

INTERSECTING

VOLUME 06/2021

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Sustainable Responses
to the COVID-19 Pandemic

#structure #mindsets #cooperation

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Image Source: Wikimedia Commons. August 29, 2020. "Querdenken" against Corona restrictions at Friedrichstrasse in Berlin, Germany. https://de.wikipedia.org/wiki/Datei:29.08.2020_Berlin-Friedrichstrasse.JPG



Which of the Sustainable Development Goals (SDGs) have gained importance since the beginning of the pandemic?

Image Source: Ferry crossing Butterworth and Georgetown, Penang, Malaysia.
Image by Nicolas J.A. Buchoud, all rights reserved ©.

preface



“We risk a massive reversal of the ecological and societal gains already made since the Sustainable Development Goals (SDGs) of the Agenda 2030 were adopted. The COVID-19 pandemic only further stresses out the importance of urbanization for the future of international relations.”

– Dirk ASSMANN, Deutsche Gesellschaft für Internationale Zusammenarbeit, Bonn

Image Source: Wikimedia Commons. April 2, 2020. President Tsai Ing-wen inspects the Central Epidemic Command Center. Image by Office of the President.
https://pt.wikipedia.org/wiki/Ficheiro:04.02_49726568957_66543b616e_o.jpg



Dirk ASSMANN
Director General, Sectoral
Department at Deutsche Ge-
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Zusammenarbeit (GIZ)
Eschborn, Germany

International cooperation for the urban age

Dear Ladies and Gentlemen,

Urban development plays already an increasing role in international development cooperation, but the pandemic will make this more important. Since the beginning of the pandemic, mainly cities and urban communities, including wealthy global cities, suffer from cascading challenges of higher public expenditures, delayed investments, and plummeting revenues, with consequences on large segments of the industry such as the building and construction sector, transport and mobility or tourism and culture. If the urban recovery process in the world is not managed to be sustainable and green, there is a risk of following hardly reversible development paths, with severe negative effects for future generations and the planet.

At the same time, the many economic stimulus packages present a historic opportunity to shape the megatrend

of urbanization and to effectively tackle climate change at local level, contribute to poverty reduction and green economic development. GIZ is a leading Technical Assistance agency, aims to contribute to this with focus on the alignment of the recovery measures for post-Covid-19 future with the needs derived from the SDG's and the Paris Climate Agreement.

We know from GIZ's daily work that the political will at the national level for a targeted approach to urban development and urbanization varies greatly. National urban development policies are an important tool achieving policy coherence, coordinating relevant actors and levels of government, and ultimately ensuring effective use of resources for sustainable urban development. At the same time, at GIZ, we experience that the universal designs for solutions need to be reconciled with the diversity of local contexts and the power of local actors. There are rarely on size fits all solutions. We see for example how universal infrastructure designs proved ineffective for specific local conditions. The importance of and the way in which urban development is handled also depends, among other things, on the degree of decentralization (i.e. the transfer of decision-making powers and resources to subnational levels), financial autonomy and on the political will of the respective countries to recognize the role of cities as key development actors. In this respect, it is shown that it is the ability of local decision makers and implementers to solve problems in dealing with the effects of the COVID-19 pandemic that counts, an

evidence has emerged on which we all need to build.

At the local level, the focus of GIZ is on strengthening municipalities and urban operating companies in the planning, financing and implementation of measures for sustainable and climate-friendly urban development. When it comes to infrastructure development, our experience shows that poorly planned projects that are not adapted to local conditions and needs do not deliver the desired results, burden the budget and limit the financial scope for urban investment over many years. Cities must therefore be able to prepare independently meaningful projects for sustainable urban development in such a way that they are financially viable and sustainable to manage.

Given the current crises caused by the Covid-19 pandemic, we risk a massive reversal of ecological and societal gains already made since the Sustainable Development Goals (SDG) of the Agenda 2030 were adopted. Against the background of the COVID-19 pandemic, the importance of urbanization is reinforced once again. To list Urbanization and Urban Development as an overarching funding category of the Development Assistance Committee's (DAC) would reflect the major role urbanization has for the effectiveness of the future development cooperation and would help monitor achievements made on SDG11 – Sustainable Cities and Communities.

CENTRAL & SOUTH ASIA 2021

JULY 15-16, TASHKENT

INTERNATIONAL CONFERENCE «CENTRAL AND SOUTH ASIA:
REGIONAL CONNECTIVITY. CHALLENGES AND OPPORTUNITIES».

“Intersecting is not just a book about cities or infrastructure. Built across months-long dialogues and ad hoc panels, Intersecting is also a visual reflection of a major crisis and its aftermath.”

– Nicolas J.A. BUCHOUD, Global Solutions Initiative, Paris

Image Source: At the opening plenary of the ‘Central and South Asia Connectivity’ international summit in Tashkent, Uzbekistan, July 15-16 2021.
Image by Nicolas J.A. Buchoud, all rights reserved ©.



Nicolas J.A. BUCHOUD (ed.)
Global Solutions Fellow
Paris, France

INTERSECTING as a compass for recovery

The pandemic is over (isn't it?).

When in the spring of 2020, we first initiated the Solutions Dialogues which would then become INTERSECTING, the World Health Organization (WHO) reported 10 million COVID-19 cases and half a million dead across the globe. When we released INTERSECTING's first edition a year later, the Coronavirus Update Live reported 115 million cases and 2,5 million dead. Halfway to 2021, over 220 million cases have officially been reported and nearly 5 million dead.

Much has been said about the pandemic, and often as quickly forgotten. It is unclear what we have learned from the crisis and yet, the world has moved from research to large scale industrialization of vaccines -and so far, a very uneven distribution of them. The global lockdowns of the spring 2020 have allowed for an instant photography of our interconnected world. Following the SARS, MERS and Ebola

pandemics, the COVID-19 has forced us to break all routines abruptly and at massive scale. Governments, together with Central Banks and International Financial Institutions have spent staggering amounts to mitigate the crisis' macroeconomic impacts, especially in developed countries.

INTERSECTING's exploration from the Amazonian to Central Asia to the Arctic, from neighborhoods to urbanization corridors, from health to inequalities, warns that painting in green and inclusive colors the same institutional and networking patterns as before the crisis will quickly fall short.

Few countries and institutions, including local governments and their advocacy networks, have admitted how little prepared they were to cope with the pandemic. The global community has consolidated knowledge from the management of previous pandemics in too scarce and random a way, a situation accurately described by the Center for International and Strategic Studies in 2019 as a 'cycle of complacency.

The New Urban Agenda celebrated at the Habitat III Summit in Quito in 2016 was silent about pandemic risks. In 2020, the final Declaration of the 10th World Urban Forum held in Abu Dhabi remained equally mute, whereas cities and billions of urban dwellers were hard hit by the pandemic's many impacts.

Infrastructure investments are widely thought to be a key to recover from the crisis, to reach out to a new sustainable

economy, especially if we favor a new paradigm of infrastructure for distribution. Yet a decade of rebuilding growth through connectivity after the 2008 global financial crisis has painstakingly exposed people to the pandemic, showing the limitations of existing investment models. Multiple pleas for cities to implement sustainable pandemic responses locally and play a new role globally could just add more complexity to clogged global decision mechanisms.

INTERSECTING is a call for knowledge generation and distribution to become the cornerstone of future good government but this will be done in a world that is, if not in disorder, in transformation. The race for post pandemic leadership has started for good but delivering on a global roadmap of sustainable recovery will require coherent and accountable institutional frameworks and implementation mechanisms.

Formidable change has occurred already. In the United-States, the new presidential administration elected in 2020 has issued a bipartisan trillion dollars' infrastructure plan in the summer of 2021, with even more to come. The European Union also approved a large recovery plan of more than 750 billion euros. In the meantime, profound geopolitical shifts are happening and one could only think that the United-States could no longer continue fight a war in Afghanistan while massively investing at home.

INTERSECTING was built as a compass or even as an astrolabe, pointing out to multidimensional combined social,

political, infrastructural, geo-economical and scientific challenges and recovery options. It reflects over 18 months of debates, research, exchanges, dialogues, explorations and publications.

INTERSECTING is based upon multiple, interlinked entry points, from 'disease' to 'cooperation', looking into possible future world structures. We believe it is ours to decide how infrastructure can serve other purposes than trade development and resources consumption, ours to understand the social factors of global warming and other ecosystem alterations, ours to assess how cities can continue to be places of innovation while re-valuing rural geo-economics and while understanding that they are also the places where resentment and distrust are articulated.

One of INTERSECTING's main finding is that lethality of the SARS-Cov-2 virus is redoubled not only by its multiple variants, but also by a knowledge and even a cognitive crisis accelerated by the development of the digital space and media transformation. Therefore, solutions are to be found at the edges. At the intersections of disciplinary and policy borders. At the intersections of short and long term. At the intersections of community and global scales. At the intersections of systems, institutions and cultures. At the intersections of entrepreneurship and society. Otherwise, what lessons from biotechnologies and vaccine development could we ever learn to serve for better policy-making in the urban age?

INTERSECTING is a collective work, the result of the dedicated engagement of five co-editors, several supporting knowledge partners, ADBI and OECD, nearly a hundred co-authors, including strong voices and ones from future leaders, from all regions of the globe, with two dozen of some of the world's very best universities and research centers taking part. Incubated by the Global Solutions Initiative, supported by GIZ, it also marks the 10th anniversary of the Grand Paris Alliance for Sustainable Investments.

You can read INTERSECTING piece by piece, photography by photography, quote by quote and as a whole.

