Chapter 8

Higher Education for Pluriversal Diplomacy: Landing the 4IR on Habitable Earth

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Introduction

In the face of the rapidly advancing discourse and reality of the 4IR (Fourth Industrial Revolution), forward-looking practitioners in HE (higher education) began to warn that HE's responses to the 4IR 'have been slow and inadequate' (Gleason 2018:5), and 'to stay relevant in this new economic reality, higher education needs a dramatic realignment' (Aoun 2017:xii). This warning, however, is mostly *reactive* in the sense of accepting the 4IR as the external imperative to which HE must adapt: Given that '[w]hen the economy changes, so must education' (Aoun 2017:xvii), it is now inevitable for IHEs (institutions of higher education) to adopt 'policies and programs to prepare 4IR-ready citizens' (Gleason 2018:9). Such a reactive call for HE reforms has grown only louder since the onset of the Covid-19 pandemic. With the accelerating use of digital technologies – the main drivers of the 4IR – in various domains of the wider society, including but not limited to healthcare, transport, commerce, and manufacturing (Deloitte Development LLC 2020; Schwab & Malleret 2020:151-171), how to digitally transform HE to adapt to the 'new normal' (Gallagher & Palmer 2020; Times Higher Education 2021) has become a focal question in the ongoing HE debate on the 4IR.

There is a minority of scholars in the HE debate who advances a more *proactive* position, aiming to intervene in the 4IR by creating 'a forward-looking framework which enables education and research to actively shape the future of work' (Peters & Jandrić 2019:411). Even this proactive mode of thinking is rarely *critical* in the sense of probing deeply into the 4IR's potential negative impact. Although the proactive mode takes seriously 4IR-related job losses and inequalities in the short run (Peters 2017), it fails to investigate, as it were, the 4IR's 'Achilles' heel' – its impact on Earth (cf. Müller 2018 for a notable exception). As demonstrated by growing research on climate change, intensifying energy use by humans since the 1IR (First Industrial Revolution) has contributed to the drastic increase of CO_2 in the atmosphere and caused

much damage to the natural environment (Bonneuil & Fressoz 2016; Newell & Paterson 2010). Put bluntly, what is the point of transforming HE for the 4IR if much of Earth becomes uninhabitable as the result of successive waves of industrialisation?

Indeed, 4IR advocates are now aware of this simple truth: No Earth, no 4IR. Even the most vocal 4IR advocate, the WEF (World Economic Forum) recently conceded that the potential of 4IR technologies to tackle climate change 'is far from being reached' (WEF 2020a:4) and recalibrated its 4IR advocacy by creating the '2030Vision' platform to channel 4IR technologies toward climate action and other SDGs (Sustainable Development Goals) (WEF 2021a:3-4). However, to what extent will the proposed platform succeed in internalising the 'hazards,' 'hybrids,' and other negative consequences for Earth that the modern industrial world has systematically externalised (Beck 1992; Latour 1993)? Can the 4IR really land on Earth instead of another planet – real or imaginary (cf. Latour 2018:5)? These questions are critical at today's juncture, as the global economy has begun to recover from the pandemic, sharply rebounding the global CO_2 emissions to their highest ever level (International Energy Agency 2022).

I suggest that the HE debate should first address these critical questions about climate change as the ultimate horizon of the 4IR. Only then, HE practitioners can start meaningful conversations on how HE should respond to the 4IR. I specifically propose to reframe the ongoing debate in terms of HE's *public contribution* to preserving *habitable Earth as the common good*. Thus reframed, HE's public contribution can be articulated with two dimensions.

First, IHEs should contribute to the production of climate-change knowledges that enable the public to critically examine the compatibility between the 4IR and habitable Earth. Even in today's so-called post-truth world, expert knowledges continue to matter, not simply because the role of experts has been institutionally legitimated in modern societies (Brint 1994; Stevens, Armstrong, & Arum 2008), but also because they usefully inform policy deliberation on highly technical issues (Jasanoff & Simmet 2017; Nichols 2017). In this regard, it is crucial for HE-based researchers to investigate whether and how the 4IR can really preserve habitable Earth as the common good, and freely share their knowledges with the public.

