

Entanglements of Sustainability in Dhaka: The Complications of Deploying Technological Solutions to Capitalist Problems

Steffen Dalsgaard, Hasib Ahsan

Abstract

This article focuses on the ways that technological initiatives aimed at contributing to the sustainability of human lives in Dhaka, Bangladesh, are coupled to social, economic and environmental issues that at best have no easy solution, and at worst leads initiatives to worsen one issue as they try to solve another. With a starting point in ethnographic observations made during a research visit in July 2023, we present how such initiatives and their underlying visions of technological transformations operate in relation to the contemporary vagaries of an international capitalism, which itself is sustained by a faith in technological solutions. Our observations lead us to pay attention to how both the vulnerabilities to the hazards exacerbated by climate change, and the alleged technological solutions to mitigate these hazards, are tied up in social inequalities related to income, class and consumption, but also how they are coupled or decoupled from populations in the Global North, whose purchases sustain local economies in Bangladesh. Namely, discussions of the way that new technological transformations impact upon the environment, or the climate, or sustainability more generally, often take a starting point in the processes of digitalisation taking place in the Global North, where the solutions to climate change are often assumed by mainstream political and industrial actors to be technological and often digital. This article thus aims – through the deployment of ethnographic sensitivity – to shift the digitally focused gaze to a reiteration of the bigger question of how capitalism is multifariously involved in climate change and sustainability more broadly through technological means.

Keywords: digitalisation, climate change, technology, sustainability, environment

Steffen Dalsgaard, Technologies in Practice Section, IT University of Copenhagen, Copenhagen, Denmark 

Hasib Ahsan, Technologies in Practice Section, IT University of Copenhagen, Copenhagen, Denmark 

Introduction

This article provides a discussion of the ways that technological initiatives aimed at contributing to the sustainability of human lives in Dhaka, the capital of Bangladesh, are coupled to social, economic and environmental issues. We argue that these mutually entangled issues – by some referred to as ‘wicked problems’ (Rittel & Webber 1973) – have no easy solution,

and at worst the deployed technological initiatives will often worsen one issue as they try to solve another. With a starting point in ethnographic observations made during a research visit to Bangladesh in July 2023, we present how such initiatives and their underlying visions of technological transformations operate in relation to the contemporary vagaries of an international capitalism, which itself is sustained by a faith in technological solutions. In this way, we align ourselves with social science critiques of technological ‘solutionism’ (e.g. Morozov 2014; Green 2019; Crawford 2021) to engage in a broader discussion of the relation between technology, sustainability and global inequalities entailed by contemporary capitalism.

While the plan for our research visit was to meet with software companies, garment industrialists and municipal planners to investigate how IT was deployed as a tool for decoupling economic growth and climate impact from each other (see Dalsgaard 2022), our observations in the city led us to pay attention to how the vulnerabilities to the hazards exacerbated by climate change, and the alleged technological solutions to mitigate these hazards, had been tied up in social inequalities. It also showed to us how the conditions for these vulnerabilities are coupled or decoupled from the lives of populations in the Global North, whose purchases sustain local economies in Bangladesh. That is, like others before us we will argue that discussions and initiatives aimed at promoting sustainability in the Global South cannot be seen in isolation. Initiatives cut across sectors – electrification affects climate change, which again affects health issues, which again can be related to labour opportunities, income, class and consumption, and much more. Initiatives also connect across global divides. At the same time, we argue that discussions of the way that new digital transformations impact upon the environment, or the climate, or sustainability more generally, can also not assume a starting point in the processes of digitalisation taking place in the Global North, where the solutions to climate change are often assumed by mainstream political and industrial actors to be technological and often digital (e.g. Dalsgaard 2022). Conversely, many initiatives as well as challenges faced by actors in the Global South are instructive to some of the difficulties that different human societies (North or South) are facing, and according to some observers (e.g. Ghosh 2021), populations in the Global South such as Bangladesh are less likely to see climate change as a technological issue. To them it is about the geopolitics of a western-dominated capitalism. For these reasons, our article speaks to a bigger question of how capitalism is multifariously involved in climate change through technological means.