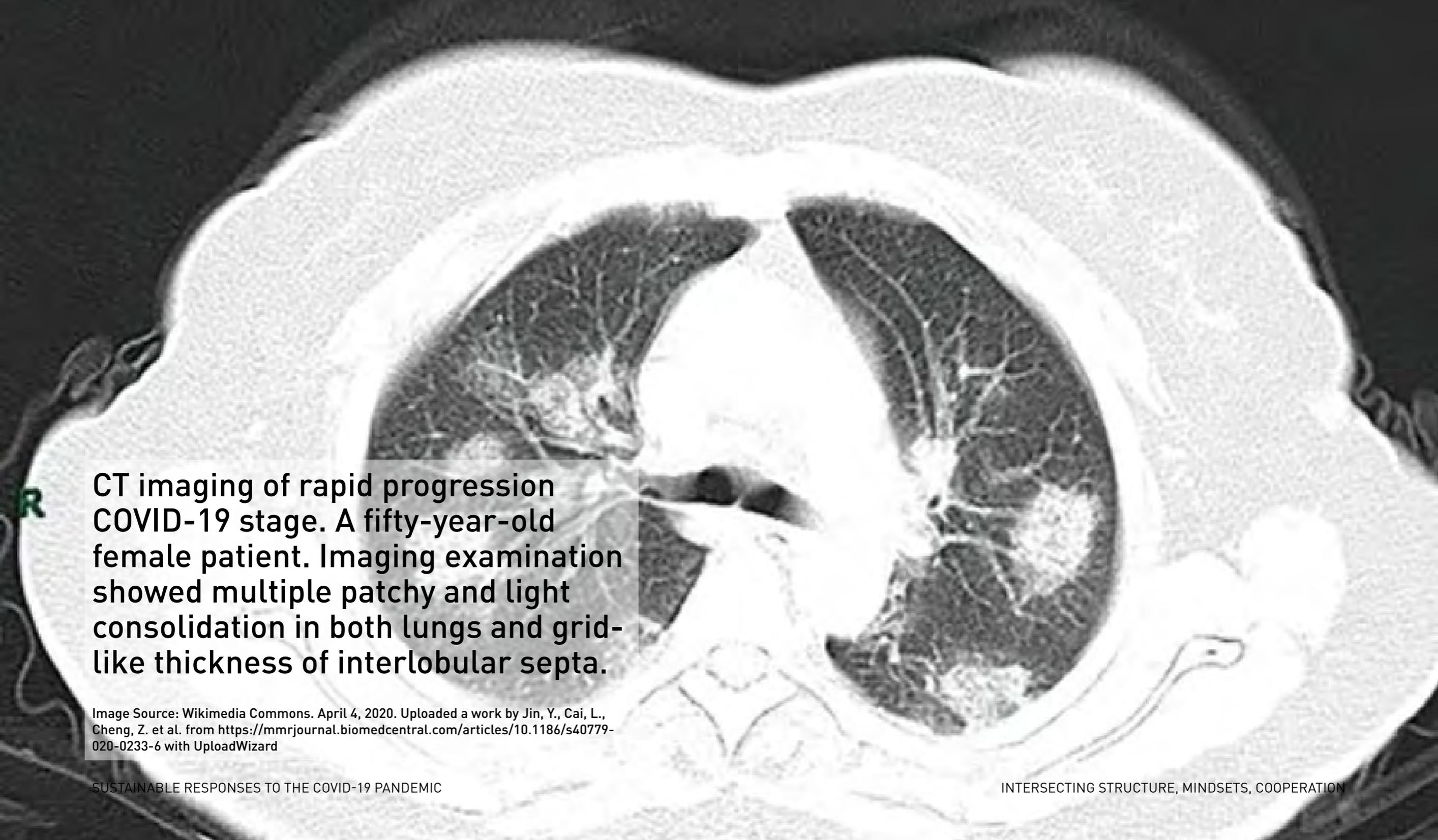
This very first volume of INTERSECTING 'On sustainable urbanization and infrastructure response to the Covid-19 pandemic crisis' is the cornerstone of several upcoming policy, research and advocacy global initiatives addressing resources and circular economy, the future of work and creative economy, and the delivery of the 2030 Agenda, in the context of the Troika of G20 presidencies by Indonesia, India and Brazil from 2022 to 2024.

Welcome to INTERSECTING.



Intersecting as a collective compass for recovery.

Image Source: A sea and aerial landscape over the North Sea between Amsterdam and Leeds. Image by Nicolas J.A. Buchoud, all rights reserved ©.



CT imaging of rapid progression COVID-19 stage. A fifty-year-old female patient. Imaging examination showed multiple patchy and light consolidation in both lungs and grid-like thickness of interlobular septa.

Image Source: Wikimedia Commons. April 4, 2020. Uploaded a work by Jin, Y., Cai, L., Cheng, Z. et al. from <https://mmrjournal.biomedcentral.com/articles/10.1186/s40779-020-0233-6> with UploadWizard

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“Traditional approaches in the historical field of infrastructures often focus on the achievements of individual masterminds. But if one looks beyond individual pioneers, the emergence of corresponding expert cultures would appear to signal a much more essential and qualitatively significant leap.”

– Christoph CORNELISSEN, Giacomo BONAN and Katia OCCHI, Fondazione Bruno Kessler

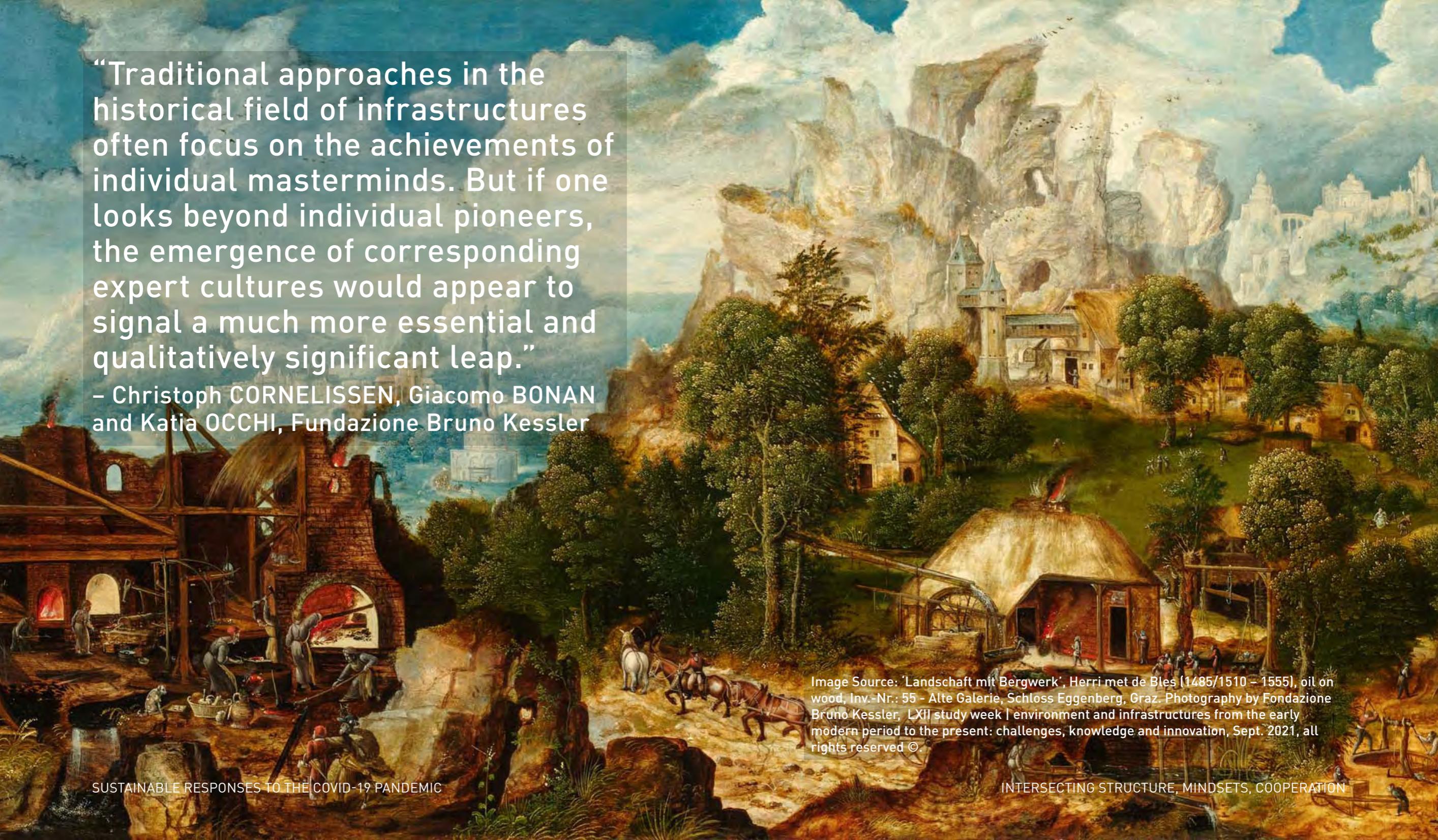


Image Source: 'Landschaft mit Bergwerk', Herri met de Bles (1485/1510 – 1555), oil on wood, Inv.-Nr.: 55 - Alte Galerie, Schloss Eggenberg, Graz. Photography by Fondazione Bruno Kessler, LXII study week | environment and infrastructures from the early modern period to the present: challenges, knowledge and innovation, Sept. 2021, all rights reserved ©.



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Infrastructures and the environment: learning from long-term cycles. Reflexions from the early modern period to the present

Facilities for supply and disposal, transport, and communi-

cation often are so integrated into every aspect of everyday life that people often do not notice them at all. However, a large part of our lives depends on these anonymous services being readily available. We even tend to assume that infrastructures will constantly expand and improve their quality in the future. However, the reality is often quite different. On the one hand, existing systems often prove vulnerable to technical failures or critical human intervention. A closer look also re-veals that many infrastructures are not the result of coherent planning but somewhat of different or even contradictory interests. Moreover, historical examples from various periods demonstrate that integrated infrastructure systems are more complex to manage and deploy in the long run. On the other hand, the climate crisis and the rising awareness of the more general problem of the planet's sustainability have accentuated the need to rethink our lives and economic and social relations to build a more coherent balance between man and man and the environment.

All these challenges directly impact planning for the maintenance of existing or the construction of infrastructures, which almost regularly are the topic of significant political and social controversy. Well-known examples are the construction of new motorways, railway stations, or airports, the expansion of broadband, and the construction of new infrastructures due to international programs for the energy transition. Looking at this problem from a historical perspective allows us to demonstrate the mixed balance

sheets of infrastructure policies to this date. The construction of railway lines, roads, canals, or reservoirs violated individual or collective property rights and residents' interests. Furthermore, the supposedly unstoppable progress of modernity caused harmful and irreparable damages to the environment again and again. The almost passive social acceptance of these public interventions has ended over the past years or decades. By now, large strata of civil society claim to have a say in all these projects.

Against this background, the relationship between infrastructures and the environment has become the subject of an expanded historical science. Since the 1970s, environmental history has emerged on a wide scale internationally, marked by its strongly interdisciplinary cooperation and the involvement of numerous scholars from different backgrounds and nationalities committed to the study of the "history of the relations between human societies and the rest of nature on which they depend." During the said period, the history of technology has also changed profoundly, incorporating new research approaches such as the theory of social construction, the idea of actor-centered networks, and the multidisciplinary nature of science and technology studies. Furthermore, the dialogue between these disciplines has become increasingly intense concerning the debate on the Anthropocene. This geological concept defines the recent and man-made transformation of the planet, which has reached such an extent that it rivals some of the most significant forces in nature. Since its beginnings,

scientific and technical knowledge has played an essential role in studying environmental history, but that is not all. Today, international environmental studies have reached a new stage by way of the close integration of human and social science approaches on the one hand with the natural, medical, and technical science approaches on the other hand.