Second, IHEs should serve as focal sites in the public sphere (Calhoun 2006; Delanty 2001) in which stakeholders, such as policymakers, business leaders, and concerned citizens, can come together to debate the compatibility between the 4IR and habitable Earth. Precisely because both the 4IR and climate change are vastly complex phenomena, HE-based researchers will likely produce heterogeneous and even contradictory knowledges – this is why it is imperative for IHEs to refrain from imposing 'facts' on the stakeholders,

in this way short-circuiting their 'pluriversal diplomacy' (cf. Dunford 2017; Latour 2017). This second dimension of HE's public contribution therefore complements the first one in facilitating, rather than adjudicating, public debates with the latest knowledges of the 4IR and climate change.

To reframe the ongoing debate around HE's public contribution, I believe this volume's focus on Africa helps greatly, for it forcefully foregrounds the dimension of *geohistorical justice* in the 4IR and climate change. As historians and social scientists have shown, the 1IR was coterminous with the colonisation of Africa – the exploitation of its people and natural resources – by the West (Inikori 2002; Nunn 2008). Consequently, the legacy of Western dominance has persisted in the form of neocolonialism and other power asymmetries, foundational to the political and economic order of today's world (Doyle 1986; Steinmetz 2014). Even worse, this geohistorical injustice can be doubled when the West refuses to take responsibility for their past CO_2 emissions that disproportionately contributed to climate change (Newell & Paterson 2010:11-35). In this regard, African perspectives on the relation between the 4IR, climate change, and geohistorical justice have the potential to open up new lines of critical inquiry into how HE's public contribution should be re-envisioned on a global scale.

Rethinking the Fourth Industrial Revolution in Light of Climate Change

Such worldwide re-envisioning is needed because the debate on the 4IR has been globally promoted by the WEF and disseminated through WEF-based networks of influential business leaders and policymakers around the world. Although the 4IR as both discourse and reality is ever-evolving and hard to pin down, the WEF executive chairman, Klaus Schwab (2016:8) originally characterised it as a confluence of 'multiple technologies that are leading to unprecedented paradigm shifts in the economy, business, society, and individually.' These technologies typically include AI (artificial intelligence), robotics, the IoT (internet of things), autonomous vehicles, 3D printing, nanotechnology, biotechnology, materials science, and quantum computing. Because it enables new ways of integrating 'the physical, digital and biological worlds, [the 4IR] is not only changing the "what" and the "how" of doing things but also "who" we are' (Schwab 2016:7-8). Given this profound and far-reaching impact of the 4IR, Schwab insisted that all stakeholders should 'examine [themselves] and the underlying social models that these technologies embody and enable,' so that the 4IR would be 'empowering and human-centred' (Schwab 2016:9).

Then, the discourse and reality of the 4IR accelerated during the Covid-19 pandemic. AI and mobile data collection tools have been deployed for contact tracing and predicting the spread of the disease in populations,

nanotechnology, and biotechnology for the development of mRNA-based (messenger ribonucleic acid-based) vaccines, and 3D printing for producing medical devices and equipment (Signé, Khagram, & Goldstein 2020), while digital technologies have normalised remote work across different sectors of society (McKinsey & Company 2020). The deployment of these 4IR technologies in pandemic preparedness and response has led to the celebration of the 4IR's potential to not only 'beat Covid-19' (Walcott 2020) but also to make businesses and governments more agile and resilient for the post-pandemic world (Lacina & Sault 2021; United Nations Industrial Development Organization 2020).

As Schwab (2021:145) recently warned, however, 'even if we get the Fourth Industrial Revolution right, there is still another global crisis we need to address as well: the ongoing climate crisis.' This is a significant departure from the WEF's previous publications that had emphasised the 4IR's positive contributions to 'radically transform the management of our environmental surroundings' (WEF 2017:8), while only minimally acknowledging its potential negative externalities. Now Schwab (2021:161-162) has openly admitted that energy-intensive 4IR technologies, such as blockchain, robotics, AI, and IoT, were 'so far adding to the ever-expanding human footprint on the environment, [and that] while connected devices make our energy infrastructure smart, that doesn't automatically mean it turns green as well.' This admission came against the backdrop of the growing recognition that the climate crisis was deepening. As the global economy seeks to exit from the pandemic, how many of the carbon-intensive infrastructures, assets, and human behaviours can be shifted down in the coming years, will decisively shape the future of humanity and Earth (Markard & Rosenbloom 2020; United Nations Environment Programme 2020).

