living in harmony with nature.

**Conclusions – even if no word has finality**

The coda to this study is not easy to formulate — even for authors with years of experience in communicating improved ways of managing the environment. The task leads us to translating scientific fact into action, especially since the UN sketched the Sustainable Development Goals for application worldwide. With the coming of COVID-19, a thoroughly reasoned strategy for the future meant the strategy’s sudden interruption. As the world now slowly edges its way from death in the hundreds of thousands, confinement and privation for those remaining, we find new urgencies at hand. Some leaders find that human survival may depend more on economic salvage than wise use of nature. Will the agency of humans saving Earth prove capable of both preserving the planet’s ecological systems and quality of life for its human population?

As we wonder, the pressures of climate change, loss of biological diversity, water management, clean air, a healthy marine environment all seem secondary to simply living through unexpected chaos. Will we realize that sudden massive unemployment, disruption of education and cultural life, recreation and transport demand our fullest attention and resourcefulness?

Yet, we ponder, ‘Can we, indeed?’ One of the urgencies could be, cautions physician Anne-Claude Crémiex, chief epidemiologist at a large Parisian hospital, a new wave of the coronavirus. Such a resurgence could divert our attention for even longer than the first phase of January–June 2020. Only after a new attack, therefore, could we think sufficiently about Sustainable Development Goals and targets as well as the fast-approaching year of 2030. Crémiex’s concern is not casual. The impetus given to environmental rescue during the new century’s second decade has been remarkably strong. Will the coronavirus disable or kill both enthusiasm and planning? We add this interrogation to the risks specified earlier in the paper.

No doubt, the COVID-19 pandemic has disrupted life on our planet in a hitherto unseen way. Humanity is at a turning point, irrespectively of whether SARS-CoV-2 will stay with us or whether even new pandemics, possibly even more aggressive, may hit us in the near future. At this very turning point, we can and should bend multiple curves and decide on how — using the jargon of these days — to *build back better* and make our systems more resilient for the future, not only for the human species but for all life on planet Earth. A return to pre-COVID-19 modes of production and consumption, lifestyles, accelerating climate change as well as biodiversity loss may carry the shift towards one of the negative scenarios discussed under the taxonomies of our future.

Tim Marshall (2015, p. 283) concluded his book *Prisoners of Geography* by stating that:

> Although we have broken free from the shackles of gravity, we are still imprisoned by our own minds, confined by our suspicion of the ‘other’, and thus our primal competition for resources. There is a long way to go.

Let’s hope that we can make it a short way to go with future generations living not only within our planetary
boundaries but also in lasting harmony with the marvels of nature, the home of us all.

Notes
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On 2 November 2020, at a media meeting on COVID-19, the Director-General of WHO described the situation as follows: ‘many countries have brought COVID-19 under control, cases in some countries in Europe and North America continue to spike’. WHO reports (data of 5 November 2020): 47.6 million confirmed cases, 1.2 million confirmed deaths, 219 countries, areas or territories with cases (further information at https://www.who.int/emergencies/diseases/novel-coronavirus-2019).

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