Moreover, the arsenal of its research work is also expanding in practical terms. For example, new technical instruments and procedures now make it possible to study climate change in earlier historical epochs. This change allows us to obtain further information regarding the social or even mental repercussions of these changes or the short-term effects of major natural disasters

The new approaches have made abundantly clear that both the interventions aimed at protecting natural resources and those created for their exploitation call forth the construction of infrastructures, so much so that we can refer to these contexts as envirotechnical systems. One of the sectors in which the relationship between infrastructure and the environment is closest is the energy sector. As early as preindustrial times, the supply and use of the primary energy sources required constructing complex transport and production structures. After that, technological developments associated with industrialization constituted a massive leap in scale in this respect. The infrastructures built in this process have favoured the rise of a very high

energy consumption model. The rising costs of dismantling these infrastructures and the economic sectors associated with them are among the main obstacles to overcoming fossil fuel-based production structures. Furthermore, the planning and construction of infrastructures have often been instrumental in avoiding or limiting the risks associated with major so-called natural disasters (earthquakes, floods, etc.). At the same time, we need to take into account that the malfunctioning or maintenance of infrastructure has in turn been the cause of disasters with high environmental and social costs (accidents at dams and nuclear power stations; air pollution and nuisances, etc.).

Although historical research on the environment and infrastructures has achieved noticeable in the past decades, several problems still need to be investigated in more detail. One of them is the international dimension of infrastructural projects. Thus, new technologies have often been greeted effusively and touted as peacemaking forces. Cross-border infra-structures had played a central role in building up a shared space in Europe, the beginnings of which leads back to the time before the political integration process started. This pertains, for example, to the construction of a European-wide system of modern motorways and the ideas of an integrated system of European railway lines. Although the social importance of these systems has increased considerably in recent years, this also holds for the vulnerability of infrastructure networks. Many security experts have expressed their fear about the dangers of

possible misuse and potential attacks on virtual networks. There also speak of a vulnerability paradox that runs as follows: The better networks function, the more dramatic the impact of disruptions when they occur. Against this background, the protection of “critical” infrastructures has become just as urgent a task as their expansion and maintenance.

But when did the story of infrastructures and their political and social impact really begin? There are several possible answers to this question which imply different methodological reflections. When looking into the history of ideas, one would probably have to start with the writers of utopias of the early modern period, who conceived of integrated, just, and fully supplied societies with a welter of infrastructural function systems. However, their visions of a stable future without material hardship or exclusion were miles away from what the people experienced at that time. When focusing on politics, the emergence of the modern state comes into sight, which propelled forward massive public investments into infrastructures. The founder of modern economic thought, Adam Smith, defended such a policy in his famous work on the “Wealth of Nations from 1776. Here he postulates that it was the duty of the state to erect and maintain “those public institutions and those public works, which, though they may be in the highest degree advantageous to a great society, are, however, of such a nature that the profit could never repay the expenses to any individual or small number of individuals, and which it therefore

cannot be expected that any individual or small number of individuals should erect or maintain.” If we looked, alternatively, more closely into the era of enlightenment, this would highlight the call of its leading exponents for the free exchange of people, goods, and ideas giving rise to the concept of public net-works.

However, from the perspective of environmental history, the transition from the 18th to the 19th century marks the most decisive turning point. Using fossil fuels to power machines became a prerequisite for industrialization and the cultivation of nature according to human needs. But again, several caveats are necessary. Even the premachine age is known for its enormous interventions into the landscape. Thus, various communities rebuilt marsh-lands and coastal regions to protect the hinterlands against storms, floods, inundations, and the like. The mechanically intensified interventions eventually were based on the assumption which accepted no longer the defaults of nature. Finally, a history of infrastructures could start with the invention of new transport and communication facilities. This aspect reminds us of the new time regimes since the 14th century, indicated by the change from time schedules dominated by the churches to one that merchants developed. The same holds for the road and carriage system or to the postal service, which became part of integrated modern networks and infrastructures since the 16th century

Traditional approaches in the historical field of infrastructures often focus on the achievements of individual masterminds. But if one looks beyond individual pioneers, the emergence of corresponding expert cultures would appear to signal a much more essential and qualitatively significant leap. This remark refers to the groups of military and civil engineers and public planners and administrators, bankers and entrepreneurs, inventors and development engineers, building and civil engineering companies, or politicians on different levels of responsibility. Thus, historically, infrastructures can be best be understood as the result of negotiation and collective compromise processes. This setup means that studying the complex relationship between infrastructures and the environment requires finely-tuned interdisciplinary approaches. It will have to include both the humanities and the social sciences on the one hand and the more technical and natural sciences on the other hand. All of them will have to embark on close cooperation with experts in technical and economic questions to measure risks (economic, technological and actuarial ones) and improve social acceptance levels. Leaving out history means losing an essential dimension that can inform us about the potential political, social, and economic risks or other challenges in the planning and realisation of new infrastructures.



“Our world has long committed and lived with extracting, now we recognize the importance of intersections across scientific, policy, social and geographic spheres. We need to review the role of nature and natural resources in macroeconomics and trade theories.”

– Ramaswamy SUDARSHAN, OP Jindal Global University, India

Image Source: The center of Riyadh in Saudi Arabia, on a rainy afternoon. Photography by Nicolas J.A. Buchoud, 2019, all rights reserved ©.



Ramaswamy SUDARSHAN
dean, School of Public Policy
OP Jindal Global University
India

Can the COVID-19 pandemic nurture a paradigm shift from extracting to intersecting? A note

Implementing a paradigm shift from a world that has long committed and lived with extracting to a world that recognises the importance of intersections across scientific, policy and geographic spheres and breaking silos is a great project yet one that needs to be carefully substantiated.

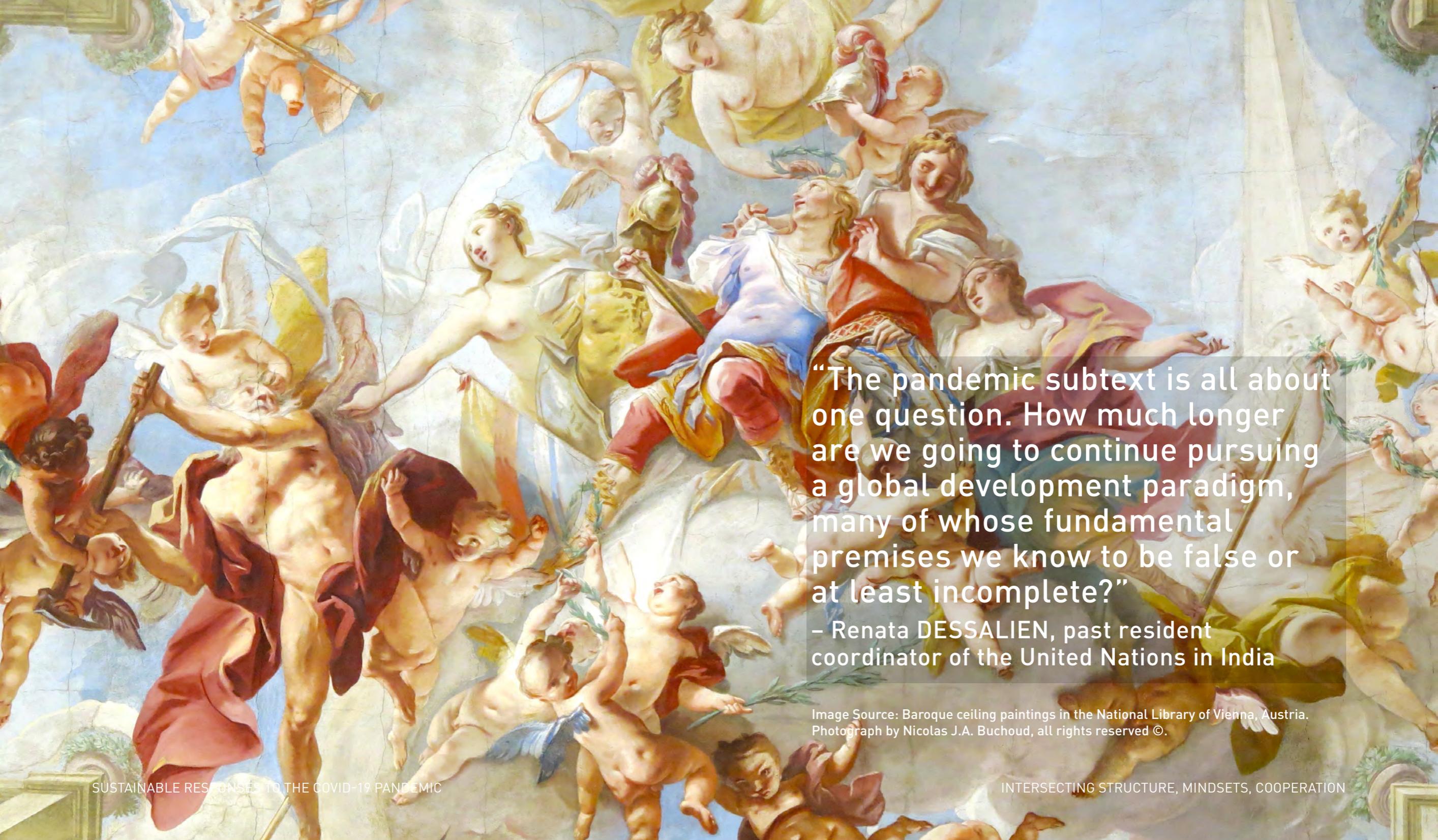
The Covid-19 pandemic crisis has taught us that we need a more holistic understanding of human beings, how they relate with one another, how they relate with the planet and with the environment. Such awareness has already producing paradigmatic shifts such as in geoscience but not yet within social, human and political science. The world has certainly changed due to pandemic and we especially in the spheres of education, have learned to adapt but there are no definite answers about future policy directions. What we see is instead a lot of unresolved questions, whereas the very notion of paradigm shift is at risk of being overused. It

was coined initially in the context of the history of science to illustrate deep breakthroughs such as the invention of Newtonian mechanics and 'natural philosophy' or of quantum physics. At each step, widely acknowledged assumptions and principles were dismantled by the introduction of radically different perspectives.

The world has not gone through a pandemic on that a massive scale as the Covid-19 one since the Spanish flu of 1918, questioning many of our certainties and highlighting the need for more cross-cutting policy-making. For instance in the early stages of the pandemic, most governments, including in India decided to followed scientific recommendations issued by epidemiologists, which led to long country-wide lockdowns across the globe. Those lockdowns have caused multiple shocks and wounds within the society and the economy, before governments started to realize that what demographers would say about the distribution of our population, in particular dozens of millions of migrant workers, was equally important. Similarly, psychologists could have suggested that despite the closing down of public transportation systems, people would still struggle to reach out to their loved ones and massively leave cities that were no longer offering any chance of a revenue to them. Such painful lessons force us to look at the world and into the future differently which in return, calls to organize and renew intellectual disciplines. Universities and beyond them, think-tanks, are compelled to break away from existing disciplinary boundaries but this does not mean

promoting more interdisciplinarity. This issue has been on the table for decades and it is not the right angle to tackle the Covid-19 pandemic crisis and its impacts. The fragility of science to society interface is a much bigger question that has been raised by the notion of planetary boundaries and issues such as the recognition of man-made climate change and ecosystem disruptions. The Covid-19 pandemic crisis shows how much the science to society interface is a critical political and socio-economic component, one that requires fine grain thinking along with a great deal of ambition to break with pre-crisis routines effectively. Intersecting provides a concrete basis to substantiate such a transformation.