Despite their recognition of the 4IR's negative externalities, 4IR advocates like Schwab continue to believe in the promise of 4IR technologies to reduce CO_2 emissions and accelerate the worldwide energy transition toward decarbonisation (WEF 2021b) because, '[u]sed for the right purposes, computers and other smart devices can help save energy and resources, rather than consume more of them' (Schwab 2021:162). Such confidence in the human ability to master science and technology for a better world seems to have been cemented among the 4IR advocates since the WEF launched the 'Great Reset' initiative to take the pandemic as the opportunity for harnessing 4IR technologies to radically transform the economy into a more sustainable one and hence to avert a 'climate catastrophe' (Schwab & Malleret 2020; WEF 2020b). Alongside this initiative, the WEF and its partners also have begun to expand the scope of their advocacy to comprehensively mobilise 4IR technologies to solve all major global challenges, namely SDGs that

include climate action and other goals for environmental protection (WEF 2020a, 2021a).

Here, these 4IR advocates effectively reinforce the 'spirit of modernity' – '"we" understand better the very nature of nature in a way past societies could not see' (Bonneuil 2015:26) – and hence reaffirm their faith in science and technology as the means to master Earth and solve the problems of sustainable development. Nevertheless, it is exactly this modernist faith that set in motion the successive waves of industrial revolutions to produce and externalise invisible and unintended hazards of scientific and technological progress (Beck 2008), ultimately causing the climate crisis that now threatens the existence of humans and other species on Earth.

Moreover, the modernist faith not only denies the long-term and unintended side effects of scientific and technological progress (Beck 1992), but also naturalises the sharp separation of 'humanity' from 'nature' (Latour 1993). Take, for example, Schwab's initial emphasis on the 4IR's 'human-centeredness': Positing Earth-as-a-passive-object to be managed by humanity-as-an-active-subject, he celebrated that 'the fourth industrial revolution will greatly increase our ability to address negative externalities' on Earth and advocated that this increased ability should be fully embraced because it could 'boost potential economic growth' for humanity (Schwab 2016:36). Even though Schwab (2021:176) has recently elevated Earth to 'the central stakeholder in the global economic system [and argued that] its health should be optimized in the decisions made by all other stakeholders,' his global stakeholder model continues to keep 'people and planet' as separate entities. In reality, however, humans are interdependent with Earth's life-supporting mechanisms, including but not limited to certain chemical compositions of air, water, and soil. 'Human' is never an actor, independent of their natural environment, but only an *actor-network* whose existence is distributed far beyond the boundaries of their biological cells, and hence enabled by numerous connections with nonhumans that make up Earth (cf. Latour 2004, 2017).[1]

At the deepest level, then, rethinking the 4IR in relation to climate change, calls into question the modern ontology of humanity-versus-nature as well as the modernist faith in science and technology. Put another way, if climate change is the consequence of modernity *per excellence*, can the 4IR – the latest expression of 'the spirit of modernity' – really offer an effective solution? Will the 4IR-driven Great Reset ever succeed without simultaneously 'resetting modernity' (Latour & Leclercq 2016)?

1 Thich Nhat Hanh (2017), a Buddhist monk and peace activist, illustrated this relational conception of humanity as 'interbeing' throughout his long teaching and writing career.

Higher Education's Response: Reactive, Proactive, and Critical

Rather than raising these critical questions to probe the limits of the 4IR, a majority of HE practitioners seem to have already accepted the 4IR as the external imperative to which HE must adapt, thinking that it is the only way to maintain HE's relevance in the fast-changing world. Such a *reactive* mode of thinking manifests in two of the major contributions to the HE debate on the 4IR to date: *Robot-proof: Higher education in the age of artificial intelligence*, by Joseph Aoun, the president of Northeastern University, and *Higher education in the era of the Fourth Industrial Revolution*, edited by Nancy Gleason, former director of the Centre for Teaching and Learning at Yale-NUS. To begin with, Aoun (2017:xv) observed that 'the existing model of higher education has yet to adapt to the seismic shifts rattling the foundations of the global economy,' increasingly driven by AI, machines, and other 4IR technologies. He reached this realisation while carefully studying the 'views from the C-suite: what employers want, in their own words' (Aoun 2017). Similarly, in the introduction to her edited volume, Gleason extensively surveyed the reports on the future economy and work by the WEF, McKinsey Global Institute, and other business-knowledge producers, and argued that 'HE needs to change to better prepare thinkers of the 4IR' in the ever more automated, digitised, and technology-driven world (Gleason 2018:5).

Ultimately, the reactive mode of thinking by Aoun and Gleason stems from their shared assumption that the primary purpose of HE should be *vocational* and *instrumental*, 'to prepare students for fulfilling – and successful – roles in the professional world' (Aoun 2017:xv) and 'to prepare them for a productive life' (Gleason 2018:5). Here, coterminous with their emphasis on HE's vocational and instrumental value, is their focus on its *private-good* aspect, in which *individuals* are to be educated to expand their cognitive capacities for working successfully with machines and other 4IR technologies. According to Aoun (2017:xix), these cognitive capacities include systems thinking, entrepreneurship, cultural agility, and critical thinking, among other 'higher-order mental skills.' Building on Aoun's observation, Gleason (2018:6) also urged HE to help students to acquire creativity, cognitive flexibility and agility, and other elements of 'the higher order thinking that is needed in the 4IR.' For both Aoun and Gleason, these higher-order thinking skills constitute the essential traits of successful learners who can keep upskilling themselves to stay employable in the 4IR-driven world.

This reactive mode of thinking has only intensified since the pandemic stimulated the discourse and reality of the 'digital transformation of HE.' For example, Sean Gallagher, Executive Director of Northeastern University's Center for the Future of Higher Education and Talent Strategy, suggested that because HE 'has significantly lagged behind other industries' in digital

transformation, HE leaders and policymakers should embrace the pandemic as an opportunity for creating 'digital "credentialized packages" of learning and mastery valued by employers' (Gallagher & Palmer 2020). Similarly, Times Higher Education (The World University Rankings 2021; cf. Mihai, Cheung, Bali, & Wigham 2020) has organised forums and events to explore how digital and other 4IR technologies could help IHEs to innovate teaching and learning to better support lifelong upskilling.

To be sure, the reactive mode of thinking is rightly student-centred because one of the most immediate and urgent concerns among students is how to make a living upon graduation, for modern education systems have institutionally coupled schooling with occupation at the societal level by validating academic credentials as the proxies of competence while distributing it unequally in the population (Bourdieu 1983; Meyer 1977). Such an institutional linkage between schooling and occupation has further been reinforced worldwide by policymakers and business leaders who regard education as an essential means of economic growth (Schofer & Meyer 2005). Thus, the emphasis on the vocational and instrumental value resonates, at least partially, with HE's publicness: By increasing the individual graduate's employability (human capital *cum* private good), HE contributes to the public, albeit narrowly defined in economic terms.

Ultimately, however, the reactive mode of thinking disempowers HE by leaving it no choice but to adapt to the parameters set by the economy. Given the dominance of this mode of thinking, a significant part of the HE debate on the 4IR simply accepts the agendas promoted by the WEF and other thought leaders in business and government, instead of asking how HE can actively reshape the agendas. In fact, the reactive mode of thinking has prevented HE practitioners from keeping up with the frontier of the 4IR debate on climate change: Although they make brief references to climate change, they never thematise it as a focal point of the HE debate on the 4IR (e.g., Aoun 2017; Gleason 2018).

Nevertheless, a more *proactive* approach has been advocated by a minority of HE practitioners. For example, the Universities of the Future project, co-founded by IHEs, companies, and the Erasmus+ Programme of the European Union (Universities of the Future 2020:iii of 60), observed that '[t]here are two main approaches that educational systems may take towards I4.0 (Industry 4.0): Educating followers or change makers.' Instead of educating followers of the 4IR, the initiative set out 'to identify skills that are essential' for educating change makers who could lead the 4IR in an innovative fashion. Along the same lines, Michael Peters and Petar Jandrić (2019:408) proposed a new model of HE – 'the creative university as the digital public university' – to intervene in the 4IR and actively shape the future of work based on the following principles:

> 1) User-centred and open-innovation public knowledge ecosystems. 2) Shared ethos underlying 'co-production,' 'co-creation,' 'co-design,' and 'co-responsibility.' 3) New platforms to utilize collective intelligence and commons-based peer production. 4) Focuses on the links between openness and creativity; design and responsibility. 5) Radical openness, interconnectivity, and interactivity – shift from industrial broadcast media (one to many) to new social media (many to many) (Peters & Jandrić 2019:408).