We need to go back to the drawing board. We need to review the role of nature and natural resources in macro-economics and trade theories. We need to devise a more holistic view of global solutions to increase the supply of global public goods, cognizant of their impacts on a fragmented global order still based upon nation-states. We need changes not only with the society or in politics, but also within science. At each and every step of such an Intersecting journey, more research will be needed to analyse interlinkages and avoid simplistic views. Regular, positive confrontation and dialogue between research and world transformations will be needed to train future leaders and involve citizens in the making of our common future. It is our common duty to make it happen.



“The pandemic subtext is all about one question. How much longer are we going to continue pursuing a global development paradigm, many of whose fundamental premises we know to be false or at least incomplete?”

– Renata DESSALIEN, past resident coordinator of the United Nations in India

Image Source: Baroque ceiling paintings in the National Library of Vienna, Austria. Photograph by Nicolas J.A. Buchoud, all rights reserved ©.



Renata DESSALIEN
past resident coordinator
of the United Nations in India

From Voltaire's bastards to Intersecting

Humanity needs a new, more holistic, intersecting paradigm for understanding and solving our complex, interconnected challenges. This is not a new proposition, but it has perhaps never been more pressing, nor more evident.

The COVID-19 pandemic has placed the issue up front and centre. The pandemic's subtext is a question: how much longer are we going to continue pursuing a paradigm, many of whose fundamental premises we know to be false or at least incomplete, and whose so-called externalities are coming back to haunt us with a vengeance?

COVID-19 has thrown some of these "externalities" into stark relief. Look, for example, at our persistent, blind destruction of the natural environment and its fragile ecosystems, to the point of facilitating the transfer of zoological diseases from animals to humans, with catastrophic consequences. And look at the double plight of the have-nots --

hit both on the health front (without access to health care, vaccines, or even oxygen), and on the economic front with the inhuman deprivations that so many have been forced to suffer due to persistent, deeply ingrained socioeconomic inequalities and injustices.

Like every storm, this pandemic may also have its silver lining. It has forced us to pause. It has jolted us and at least opened the possibility of an opportunity to recalibrate, to correct some of our misguided assumptions, strategies, approaches. Whether we take advantage of this opportunity remains to be seen, but it's out there staring us in the face. It's begging us to come back, or to build back from this crisis differently, more responsibly, more holistically, more inclusively.

Albert Einstein famously said that we cannot solve our problems with the same thinking that we used when we created them. So, provoked by the COVID crisis, with existential planetary calamities looming over us, and with obscene inequalities undermining everything from the global vaccination drive, to social cohesion and economic stability – what is wrong with our thinking? Have we remained tethered to the altar of economic growth at any costs, prioritizing financial gain over planetary survival, and greed over collective well-being because there were no other alternative paradigms around?

In 1972, King Jigme Singye Wangchuk of Bhutan famously stated that Gross National Happiness is more important

than gross national product. He was speaking for Bhutan, but his message applies to the world. He flagged that we have confused ends and means; we put the cart before the horse. And because of this, there is a fundamental disconnect between our dominant models of progress and the reality around us.

Thousands of Indigenous and traditional societies around the world understood this long ago. They developed holistic models and systems to address complex interconnected challenges within their societies and ecosystems. And there have been numerous attempts at alternative paradigms, especially since the end of the Cold-War. Back in 1990, UNDP launched the Human Development Report, classifying all countries according to a Human Development Index that expanded the concept of economic progress. On its heels came the Genuine Progress Indicator that factored in environmental and carbon footprints. In 2007, the Economic Commission, European Parliament and European Commission, the Club of Rome, OECD and WWF, launched the Beyond GDP Initiative. Two years later, the Stiglitz-Sen-Fitoussi commission came up with a conceptual framework for balancing economic performance with social progress and environmental preservation and protection. Then in 2015, the member states of the United Nations collectively produced the holistic Agenda 21 and the 17 well-rounded, interconnected Sustainable Development Goals, designed to trigger transformative change and accelerate progress simultaneously across numerous goals, enabling those furthest behind to catch up.

Such frameworks may not be perfect, but they show significant and persistent efforts to bring together multiple, interrelated elements of solutions to complex interconnected challenges. And yet we collectively continue to be swept up by the conventions of the dominant eternal growth paradigm, with its narrow, utilitarian, extractive emphases. What is wrong with our thinking?

It is worth recalling here the work of John Ralston Saul, Canadian economist, philosopher and author of “Voltaire’s Bastards: The Dictatorship of Reason in the West”. Saul describes Voltaire’s attempt to introduce a more humanist approach in the wake of centuries of Church dogma and arbitrary aristocratic rule. Voltaire was addressing the context and problems of his age and he elevated reason and rationality as a counterbalance to blind adherence to the dictates of the church and aristocracy. His contributions, alongside other luminaries of the Enlightenment era, led to an extraordinary awakening, and indeed in emancipation in Europe and beyond. But John Ralston Saul claims that the great philosopher’s ideas were gradually deformed, taken out of context, reduced. He says Voltaire intended to elevate reason and rationality to a place alongside other critical human faculties, not as an exclusive or even the most important human faculty. But his legacy was narrowed, twisted out of shape and truncated.

In a subsequent and equally fascinating book titled ‘On Equilibrium’ Saul presents what he believes to be six essen-

tial human faculties. In addition to reason, these are: ethics, intuition, memory, imagination, and common sense. These faculties should function together in a seamless, iterative manner, with humanism emerging from a dynamic equilibrium across the six faculties. Saul suggest that trouble starts when the balance is disrupted. According to Saul, this is what happened to Voltaire's ideas on reason in the hands of his illegitimate offspring -- they elevated reason into a false god. And this led to simplistic, linear approaches, delusions of certainties, and eventually congealed into utilitarian ideology and orthodoxies like free-market economics and technological determinisms. So, in the name of Enlightenment, we diminished our own intelligence and created paradigms and systems that allowed greed to triumph and the environment to be plundered to the point of undermining vital planetary support systems.

It's hard to take issue with the Age of Reason during our current post truth era, full of fake news, infotainment, opinions masquerading as facts, and the likes. I'm sure many of us fear that we are edging toward a point of wholesale rejection of reason and rationality, with scary consequences. Saul was a big fan of the Enlightenment and of reason, but in conjunction with our other human faculties, not a reductionist version of rationality that binds and blinds us from seeing the forest for the trees. He encourages us to take on the narrowization of reason so as to save reason and to restore it among our other human faculties where it works best.

I think Saul's observations are germane to the topic of intersecting. I also feel we have a lot to learn from India and Asia in general on this subject. Asia certainly embraced important elements of the Enlightenment, yet it did so alongside a rich and vibrant culture of relational, iterative, circular thinking. This allowed space for intersecting across areas, interventions, processes, stakeholder groups, etc.

We would be well served by learning more from Asia and from traditional societies and alternative paradigms around the world. While acknowledging the strengths that the Age of Reason brought us, we need to be more honest of the dire consequences of allowing narrow, extractive bastardized versions of Voltaire to continue dominating our thinking and our systems. Free markets certainly allocate scarce resources more efficiently than planned economies, but surely that does not justify the world's richest 1 per cent accumulating twice as much wealth as 90 per cent of the global population, some 6.9 billion people¹? How is that fair? And surely that does not justify the blind pillage of nature as if there were no tomorrow? How is that even rational?

Our dominant paradigms, our policy making, our systems – our governance – all of it needs a serious Intersecting upgrade. We need to acknowledge the limits of our current dogma and ideologies and develop more well-rounded ways of bringing together interconnecting strands into a coherent set of solutions to our multiple challenges.

In conclusion, we need to work on three fronts simultaneously:

1. firstly, we need to openly accept that while our dominant paradigms may still have some redeeming features, by and large, they are no longer fit for purpose. We need new, more holistic, intersecting frameworks and paradigms.

And we need them now.

2. secondly, we need to foster and reward new mindsets for 21st century problem solving, mindsets that draw on all six of our core human faculties, together, synergistically – reason, ethics, intuition, memory, imagination and common sense.

3. thirdly, our institutional structures and systems, public and private, were designed for our current obsolete paradigm. They are siloed and fragmented and unable to adequately coordinate or connect essential elements together for coherent outcomes. At the same time, they have enabled highly specialized, rigorous work that has contributed enormously to human progress. We need to preserve the best of what science-based specialization has bestowed on the world, while forging the means for broader, more holistic, intersecting and inclusive institutions and systems to deal with our complex challenges. This includes designing new Intersecting incentive systems and infrastructure, new Intersecting processes, new Intersecting institutional designs, and more.

The Covid-19 pandemic has made the need for such course change more obvious and urgent than ever before. Now is the time to strike. We have everything to gain and little to lose.

1. <https://www.oxfam.org/en/5-shocking-facts-about-extreme-global-inequality-and-how-even-it>

A photograph of a monkey sitting on a metal fence, eating a snack from a blue and yellow packet labeled '7 DAYS'. In the background, a woman in a white and green striped shirt is taking a photo of the monkey with her phone. The scene is outdoors, possibly at a sanctuary or zoo, with other people and a red and white striped barrier visible.

“The COVID-19 pandemic has also illustrated dramatically how ecological perspectives on sustainability need to be complemented by public health. It’s a reflection of ecological imbalance and the environmental crisis we’ve been facing for decades, as represented in the way that the planetary boundaries have been crossed.”

– Jairam RAMESH, former Minister of Environment of India

Image Source: The Hindu sanctuary dedicated to Ramayana at the Batu Caves in Kuala Lumpur, Malaysia. Photography by Nicolas J.A. Buchoud, 2018, all rights reserved ©.



Jairam RAMESH
former minister of
environment of India

A note on health and the future of sustainability

The issue of sustainability should be understood through the notion of planetary boundaries, which was developed by scientists at the Stockholm Resilience Centre. These dimensions are known as critical for humanity's survival, and humankind must remain below the implications caused by them. They are: climate change, ocean acidification, ozone depletion, the phosphorus cycle, freshwater use, deforestation and land use changes, biodiversity loss, aerosols and particulate matter pollution in the atmosphere, chemical pollution and contamination.

In the case of some of these planetary boundaries, such as climate change, deforestation land degradation and biodiversity loss, we have already crossed the tipping point. On the contrary, it seemed that ozone depletion had been successfully tackled by the 1985 Montreal Protocol, one of the rare success stories on the planetary boundary issue. And yet, it appeared that the Hydrofluorocarbons (HFCs) used

as substitutes to the Chlorofluorocarbons that harmed the ozone layer are much larger GHG emitters. This led to the adoption of the Kigali modifications to the Montreal Protocol in 2016, meant to phase out HFCs after CFCs. What was once a solution turned out to be a problem at a later point in time, exemplifying what we are collectively confronted with yet at a more massive scale and across many problems at a time.