This proactive mode of thinking thus aims to position IHEs as coparticipants in the 4IR along with businesses, governments, citizens, and other stakeholders.

Yet, the proactive mode of thinking shares with its reactive counterpart the modern ontology that externalises and dumps the unintended consequences of scientific and technological innovations into 'nature.' For example, although Peters and Jandrić (2019:403) have foregrounded 'technological unemployment' as one of the short-term negative externalities of the 4IR that 'destroys more jobs than it makes,' their perspective remains decidedly modern and human-centric, failing to consider climate change as well as other environmental problems that are already threatening the very existence of humanity on Earth. The fact that even the proactive mode of thinking trails behind the latest 4IR debate on climate change may well vindicate Schwab's criticism of 'research conservatism in academia' that makes HE practitioners unfit for working with other stakeholders to pursue 'forward-thinking ideas' for the 4IR (Schwab 2016:27).

In this regard, Eduard Müller's work is an exception because it *critically* examines the relation between HE and the 4IR, starting with the recognition that Earth is in trouble because humans 'have promoted degenerative development with massive resource extraction' (Müller 2018:130). To prevent the 4IR from exacerbating degenerative development, Müller urged HE institutions to incorporate into their research, curriculum, and administration the idea of 'regenerative development,' i.e., reconstructing the existing measures of development that disregard environmental degradation, empowering local knowledge and participation in environmental governance, and strengthening people's environmental consciousness. Müller's mode of thinking is not only proactive but also critical in the sense of probing how HE can and should reshape the 4IR so as to keep Earth habitable. Such a critical mode of thinking is indispensable because, for the foreseeable future, climate change will remain the ultimate horizon of all economic, political, and social challenges around the world (Beck 2016). Although economic inequalities, refugee crises, racism, pandemics, and many other contemporary problems are all urgent in their own light, how effectively they can be addressed and resolved in the long run will fundamentally depend on how much of Earth can

be kept habitable. Here, HE practitioners have an urgent task – to promote and expand this critical mode of thinking in the HE debate on the 4IR by bringing climate change into the equation.

Higher Education for Habitable Earth as the Common Good

To this end, I propose to reframe the ongoing HE debate on the 4IR from the vantage point of *habitable Earth as the common good*: Without habitable Earth, neither the 4IR nor HE can be sustained. This reframing also foregrounds the fundamentally public nature of HE itself (Marginson 2016; Saito 2018, 2019), going beyond the reactive and proactive modes of thinking that are primarily concerned about individual employment outcomes as private goods. Put another way, what kinds of public contributions might HE be able to make in critically reshaping the trajectory of the 4IR for habitable Earth?

I argue that the first public contribution of HE will revolve around the production of knowledges about climate change, including the 4IR's climate impact. In fact, climate change is an exceedingly complex phenomenon, consisting of ecological, technological, economic, and many other components that spatially encompass the entire globe (Beck 2016:99). The production of knowledges of such a phenomenon thus requires the mobilisation of scientists, instruments, laboratories, and facilities that are simultaneously dispersed and networked across national borders (Edwards 2010). Here, IHEs are best positioned to mobilise these sociotechnical infrastructures for the production of climate-change knowledges because the expansion of professional associations of HE-based researchers, as well as the internationalisation of IHEs, has created extensive networks of multinational research collaborations (Drori, Meyer, Remirez, & Schofer 2002).

Moreover, IHEs and their research activities are organised around the logic of 'truth,' in contrast with other knowledge producers, such as corporations and governments that operate according to the logics of 'money' and 'power,' respectively (cf. Friedland & Alford 1991). This institutional logic of HE-based research enables the production of climate-change knowledges that are scientifically more rigorous and less burdened with conflicts of interest. Indeed, because the function of IHEs as the most legitimate knowledge producers has been firmly institutionalised in modern societies (Brint 1994), corporations, and governments as well as think tanks and foundations, including the WEF, need to work with HE-based and HE-trained experts. In this regard, I suggest that IHEs embrace their epistemic authority as 'temples' of modern societies (cf. Meyer 2000; Stevens *et al.* 2008) and actively participate in the ongoing debate on the 4IR by providing stakeholders with the latest knowledges of the 4IR's climate impact.

At the same time, it is crucial to emphasise that IHEs-as-temples are deeply implicated in worldly struggles for the power to shape the trajectory of the 4IR *vis-à-vis* the future of Earth. Not only researchers in science and technology studies (Jasanoff 2006; Jasanoff & Kim 2015) generally acknowledge that knowledge and power are co-produced, but also Ulrich Beck (2016:96; original emphasis) specifically observed that 'the politics of global risk [e.g., climate change] is, first of all, intrinsically a *politics of knowledge*.' While HE-based researchers may think that they simply describe and explain the 4IR's climate impact, they are in fact shaping the politics of climate change by providing policymakers, business leaders, NGOs (non-governmental organisations), and other stakeholders with conceptual models and empirical findings as rationales for justifying their positions on the compatibility between the 4IR and habitable Earth. Because HE-based researchers inevitably play such a performative role in the politics of climate change, their affiliated institutions become 'obligatory passage points' (Callon 1984) for stakeholders who want to advance their own positions.

However, to what end should this performative power of IHEs-as-temples be deployed, or to which direction should IHEs-as-obligatory-passage-points steer the politics of climate change? I suggest that the performative power of IHEs should be deployed to move the politics of climate change in the direction of *pluriversal diplomacy*, 'a negotiation that can begin precisely only because there is *no longer a higher arbiter* – neither power, nor law, nor nature' (Latour 2017:259; original emphasis). The starting point for such pluriversal diplomacy is the recognition that different stakeholders, advancing different positions on the compatibility between the 4IR and habitable Earth, live in different realities, i.e. *the plurality of universes*. Only when stakeholders fully understand how radically different they are, they can finally start a peaceful negotiation for peace, for the non-recognition of difference by one party can breed indifference to, disrespect for, and violence to another party.

To this end, IHEs should provide all stakeholders with the latest research findings about the 4IR's climate impact with all its complexity, ambiguity, heterogeneity, and even contradictions: Such 'epistemic pluralism' can be consciously advanced through, for example, more inter- and transdisciplinary research that foregrounds the diversity of perspectives as well as '[a]lternative research methodologies, such as participatory action research,' by which HE-based researchers and other stakeholders collaborate to co-produce knowledges (UNESCO 2022:15). Here, accepting the plural realities of the compatability between the 4IR and habitable Earth, is the first step in preparing the stakeholders for an arduous negotiation that aims to gradually unify their multiple universes to the extent that they can coexist peacefully on, and with Earth. Importantly, this kind of peace is '[n]ot a *pedagogical* peace obtained through the older science-*versus*-politics repertoire [where]

war is simply the irrational mistake of those who have not understood the laws of nature or of economics' (Latour 2015:153; original emphasis). That is, IHEs as temples of pluriversal diplomacy only facilitate the open-ended, collective exploration of peaceful coexistence among all stakeholders on Earth, rather than pre-empting such exploration through the imposition of 'scientific truths.'

This role of IHEs as the facilitators of pluriversal diplomacy points to the second kind of their public contributions, i.e., to serve as focal sites in the increasingly global public sphere for critically debating the compatibility between the 4IR and habitable Earth (cf. Calhoun 2006; Delanty 2001). This is possible because, as UNESCO (United Nations Educational, Scientific, and Cultural Organisation) (2022:20, 60 of 101) rightly recognised, HE is institutionally 'open to novel and critical thinking [and therefore] the ideal setting for pluralizing views of the world… by way of dialogue with different sectors of society and with different ways of knowing.' Then, through international symposia, forums, webinars, and many other events open to the public, IHEs can jointly create discursive spaces and networks for relevant stakeholders to come together across national borders to exchange their plural views on the 4IR's climate impact.