As the very components of sustainability are bound to change along growingly intertwined challenges, the notion that sustainability is something for future generations is misleading. Sustainability is about making compromises about consumptions patterns and standards of living now, for future generations to be able to meet their consumption needs.

The Covid-19 pandemic has also illustrated dramatically how ecological perspectives on sustainability need to be complemented by public health. Building political alliances and coalitions, raising interest from the general public, should go through health issues, beyond health emergency. It's a reflection of ecological imbalance and the environmental crisis we've been facing for decades, as represented in the way that the planetary boundaries have been crossed. So it is time for us, environmental and sustainability organizations, to change our focus from environmental and ecological elements to public health dimensions. This calls for greater collaboration among public health pro-

professionals, epidemiologists, environmentalists, ecologists, and sociologists. We should all approach them as fundamental issues affecting public health now, not in the future. Because the one issue that governments will focus on, regardless of political belief systems, is how these environmental changes are affecting their population's health.

We are at a critical moment. We recognise that planetary boundaries have been crossed; these planetary boundaries require continuous measurement at the international, regional, and national levels to assess the impact of these planetary boundaries and the effects they have on local populations, particularly in terms of public health.

A grand, ornate conference room with a large chandelier and people seated at a long table. The room features high ceilings with intricate carvings, large tapestries on the walls, and a prominent chandelier hanging from the ceiling. People are seated at a long table, some looking at laptops and others talking. The room is well-lit, with warm lighting from the chandelier and other fixtures.

“India, Korea, Japan, and China, despite not having territorial claims on the region, have implemented comprehensive infrastructure strategies. With the launch of its Polar Silk Road initiative, China has been a real game changer, demonstrating the region’s growing global importance.”

– Francesco PROFUMO, Compagnia di San Paolo, Turin, Italy

Image Source: The summit of the G20 Environment and Energy Ministers in Naples in July 2021. Image by G20 Italy, all rights reserved ©.



Francesco PROFUMO
president
Compagnia di San Paolo
Turin, Italy

Sustainable infrastructure in the Arctic? A paradigm for transformative and inclusive growth

The Arctic is changing. Over the past 50 years, Arctic's temperatures have risen twice as fast as the global average (EPSC 2019). While rapid melting of polar ice continues, contributing to sea level rise, evidence shows that global warming has been causing a rise in extreme warm events. Older ice that survived multiple summer is rapidly disappearing. Meanwhile, the average number of days with sea ice cover in the region declined at a rate of 10-20 days per decade over the period between 1979 and 2013, making Arctic waters navigable for longer period (AMAP 2017). All this confirms that the Arctic is shifting towards a warmer, wetter, and more variable environment. At the same time, the rapid changes underway have the potential to create social, environmental and economic consequences over the long run, with profound implications for people, resources, and ecosystems worldwide (Birchall and MacDonald 2019).

Somewhat paradoxically, climate induced changes are contributing to open unprecedented opportunities. Concerns over climate change are counterpoised by a seeming promise of social and economic development. With sea ice set to shrink, otherwise inaccessible portions of the Arctic Ocean will no longer be beyond reach. Oil and gas fields will become more accessible, unexploited fisheries will be available for grabs and new shipping routes will open between Europe, Asia and North America (Borgerson, 2008). If compared to traditional routes, Trans-Arctic routes can reduce travel time between certain destinations and allow a reduction in fuel and labor costs. As the region will no longer be considered a remote periphery, it is set to play an increasing pivotal role in global trade, with an estimated 25 percent of Asia-Europe container trade expected to travel through the Northern Sea Route by 2030 (Guggenheim 2019).

According to an inventory published by the global financial firms Guggenheim (2016), as much as \$1 trillion investment over the next 15 years is required to develop the infrastructure needed to address the "infrastructure gap" that exist and bridge the distance between global markets. Countries like Russia, Finland, Canada and the US are articulating their interests through fostering new infrastructural connections across marginal and underinvested spaces within their own respective Arctic areas (Ferdinand, 2016). Included in the new development engines will be new ports and harbors, highways, airports, roads, and communi-

cation systems. The coming changes have caused these spaces to appear as strategic hubs lying at the center of global markets¹ and as logical next steps for investment in infrastructure also for a number of states far away from it. India, Korea, Japan, and China, despite not having territorial claims on the region, have implemented comprehensive infrastructure strategies. With the launch of its Polar Silk Road initiative, China has been a real game changer, demonstrating the region's growing global importance (European Parliament, 2018).

In the wake of the growing economic and environmental relevance of the Arctic, the wave of infrastructure development will demand a holistic sustainable approach directed to maximize long term human, social, economic and environmental benefits. The Arctic is home to important ecosystems and Indigenous communities that live and hold rights over these lands (Pass 2020). Several of these communities in the Arctic are facing significant infrastructure deficit, remaining disconnected from transport networks, economic activities and even running water and sewage treatment systems, all of which have very strong influence on community well-being. Infrastructure investments in the Arctic needs thus to consider the necessities and demands of the different groups that populate the areas. This means identifying and financing projects with strong economic, social and environmental returns on investments.

The Arctic is the most vivid example of a global trend. Today, we find ourselves in a unique position to champion the most sustainable and inclusive design for infrastructure investment. It is imperative for the future of the Arctic region to develop sustainable and quality infrastructure, which can contain the impact of climate change and avoid social and economic losses. To do so, we must start thinking of fundamental reforms in the way infrastructures are funded, planned, delivered, and managed. First, a credible transition should prioritize low carbon resilient infrastructure investments. Moreover, emphasis should be placed on the application of ESG considerations to investment decision making and risk management. Against this backdrop, digital technologies can be an important enabling factor towards a meaningful reduction of GHG emissions. To create the best and more equitable conditions for a level playing field, it is indeed crucial to expand the opportunities for respectful cooperation and dialogue with indigenous people. Such priorities are the necessary starting point to build infrastructures in a resilient, sustainable, and socially inclusive way. This is the path towards a sustainable development in the region and beyond.

1. An open route through the Arctic could reduce shipping time from Asia to New York by 25 to 35%, depending on the route.

An aerial photograph of a research station in a swampy area. The station consists of several wooden houses with corrugated metal roofs, several white trailers with blue accents, and several small boats docked at a wooden pier. The area is surrounded by dense green trees and vegetation. The text is overlaid on the left side of the image.

“Even the Paris Agreement, which provides the basis for organizing international efforts to combat climate change, did not single out the Arctic as a special item of political interaction for the coming decades, albeit it is a barometer of the health of the global ecosystem.”

– Irina KARAPETYANTS, MIIT, Moscow

Image Source: The research station of Kaibasovo in the Vasyugan Swamp area, the largest swamp in the Northern Hemisphere, in Southwestern Siberia. Photo by courtesy of Andrei Kuznetsov (photographer) and prof. Sergei Kirpotin, director of the Bio-Clim-Land Center of Excellence, National Research Tomsk State University, August 2021, all rights reserved ©.



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Fragments for sustainable Arctic infrastructure systems

The modern Arctic is rapidly integrating into regional and global processes of socio-economic development, becoming increasingly vulnerable from the point of view of its sustainable development. Issues of comprehensive environmental safety of the Earth's territory, which is 27 million sq. km with its huge reserves of minerals, the absence of a recognized international legal status, the division of the continental shelf of the northern latitudes into zones of national strategic interests with the exclusive right to their industrial development are becoming particularly relevant in the international infrastructure agenda. The activities of states to intensively build up the transport and energy potential in the Arctic, expand investments and support the commercial interests of business in the field of exploration of deposits and extraction of mineral and bioresources, the deployment of military offensive complexes has a direct impact on the nature of the systems being formed that support the functional and spatial organization of objects,

facilities and services in the Far North.

The transformation of the Arctic non-social infrastructure has gone from the creation of the early settlements, ports, warehouses, providing trade in fur and fish, the first wave of industrialization and urbanization caused by the discovery of gold mines in Alaska, the construction of meteorological services, rescue stations, polar bases, observatories under the influence of the concern of the international expert community in connection with global warming to the construction of roads, pipelines, processing plants, transport and communication facilities, local energy centres, oil and gas production complexes serving intensive production and transnational transportation of hydrocarbons.

Obviously, given the forecast of an increase in global energy consumption in 2050 by 50% compared to 2018¹, taking into account the undiscovered oil and gas reserves on the Arctic shelf, estimated at 90 billion barrels and 47 trillion cubic meters of natural gas², of a decrease in oil reserves in the former places of their development, will lead to an expansion of the presence of extractive industries, intensification of exploration and drilling in the Arctic, turning it, thanks to intercontinental transport corridors, primarily sea ones, into a raw material donor for the planet. A significant amount of fresh water will satisfy the needs of countries with arid climates, bioresources will fill the food needs of the population, which will amount to 9.8 billion people by 2050.³ The desire to quickly develop the mineral potential

of the Far North will contribute to an increase in global consumption, which contradicts the concept and principles of sustainable development.

It is difficult to agree with the statement that due to the active industrial development of the region, its social sustainability, measured by indicators of accessibility, quality and standard of living, and fair distribution of benefits, has been achieved. In the mega-space of the Arctic, the uneven settlement in remote and hard-to-reach places generally does not allow people, with the exception of residents of several northern cities, to be really involved in the process of managing the Arctic territories, to be provided with reliable communications and transport communications, or to influence the adoption and implementation of economic business projects.

The current path of active industrialization in the Arctic regions increases the risks of environmental disasters, negatively affects the development of usual types of economic activities for 50 groups of indigenous people, leading traditional forms of nature management. The formation of the industrial and social infrastructure necessary for its functioning is tied exclusively to oil and gas fields, which upsets the balance of the integrated development of the territory beyond the Arctic Circle. The economic and raw material colonization of the Arctic increases the social dependence of the indigenous people on the sale of resources that, in fact, do not belong to them and the main incomes

are received by extractive companies. The conditions of existence of the peoples of the Far North are in the focus of multiple, often conflicting political decisions taken at the local, regional and global levels. Proceeding from this, some scientists call the social regional development of the Arctic a mystery, and the state management of this process a sphere of uncertainty.⁴

Political tension in the Arctic caused by the intensification of the struggle of countries for national sovereignty, the priority right to possess the resources of the circumpolar region, turns local residents into hostages of possible military conflicts.