In so doing, however, IHEs must specifically be conscientious to prevent power relations among different stakeholders from prematurely concluding the collective exploration of peaceful coexistence on Earth. Put another way, peace should not be pursued at the expense of justice, as Judith Shklar (1990:118) remarked, 'We often choose peace over justice, to be sure, but they are not the same. To confuse them is simply to invite passive injustice.' In the context of climate change, this means that humanity's joint effort to obtain peace with Earth should not ignore injuries that one group of humanity has inflicted on another:

> Behind the cosy language used to describe climate change as a common threat to all humankind, it is clear that some people and countries contribute to it disproportionately, while others bear the brunt of its effects. What makes it a particularly tricky issue to address is that it is the people that will suffer most that currently contribute least to the problem, i.e. the poor in the developing world (Newell & Paterson 2010:7).

Here, the question of peaceful coexistence on Earth is 'directly tied to questions of injustice and inequality' (Latour 2018:3).

This question about justice in the context of climate change is fundamentally *geohistorical* in the sense that '[t]he industrial development model and its metabolism in terms of matter and energy, which altered

the geological trajectory of our Earth, is inseparable from the history of capitalist world-systems, of unequal ecological exchange, of colonialism and imperialism, of exploitation and underdevelopment' (Bonneuil & Fressoz 2016:228). Indeed, the 1IR as well as the Great Acceleration after the Second World War was made possible by the relentless exploitation of human and natural resources of the Third World by the First World, ranging from slave trade and labour in colonial times (Inikori 2002; Nunn 2008; Pomeranz 2000) to unfair trade agreements and development aid that perpetuated power relations in postcolonial times (Doyle 1986; Steinmetz 2014).

Importantly, this issue of geohistorical justice confronts all stakeholders in climate change and the 4IR with the question of 'intergenerational responsibility' (Spinner-Halev 2012; Thompson 2002). As Hannah Arendt (2003:147) observed, 'There is such a thing as responsibility for things one has not done; one can be held liable for them. But there is no such thing as being or feeling guilty for things that happened without oneself actively participating in them.' This is because descendants of a perpetrator group, though not guilty of past violence that their predecessors committed, still inherit the benefits of past violence, such as economic gains accrued through colonialism. Geohistorical injustice is therefore 'enduring' (Spinner-Halev 2007) in the sense of remaining unaddressed as '[m]ost former colonial powers have not even begun to come to terms, in any sort of meaningful way, with their imperial pasts – frequently refusing to compensate even surviving victims of terrible and obvious wrongdoing' (Butt 2015:183). Moreover, geohistorical injustice is 'structural' (Young 2011) in the sense that the systemic factors that historically undergirded colonialism, such as racism and power asymmetry, continue to be reproduced both domestically and internationally today. In other words, if '[t]he global risk of climate change is a kind of compulsive, collective memory – in the sense that past decisions and mistakes are contained in what we find ourselves exposed to' (Beck 2016:36), past mistakes that humans committed against each other must be remembered and redressed along with those they committed against Earth.[2]

It is therefore imperative for IHEs to remind all stakeholders in climate change and the 4IR of the issue of geohistorical justice so as to avoid the premature unification of multiple universes that will risk downplaying inequalities and conflicts within humanity, both past and present. In particular, the question of intergenerational responsibility can help prevent the doubling of geohistorical injustice that would entail permitting the First World, especially former colonial powers, to blame the Third World for the

2 Here, the emerging discussion of 'pluriversal dialogue' in the field of decolonial studies (Dunford 2017) can help foreground this *human* aspect of geohistorical justice along with the geological one.

latter's growing CO_2 emissions while refusing their own responsibility for having disproportionately contributed to climate change.

In this regard, I suggest that the HE debate on the 4IR – and, more generally, the worldwide debate on the 4IR – should focus on Africa, the continent that has suffered arguably the most severe and persistent form of geohistorical injustice. In fact, Africa has been rarely featured in the worldwide debate on the 4IR because the 4IR readiness among African countries is low (WEF 2018). However, precisely because this low 4IR readiness was caused by the longstanding subordination of Africa in international politics and economy, focusing on Africa can help radically reframe the debate on the 4IR around geohistorical justice, alerting stakeholders to the extensive and continuous damages that the successive waves of industrialisation have inflicted on some groups of humans inhabiting Africa and other parts of Earth that were formerly colonised. This is why this book's focus on Africa is critically important: HE practitioners in Africa are best positioned not only to transform the worldwide debate on the 4IR to engage with the issue of geohistorical justice, but also to help the HE debate on the 4IR to better articulate HE's public contribution as a temple of pluriversal diplomacy.