Currently, more than 800 northern projects are connected in one way or another with the destruction of the natural environment and increased environmental tension in the Arctic⁵ is due to significant losses of the ice sheet from 1993 to 2019, an average of 279 billion tons per year in Greenland and 148 billion tons per year in Antarctica, and an increase in temperature more than twice as compared to other territories.⁶ However, not the melting of permafrost, leading to the release of 300 to 600 million net carbon per year into the Earth's atmosphere, neither warming, which causes global climate change, rising ocean levels, fires and flooding in different parts of the world, are perceived as a fatal threat to the population living in the Arctic.⁷ In a certain sense, the development of companies business is still constrained by the high cost of Arctic projects, prob-

lems with their payback, and climate risks. At the same time, natural changes in the Arctic may quickly expand economic benefits, since they enlarge the availability and access to raw resources, make them growingly attractive for investors to extract, process and transport them along regular routes, paths and roads that are free of ice. As a result, the Arctic regions receive significant volumes new types of pollution with heavy metals, persistent organic and radioactive substances, and oil products. Surprisingly, even the Paris Agreement, which provides the basis for organizing international efforts to combat climate change, did not single out the Arctic, which is a barometer of the health of the global ecosystem, as a special item of political interaction for the coming decades.⁸

The concentration of the arctic states and other countries interested in the development of the natural resources of the Arctic, on the growth of GDP and profits from the export of raw materials, determines the strategic course for the sustainable development of the circumpolar region as open and problematic. Of course, it should be based on the separation and insurance of possible environmental risks from project and economic activities, on the distribution of social responsibility for its negative consequences between states and the private sector. In the meantime, statements by some countries about the ability to use low-emission and resource-saving technologies everywhere in the Arctic, alternative energy sources for transport and industrial facilities do not sound very convincing due to their high cost

or the impossibility of using these technologies due to the sanctions policy, for example, in relation to the Russian Federation, which owns more than 3 million square kilometres of the Arctic area (18 % of the entire territory of the Russian Federation), and which is home to about 2.5 million inhabitants.⁹

The regional development of the Arctic infrastructure requires significant investments, the volume of which, according to some estimates, amounts to approximately 1 trillion dollars, which, of course, is beyond the power of any national budget and requires international or joint financial investments with the participation of two or more states.¹⁰ However, the nature of such infrastructure projects needs to be clarified. A number of states, thereby emphasizing their rights to own part of the Arctic territory, declare the allocation of considerable funds for the implementation of infrastructure projects, but they are mainly aimed at the construction of production facilities that ensure the extraction and processing of minerals, transport and military complexes.

For example, the Russian Federation plans to invest more than \$ 67 billion in the Arctic for the period up to 2030, of which 38.9% will be allocated for mining, 18% for transport development, and 5% for the social sphere.¹¹ At the same time, the environmental assessment of Arctic infrastructure projects is likely to be cancelled, considering that

this procedure scares off potential investors.¹² Non-Arctic countries interested in the development of the region's fossil resources, such as China, invested \$ 2 billion in the Greenland mining industry from 2012 to 2017, and \$ 1.2 billion in Iceland in order to obtain rare earth minerals, iron, copper, and uranium.¹³ The strengthening of military potential in the Arctic, the construction of dual-use facilities, the development of polar military technologies, training of servicemen for work in extremely low temperatures is alarming. Denmark announced the allocation of \$ 1.5 billion for the defence of the North Atlantic and the Arctic in 2021.¹⁴ A US Air Force military base with a bomber squadron is being created in the Norwegian Arctic. Canada is strengthening the naval forces in its northern regions, after several decades of under investment.

On the contrary, as the COVID-19 epidemic has also affected the population living in the Arctic, has exposed the inadequacy, heterogeneity and inconsistency of infrastructure policy. On the one hand, it showed the insufficiency of local doctors, medical institutions equipped with modern facilities, lack of transport accessibility to the points of receiving help or vaccinations, the Internet, which allows supporting telemedicine capabilities. On the other hand, the existing transport provision did not allow the region to be socially isolated from the ongoing exploration of mineral deposits, the increasing flow of tourists, exposing the indigenous people to the risk of infection with coronavirus infection.

The Arctic remains vulnerable in terms of efficiency and the possibility of global control over the safety of the living population, changes in its ecosystem, of monitoring the consequences of industrial exploitation of the subsoil, which directly affects the intensive melting of ice. The fragility of the natural environment of the region, the climatic changes of which are of planetary importance, necessitates the restoration of the status quo of the Arctic, which at the end of the 80s of the last century was declared a conservation area, a territory of peace and international cooperation. At the same time, it is necessary to determine what type and nature of urbanization, the volume of industrialization of the Arctic can ensure its sustainable development.

In conclusion, echoing initial ideas developed within the T20 Infrastructure taskforce in 2019 and 2020, the development of infrastructure friendly and safe for the natural systems of the Arctic should take into account the need to:

1. create of sufficient and reliable support of the vital activity of the indigenous peoples of the Far North;
2. form a modern research base with its scientific laboratories, hydrographic vessels and rescue stations, centres of regular environmental monitoring;
3. provide free (without hindrance) transfer of "green" technologies;

4. create a compatible geoinformation support system;
5. ensure transparency and information openness in relation to the implementation of national Arctic projects;
6. create of treatment facilities and systems for the disposal of accumulated environmental damage;
7. increase the use of low-carbon transport and expand opportunities for eco-tourism;
8. develop and apply the common environmental standards in the construction of industrial and transport facilities.

1. <https://www.eia.gov/todayinenergy/detail.php?id=41433>
2. <https://russiancouncil.ru/en/arcticoil>
3. <https://time.com/5216532/global-food-security-richard-deverell/>
4. <https://arcticyearbook.com/arctic-yearbook/2018/34-year-book/2018-arctic-development-in-theory-in-practice/301-introduction-arctic-development-in-theory-and-in-practice>
5. http://awsassets.panda.org/downloads/thecircle0416_1.pdf It
6. <https://climate.nasa.gov/evidence/> and <https://public.wmo.int/en/media/news/arctic-report-card-confirms-climate-change-disruption>
7. https://nsidc.org/cryosphere/arctic-meteorology/climate_change.html
8. <https://unfccc.int/resource/docs/2015/cop21/rus/l09r.pdf>
9. [http://arctica-ac.ru/docs/3\(31\)2018_Arctic/006_022%20ARCTICA%203\(31\)%202018.pdf](http://arctica-ac.ru/docs/3(31)2018_Arctic/006_022%20ARCTICA%203(31)%202018.pdf)
10. <https://polarconnection.org/arctic-infrastructure-standard/>.
11. <https://eee-region.ru/article/4816/>
12. <https://www.geoinfo.ru/product/sluzhba-novostej-geoinfo/gos-duma-otmenyaet-ehkologicheskuyu-ehkspertizu-dlya-obektov-social-noj-i-transportnoj-infrastruktury-v-arktike-44810.shtml>
13. <https://warontherocks.com/2019/05/chinas-multifaceted-arctic-strategy/>
14. <https://www.capital.fr/economie-politique/defense-le-danemark-va-renforcer-la-surveillance-au-groenland-et-dans-latlantique-nord-1403404>



“The Arctic requires a robust, comprehensive and coordinated policy environment that provides for a better setting of the economy and sustainable development in the region. However, it remains unclear to what extent existing institutions are the right fit to manage change till 2050.”

– Anastasia LAZARIVA, Skolkovo Institute, and Alexandra MIDDLETON, University of Oulu

Image Source: The LNG Fedor Litke icebreaker accompanied by a Rosatom icebreaker offshore of the Northern Sea Route between Murmansk and Dudinka. Photo Rosatom by courtesy of the co-author, all rights reserved ©.



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are starting to be more easily extractable. Climate change and shifting geopolitical context create new realities for the region, which now has become a point of interest for a number of national and international actors. That brings several questions on the Arctic future development, potential stakeholders interests, enabling environment, resources and pace of technological development. But why are the Arctic resources needed? The world's population is expected to increase by 2 billion people in the next 30 years, from 7.7 billion currently to 9.7 billion in 2050². Increasing demand for e.g., electrical vehicles, means that rare earth metals need to be sourced in places like Arctic. In fact, KoBold Metals³, a mineral exploration company backed by billionaires Jeff Bezos and Bill Gates, has entered into an agreement with London-listed Bluejay Mining to search for critical materials used in electric vehicles in Greenland.

- Six factors of change

To understand what the Arctic of the future will look like in 2050, we applied scenario planning which enables stakeholders to make more informed decisions in uncertain situations and to plan for a variety of possible outcomes. In the first step, we needed to disentangle certainties and uncertainties. In scenario planning, relative certainty is commonly assumed, these are future predictions that are highly probable and so can be written in any situation.

We identified key developments, forces and processes which will affect the global landscape and the Arctic in

Sustainable mindset. The Arctic in 2050, towards a new territory of progress?

The latest 2021 report by the Intergovernmental Panel on Climate Change¹ presents a worrying future for humanity. The Arctic is one of the places on planet that is disproportionately affected by the climate change. The Arctic is projected to experience the highest increase in the temperature of the coldest days, at about 3 times the rate of global warming. The warming is expected to amplify permafrost thawing, and loss of seasonal snow cover. The changes taking place in the Arctic mean that the shipping routes become more accessible, and the Arctic's natural resources

particular to draft different futures of the Arctic on a 2050 horizon. In doing so it is important to separate what we know is about to happen, which might be called certainties, from developments that cannot be foretold but which might impact the development of the Arctic in the next 30 years – or uncertainties, which are crucial to outline the context for the region's development:⁴

- The pace of climate change

Global warming will make a significant impact on the Arctic, one of the most fragile ecosystems. While the change is evident, we cannot predict the dynamics of the possible damage. The pace of global warming affects decision-making processes and the business environment, at the same time, this creates an incentive for innovation.

- Economic development in the region

The future of the Arctic economy depends on the availability of sustainable solutions and technologies that encourage responsible business activities that are respectful of the environment while giving opportunities for indigenous and local populations.

- The trajectory of social development

The prospect of social development is not certain in the Arctic given the demographic and social challenges that Arctic people are facing. Both incoming and outgoing migration bring new dynamics to the region.

- Quality of the institutional environment

Arctic needs a comprehensive enabling environment – a set of laws, regulations, policies, international trade agreements, and other soft infrastructure to ensure sustainable growth of the region. However, it is unclear how adequate and balanced these institutions could be and whether stakeholders could reach a consensus.

- Pace of technology development and innovation

Harsh weather conditions require special technologies for each industry and sector. Social and environmental considerations add more requirements that new technologies should meet. Technologies required for the future development of the Arctic require substantial funding, political will, and entrepreneurial risk for their implementation.

- Dynamics of geopolitics and international consensus

Developing geopolitics defines Arctic stability and will stay as one of the critical uncertainties of the region's development. The increasing complexity of the geopolitical game defines the security and international relations context of the Arctic and could transform current cooperation models.

On the next step we mapped these factors by their uncertainty and impact, selecting the most critical ones that will form alternative scenarios for the Arctic region. The identification of the two drivers having the greatest influence and uncertainty on the future development of the Arctic was a vital phase in the scenario planning process. This was done from among the components that were critically ranked. It

took numerous discussions and rounds of deliberation with the Arctic stakeholders including state officials, indigenous peoples, academics and NGOs to identify the two most critical and uncertain scenario drivers.

The Arctic requires a comprehensive and coordinated environment that provides for a better setting for the economy and sustainable development in the Arctic region - laws, regulations, policies, international trade agreements and other soft infrastructures, such as public awareness and acceptance. However, it remains unclarified to what extent these institutions are adequate and balanced before 2050. Is there agreement among stakeholders? In the extreme Arctic weather conditions, the development of specific technology for each business and sector is necessary. Additional requirements on new technology are imposed on social and environmental factors. Significant financial support, political determination and entrepreneurial risk are needed for future development of the Arctic. Will inventions in the Arctic drive economic growth? Or will innovation stagnate, hindering Arctic progress?

- Four development scenarios from doomed wasteland to territory of progress

In order to visualise the Arctic in 2050, four scenarios emerged. Each scenario reflects the strength or weakness of the institutional environment's quality as well as the rate of technological development and innovation.

1. In the Dark Ages, the slow rate of change, the lack of coordinated national and international governance, the lack of new development and deployment of technology are a halt to Arctic development. The Arctic is a site for pitiless environmental use and the Arctic is being depopulated and ravaged. The Arctic economy is dominated by nation-states and companies, whether public or private.

2. In the Age of Discovery, the quest for the Arctic's resources, fueled by state-funded innovation, leads to the discovery of Arctic riches, which boosts the economy and attracts opportunity seekers to the region. Both environmental regulation and disaster response are fragmented and ineffective, failing to prevent the Arctic ecosystem from deteriorating. As the climate crisis worsens, indigenous peoples' natural habitats and livelihoods deteriorate.

3. In Romanticism, the Arctic is transformed into a showcase for all things beneficial to the ecosystem, including only sustainable energy and transportation, no mining or extraction of resources is allowed. Indigenous peoples maintain their traditional lifestyles while receiving government assistance. All extraction activities have come to a halt.

4. In Renaissance, the nations agreed to make Arctic exploration a symbol of international cooperation as well as humanity's eternal pursuit for progress and invention. Many governments agreed on standards for doing business in the Arctic in the hope of encouraging the use of cutting-edge and innovative technologies.

• Conditions for a new sustainable leadership agenda
The Arctic is a complex phenomenon that brings together a unique natural ecosystem and a dynamic industrialized, highly urbanized, multicultural and creative community with a stake in responsible development. The strategic importance of the Arctic is continuing to increase. Although the scenario approach does not help to predict the future, they are the road markings for the future and help to navigate toward it. The scenarios for the Arctic future development reflect a clear paradigm shift towards sustainable development and new emerging leadership agenda⁵:

- policymakers will have to work towards creating an enabling environment and soft infrastructure, incentivizing more responsible investment mechanisms in the Arctic, ensuring responsible resource exploitation.
- need for facilitating multi-stakeholder dialogues and raising public awareness and public acceptance over the Arctic agenda. It is impossible to discuss the development of the Arctic from the standpoint “whether we are going to exploit it or not”, as the industrial development of the Arctic started about 100 ago. Today 10 million people live here, only about 10% of them are indigenous peoples⁶. The main question is how we can make this development responsible and sustainable to ensure all three aspects - economic, social and environmental - in the long term and who should be a stakeholder in this activity.
- business could be an integral stakeholder for two reasons: firstly because business is a driver of innovation and

technology required for responsible development of the Arctic; secondly because only business can mobilize sufficient resources to implement the scenario of sustainable development of the Arctic based on advanced technologies and integrated environmental protection measures.

A new leadership agenda evolves in each and every sector, emphasizing the need for multi-stakeholder dialogue and collaboration among the local population, businesses and policymakers to maintain the balance between the three dimensions – social, environmental and economic – and provide the Arctic region with a long-term strategic and sustainable mindset.

1. AR6: Climate Change 2021. URL: <https://www.ipcc.ch/report/ar6/wg1/>
2. Growing at a slower pace, world population is expected to reach 9.7 billion in 2050 and could peak at nearly 11 billion around 2100. URL: <https://www.un.org/development/desa/en/news/population/world-population-prospects-2019.html>
3. Billionaire-backed mining firm to seek electric vehicle metals in Greenland. URL: <https://www.reuters.com/business/billionaire-backed-mining-firm-seek-electric-vehicle-metals-greenland-2021-08-09/>
4. Arctic 2050: Mapping the Future of the Arctic. URL: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3784762
5. Ibid
6. The population of the Arctic is 4.5 -10 mil people depending on the definition of the Arctic used.



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“It is vital to understand how to improve the development of the global population and the environment, as we are already living beyond the very resource consumption forecasts from the Club of Rome 1972 report.”

– Izabella TEIXEIRA, co-chair, UNEP International Resource Panel

Image Source: The presiding table at the Earth Summit of the United-Nations in Rio de Janeiro, Brazil, in 1992. Photo by UN Media, 1992, all rights reserved ©.



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‘Green Global South’. The Realpolitik of Intersecting

To begin with, let us underline how much humankind is ill-prepared to meet global, interconnected crisis. Changing geopolitics, the COVID-19 pandemic crisis, environmental challenges, all call for a better understanding of possible solutions at the intersection of socio-economic and environmental inequalities, especially in developing and emerging economies. We could summarize this as ‘the Green Global South Challenges’, which Intersecting would be a relevant tool to address through the upcoming troika of Indonesia, India and Brazil presidencies of the G20 from 2022 to 2024.

As we are collectively getting beyond the limits of natural resources extraction, we are confronted with an even more acute issue inequality in getting access to such raw resources. The current organization of global trade flows and supply chains (and their infrastructure) is exacerbating such inequalities. It contributes to the growth of CO2 emissions and the fragmentation and depletion of ecosystems,

affecting everyone and striking especially lower income households, neighbourhoods, countries and regions. We need to change economic and social perspectives around the world to address national, regional and global sustainability needs and priorities.

As global ecosystem degradation and transformation stems from growing global interconnectedness, the social demand for a new relationship between human beings and nature is rising and pressing but it has yet to be transformed into politics and policies. We argue that it is not possible to escape from our interconnected world and the related crisis. Yet, there is ample room to make progress in shaping policies locally, nationally and globally, that are more effective. Today’s situation is largely the result of two decades of laissez-faire since the turn of the millennium. We did not give enough thought to find solutions to the current environmental crisis, which started already long ago in the past century.

We believe that hopes and aspirations from the past, in particular since the aftermath of the second world-war, are no longer suitable for today. For instance, endless rise of consumption and acceleration of trade can no longer work as a paradigm for growth and well-being as it exhausts natural resources and affects complex environmental balance on land, in the air and at sea. The real-politik of today should not be to control or manage risks but to address and change the very mechanisms that create those risks, be

they economic, social or environmental. To a large extent, the COVID-19 crisis reveals the underlying structure and cracks within globalisation. It highlights the limitations of national and multilateral frameworks. It confirms how much the current global environmental crisis is also a geopolitical crisis.

The 'Intersecting' concept is a very useful and operative way to reframe mindsets and policies along several critical issues at the same time. It allows to combine the climate age and digital age and ask what kind of citizenship can emerge, within national or municipal boundaries and even beyond. Echoing the multiple socio-political and economic forecasts research threads from the late 1960's that paved the way to create the United-Nations Environmental Program (UNEP), we are compelled to discuss human demands and needs. It is vital to understand how to improve the development of the global population and the environmental reality, as we are living in the very resource consumption forecasts from the Club of Rome 1972 report and in the very demographic forecasts from the early 2000's announcing a growingly urban planet.

We do not need more 'networks', more 'projects to be scaled up.' Politics need to be Intersecting to solve global problems, to provide effective system change, at large. Politics is the way forward for changing environmental policies and accepting the national realities that impact global problems and localizing acceptable solutions. We cannot ignore

nor limit the understanding of national realities when solving global problems. Local needs and interests continue to pressure processes. Therefore, extracting industries -in which we include extensive agriculture practice such as in the Amazonian region, could be far better managed using an 'intersecting' rationale. For this, we need innovative coalitions, such as the Consortium of Amazon Governors in Brazil or the Arctic Council that gathers countries around the arctic circle along with observers, to create new political space and reduce the distance between scientific research, people, and policy-making.

As we recognize how vital is the role of science and innovation to shape progress, the 'Intersecting' paradigm also illustrates the shortcomings within the scientific community and within the political arena. For instance, what is the point of successfully sequencing the Sars-Cov-2 virus and developing innovative vaccines in very short period of times, through intense and maybe unprecedented global scientific cooperation (and competition), if vaccine production and distribution is so slow and uneven that new variants tend to ruin or seriously limit massive but too localized vaccination efforts? Deeply rooted imbalances and inequities in international trade and access to innovation are now deepening the COVID-19 crisis not only in lower income or more fragile countries, but also globally.

If science is to help, then we need much stronger social and human science, in particular historical science and

history of science, to broaden perspectives and widen our own horizon of understanding. The current vaccine dissemination problem might well be just another illustration of a longer-term “no-share” technology problem that has lasted for over a century.

The COVID-19 crisis has exposed mankind to fear, threats and restrictions. It has brutally revived the role of territorial boundaries and questioned how we are physically, digitally, environmentally interconnected. As the world is looking for new solutions, undertakings such as the Global Solutions Initiative and the Think-tank 20 are valuable but it is urgent to make a better use of such connections and work at the cross-roads, at the intersections of different issues and policy-frameworks. We view the creation of an ‘Intersecting assessment framework’ as a very useful and relevant proposal, provided it does not stay in an academic context but helps confront with the reality and generate well-prepared innovations to face future crisis.

We are hopeful that global coalitions such as G7 and G20 can bring the solutions together with a global consensus. To exercise ‘Intersecting’, it is important to consider the role of regional brokers and influencers as a reflection of national and regional interests. There is a need for a reality that makes more sense across short-term perspectives and long-term perspectives. The Green Global South agenda can reconcile Western and Eastern development perspectives, as it is time for people and societies to walk together.



“Higher degrees of interaction and collaboration between the vast and diverse knowledge resources of the T20 and other engagement groups, such as on cities, or business, should be part of the T20 Indonesia definition.”

– Riatu MARIATUL QHIBTIYYAH and Teuku RIEFKY, University of Indonesia

Image Source: At the meeting place of formal and informal economy in the center of Jakarta, Indonesia. Photo by Nicolas J.A. Buchoud, all rights reserved ©.



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While the Covid-19 crisis has marked a brutal reversal of fortune in 2020, also ending a decade long recovery cycle, questions were raised about the role and organization of the Forum and its connection with the civil society. We argue the G20 Indonesia could illustrate a different way forward in a changing, fragmented multilateral order. In particular, engagement groups could play an important and valuable role to represent the civil society at large.