Conclusion and Future Directions

My proposal to champion HE's public contribution may appear too idealistic at first, given the dominant trends over the past several decades that promoted the commercialisation of research and the commodification of education (e.g., Bok 2009; Slaughter & Rhoades 2004). In many ways, these trends have been reinforced by the Covid-19 pandemic that prompted IHEs to scramble for digital transformation to adapt to the economic imperatives of the 4IR-driven post-pandemic world (Times Higher Education 2021; Mihai *et al.* 2020; The World University Rankings 2021). Nevertheless, there is also a growing worldwide movement to reclaim HE as the common good. For example, the Global University Network for Innovation (2012, 2014, 2017) has been engaging practitioners around the world to jointly contribute to urgent public issues such as sustainability, social responsibility, and social change. Moreover, the Higher Education Sustainability Initiative, jointly established by the United Nations organisations and IHEs around the world, have convened annual forums since 2016 to highlight HE's critical role in achieving sustainable development (United Nations Department of Economic and Social Affairs 2022).

Thus, this chapter aims to advance the growing worldwide movement for re-envisioning HE's public contribution in the context of the ongoing debate on the 4IR. I have specifically proposed to articulate HE's public contribution around habitable Earth as the common good. Given their longstanding role as

temples of modern societies, IHEs have an important performative role to play in reshaping the worldwide debate on the 4IR: To inform all stakeholders with the latest knowledges of the 4IR's climate impact and to facilitate pluriversal diplomacy among stakeholders with radically different positions on the compatibility between the 4IR and habitable Earth. Such reframing of the worldwide debate around climate change as the ultimate horizon of the 4IR is one of the most critical and public contributions that IHEs can offer today.

In conclusion, I would like to intimate a further line of critical inquiry that can extend HE's role in pluriversal diplomacy. While this chapter has focused on two dimensions of HE's public contribution – to produce knowledge as a common good and serve as a focal site of public debates – I suggest that there is yet another, unexplored dimension: The cultivation of what can be called 'cosmopolitan wisdom,' a fundamentally practical and deeply embodied form of being, understanding, and acting that embraces pluriversality. This is because IHEs cannot effectively facilitate pluriversal diplomacy if stakeholders lack the practical art of peaceful communication with pluriversal others, that is, those who inhabit radically different realities of climate change and the 4IR.

The first step to acquire this art of peaceful communication is to cultivate a reflective skill to become aware of one's own cognitive biases, emotional reactivity, and automatic thoughts that turn other *parties* into *enemies*, escalating disagreements into violent conflicts. To say the least, stakeholders in climate change and the 4IR need to become fully aware that '[b]y believing oneself to be a bearer of salvation, one becomes the apocalypse for others' (Latour 2017:206). Once this awareness is cultivated, the next step is to transform one's unwholesome mental habits into more wholesome ones, capable of sustaining peaceful communication with pluriversal others. Here, a process of seeking peace must already embody peace, as A.J. Muste, Mahatma Gandhi, Thich Nhat Hanh, and many other activists observed that there is no path to peace because ultimately peace is the path. Indeed, these two steps in the internal cultivation of cosmopolitan wisdom have already been suggested in the well-known and inspiring preamble of the UNESCO constitution (UNESCO 2022:4 of 101): 'Since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed.'

To help cultivate such cosmopolitan wisdom as an essential requirement of pluriversal diplomacy, IHEs must become more inclusive towards multiple modes of learning about oneself and the world (Eaton, Hughes, & MacGregor 2017; Lin, Oxford, & Brantmeier 2013). Although IHEs have traditionally privileged scientific thinking and other intellectual modes of being, understanding, and acting in the world, an effective response to climate change requires the cultivation of the reflective skill for phenomenologically exploring the internal world – cognitive, affective, and other psychological processes that profoundly shape how one processes climate-change

knowledges and responds to other stakeholders whose positions on the compatibility between climate change and the 4IR are radically different. Thus, the third dimension of HE's public contribution can be articulated in terms of the cultivation of cosmopolitan wisdom that enables all stakeholders to participate in pluriversal diplomacy, to peacefully pursue their peaceful coexistence on, and with Earth, while much remains to be done on this third dimension.

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