Since its inception in Mexico in 2012, the group of think-tanks of the G20, namely the T20 has become one of the largest and well-structured engagement group of the G20. It can convey great ideas, powerful recommendations and mobilize energy and support to the G20 presidency in a networked manner. However, as the T20 has grown significantly in size, it should reassert a purposeful meaning in the context of the enduring Covid-19 pandemic crisis. The year 2022 will mark the 10th anniversary of the T20, as well as the 30th anniversary of the Rio Earth Summit and the 50th anniversary of the creation of the United Nations Environment Program, which is an invitation to address present time issues and to frame long-term visions and policy-directions.

We view several ways to foster effective change such as 1) strengthening south-south and triangular cooperation, 2) valuing civil society engagement and human capital, 3) assessing how to plan/manage/govern an urban planet, 4) rethinking evidence-based policies by building on machine

Intersecting perspectives for the T20 Indonesia: ways to foster effective change

Learning from a decade of T20

Twenty-five years after the G20 was created as a forum of finance ministers in the wake of the Asian financial crisis of 1997-1998, the most important world's leaders' forum will return to Asia, as Indonesia will host it in 2022, prior to India in 2023. Born out a regional crisis, the G20 then grew out as a major leaders' forum out of the global financial crisis of 2008 to restore growth.

learning and human spirit, and collectivism and 5) reviewing the 2030 Agenda in light of the Covid-19 impacts.

The core of the G20 has historically been the Finance and Sherpa tracks, albeit in recent years the Development Working Group has been rising in importance. Innovative formats have been introduced in 2021 such as a joint Ministers of Energy and the Environment summit or the organization of a Culture Ministers meeting, under the G20 Italy presidency. One reason for the successful output of G20 Japan on such a structuring issue as infrastructure investment and financing has been the close coordination of the work of the T20, of the Development Working Group, in sync with the Finance track and the Sherpa track.

Therefore, higher degrees of interaction and collaboration between the vast and diverse knowledge resources of the T20 and other engagement groups, such as on cities, or business, should be part of the T20 Indonesia definition, maximizing the research, development, outreach and policy-making potential of the engagement groups and their constituents, including the academia.

The T20 as an anchor for unbiased policy priorities?

Building on the legacy of the T20 Italy and previous troika, meaningful innovation could be brought up by the T20 Indonesia as the world is still grappling with the Covid-19 crisis. The function of the T20 has become more critical to direct

and supplement nation leaders' agenda towards the right direction on numerous issues. As an engagement group at the crossroads of research and policy-making, the T20 is in a strategic position to serve at least two main roles in the contributions of solving current global issues.

Firstly, due to its independency from national governments and their respective political agendas, the T20 could provide valuable insights on what priorities global leaders should focus on. Power imbalance, geopolitical tensions and political pressure can make reaching a consensus on key priorities challenging and hinder any progress by the G20. Supporting the G20 agenda through most objective and impartial results is therefore essential. As an engagement group constituted by researchers and a wide range of organizations across the globe, with a direct channel to provide recommendations to G20 working groups, the T20 position is central in ensuring the issues that G20 leaders intend to resolve are pertinent and well substantiated. Policy directions recommended by the T20 could enrich G20 working groups perspectives through its evidence-based research.

Secondly, the T20 could serve as an anchor to ensure the inclusivity and unbiased prioritization of the issues discussed. Serving as an 'ideas bank' of the G20 and aiming at providing research-based policy recommendations to G20 leaders, task forces are created within the T20 to address global challenges and priorities raised by the G20 Presi-

gency. Thus, the T20 has the capability and capacity to formulate the task forces such that it represents beyond the critical issues experienced by the host country. The inclusivity aspect has become more imperative than ever as the Covid-19 pandemic widens inequalities across and within countries and worsens global socio-economic imbalances.

It is within the reach of the T20 to ensure its research agenda and formulation is equally representing both developed and developing countries. The T20 network has been built upon cooperation and initiatives forged among think-tanks, multilateral or regional organizations, and research institutions or universities. From these initiatives, each T20 member advocate its aligned research agenda in a combined global and domestic perspective, ensuring ownership and continuity of the needed improvement and adoption of better policies in the areas.

Preparing for the G20 Indonesia

In conclusion, we would like to focus on Indonesia's preparedness for the G20 and in particular on the issue of policy monitoring and assessment. Our institute, LPEM-FEB-UI, has close ties with national and local level governments along with private sectors and we believe we have much to learn from the Covid-19 crisis regarding data management.

Regarding how Indonesian government prepared for the G20, it is worth comparing with how Indonesia has hosted

the Asian Games and the IMF and World Bank meetings in 2018. We studied the impact of the Asian games and the importance of involvement of various stakeholders in making it a success. In contrast, the general public has regarded the IMF and World Bank meetings held in Nusa Dua in Bali as elites' discussion, remote from any daily consequence. With regard to G20 summit, we value more participation from various stakeholders, communication of the focused priorities among the public and involvement of domestic and local level universities in decision making process so that there is a sense of ownership which can prove beneficial for the society.

Linking to the efforts put in publishing 'Intersecting' we argue that converging and coordinated global efforts, in particular through the T20, could help set a new benchmark and criteria for policy monitoring and evaluation that allow for more proactive policy implementation, going beyond the GDP measurement of growth.

Since the Covid-19 pandemic outbreak, many countries - in particular emerging and lower income countries, have struggled with a recurrent shortage of data to monitor properly the socio-economic impacts of the Covid-19 crisis. We have conducted surveys across Indonesia to find that nearly 80% of micro, small and medium enterprises (MSMEs) did not receive any actual support, in part because they just did not know how to get access to such funding. Rising economic sectors such as creative economy, have

been severely affected. In many cases, locally driven, community-led organizations have played a more effective and durable role than governments to tackle the short-term impacts of the crisis. This raises questions about how national and local governments could improve their ability to reach out to the wider public to make their policies known and accessible.

There is an urgent need to improve data collection and data management. Emphasizing the link between local and global think tanks in the spirit of 'Intersecting' is also key to implement assessment and evaluation frameworks across policy and geographic dimensions. These directions should ensure that future development strategies are defined and implemented beyond silos, and that recovering from the Covid-19 crisis is inclusive.

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“Experts are used to converting people on the ground into numbers to feed them into their economic equations. Now, they must listen to the people in the many voices which the people speak.”

– Arun MAIRA, Help Age International, India



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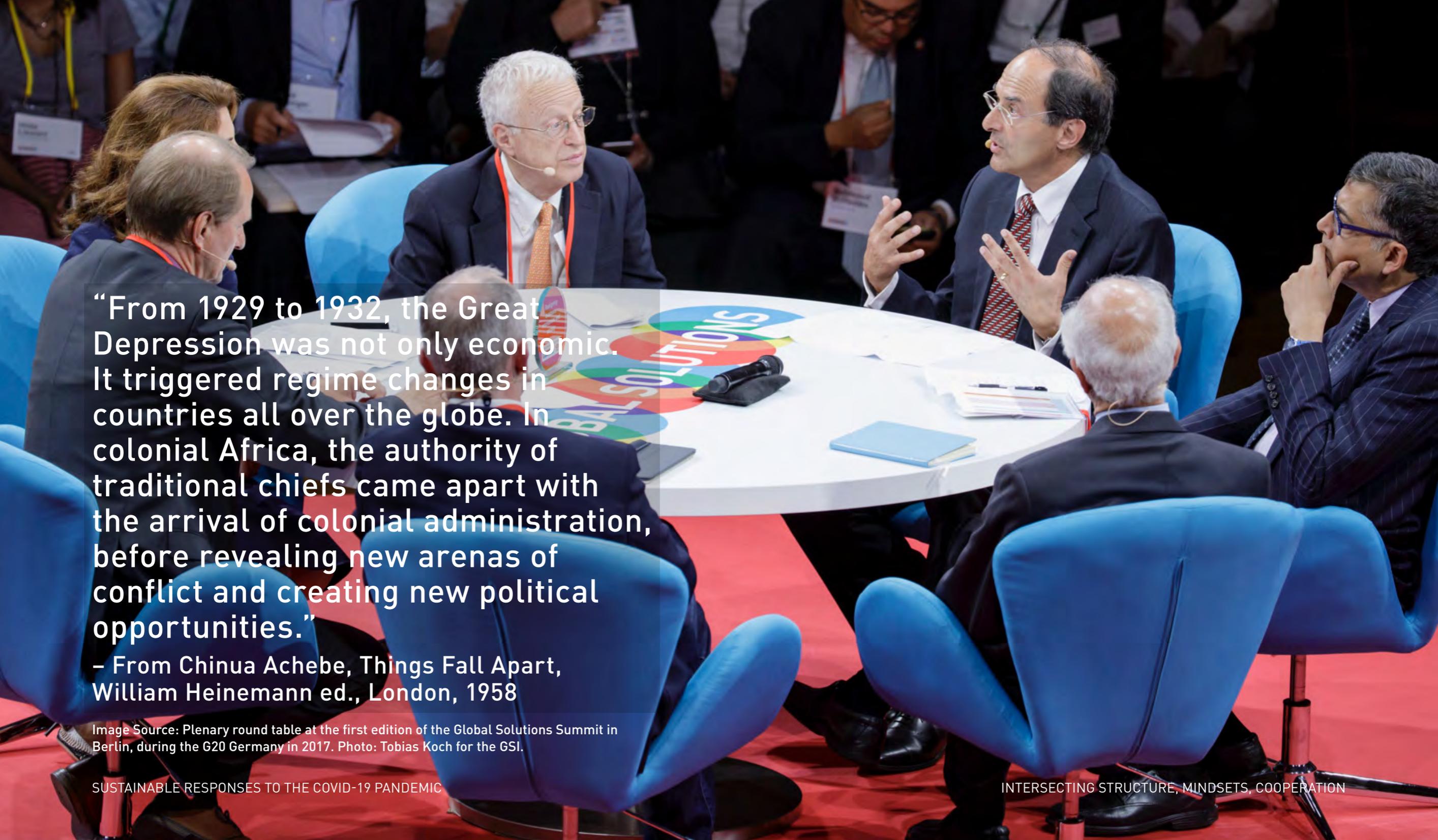
Large-scale protest demonstrations against COVID-19 restrictions in Berlin.

Image Source: Wikimedia Commons. August 29, 2020. "Querdenken" against Corona restrictions at Friedrichstrasse in Berlin, Germany.
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“From 1929 to 1932, the Great Depression was not only economic. It triggered regime changes in countries all over the globe. In colonial Africa, the authority of traditional chiefs came apart with the arrival of colonial administration, before revealing new arenas of conflict and creating new political opportunities.”

– From Chinua Achebe, *Things Fall Apart*, William Heinemann ed., London, 1958

Image Source: Plenary round table at the first edition of the Global Solutions Summit in Berlin, during the G20 Germany in 2017. Photo: Tobias Koch for the GSI.

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