We suggest that discussions of capitalism such as David Harvey’s work on neoliberalism (2005), and Kim Fortun’s stress on a “late industrialism” (2014), along with similar attempts at emphasising the uneven geographies and sociocultural perceptions of the global economic system, point to the prominent role that qualitative social scientific explorations ought to have in understanding how (often digital) technologies, economic production and responses to various forms of crisis come to be coupled or decoupled across global time and space. Dhaka is a rapidly growing megacity which a recent UN population report estimates to have 37 million inhabitants – expected to grow to be the world’s largest city by 2050 (United Nations 2025). Already today it suffers from severe climatic and environmental problems of increasing heat and air pollution. It is also home to a garment industry, which feeds the world market with fashion. Partly as a result of this global connectivity, there is international scrutiny on a range of its local sustainability issues and how they can be improved, socially or technologically. Altogether, Dhaka can thus be construed as a striking example of the complications of contemporary global capitalism, and a site where the neoliberal order of

international trade agreements and governance of labour meets the hazardous leftovers from a late industrialist mode of production. As argued by Kim Fortun (2014) in a commentary on Bruno Latour's AIME project, "it is not just the chemical haze [of late industrialism] we need to worry about, though we must keep it in mind and learn to deal with it in practice. There is also conceptual haze, a cumulative effect of habits of relation, mind, and politics that makes it difficult to see the conditions of our times." (2014: 325). Taken together, the observations we made during our fieldwork made us think about the global couplings – mostly asymmetrical – hidden in this conceptual haze. We are here thinking of couplings of the contrasting expectations to value generation held by multiple actors dispersed across the globe, the asymmetrical way in which these actors at any given time impact upon the social lives of each other, and by which sociotechnical means they do so. Analytically, we thus pursue what we see as a description of contemporary capitalism in practice by doing what Latour advocated prior to the AIME project: that the analyst must describe and trace relations or associations (Latour 2005). While Fortun (2014: 315) has reservations about the things that Latour's AIME work leaves unaddressed (history, paradoxes, conflicts of interest etc.), we still think his original sociology of associations otherwise referred to as actor-network theory is a way to navigate the conceptual haze and encounter both the connects and the disconnects, and the internalisations as well as the externalisations of the political economic system.

In what follows, we approach this by moving across three 'clusters' of urban sustainability issues facing inhabitants in Dhaka, where discussions of technological 'solutions' play a dominant role: health, electrification and labour. We use the term cluster merely as a heuristic to refer to related, yet for our purposes of presentation separate, empirical themes, which we present in the order that they emerged from our fieldwork. This also serves the purpose of giving the reader a sense of Dhaka as an ethnographic setting. Our original questions of urban infrastructures came to first relate to responses to a dengue epidemic, which again come to relate to the changing climatic conditions (heat and humidity) that allowed dengue-infested mosquitos to spread (cluster 1). These questions about urban conditions of living were again related to the polluted air of the city, which again led us to pursue questions of the provisioning of renewable energy on the one hand, and more sustainable (non-polluting) forms of public transport on the other (cluster 2). A final major sector of importance to discussions of sustainability, and especially late industrialism, is the garment industry. It is the country's largest consumer of electricity, and along with initiatives to reduce its pollution of local waterways, it is also entangled – in the name of sustainability – with tech-driven attempts to reconfigure labour and working conditions (cluster 3). What the issues of these clusters have in common is not merely their mutual interlinkages related to class and inequality, but that any proposed technological solutions – whether infrastructural or digital – arguably come with other problems which may stem from and often exacerbate such inequalities. Finally, we pursue a discussion of these with references to the above-cited critiques of capitalism among others, which helps us link the problems in the Global South to technologically determined initiatives taken in the Global North.

Cluster 1: Infrastructures produce heat and mosquitos

One of our main purposes in Dhaka was to study national and urban climate mitigation initiatives, and especially how digital technologies could play a role in this. Yet already on our first appointment with senior city government officials we had to make changes to our schedule due to a dengue epidemic spreading rapidly within the humidity of the urban space.

While the dengue emergency at first appeared to be far from our original research topic, once we started pursuing the integration of digital technologies and energy infrastructures in the city-scape, the themes came to be more closely related than we have originally thought. The emergency meant that our contact person in the municipal government and many people in his team were commandeered out of their offices to clean up gutters around the city, because they provided breeding grounds for mosquitoes. Dhaka is a bustling metropolis with intense and sometimes chaotic traffic of cars, scooters, busses and ‘CNGs’ (elsewhere known as tuk-tuks). The first of six metro rail lines has recently opened to alleviate the road congestion, and a subway is also under construction (Adhikary 2023). As with other cities of southern Asia (Wee 2022), the concrete and the tarmac of the built environment retains heat in what is popularly known as the ‘heat island effect’ (e.g. Deutsche Welle 2023), and the temperature has risen in recent years likely due to a combination of climate change and the onset of El Niño. The individual response (from the more affluent) is to install air condition (Mortuza 2022). Yet cooling the indoors comes with the cost of spewing out more heat into the streets, where the more disadvantaged citizens only have the shade from trees or buildings to help them. To cool the cityscape, urban planners – between 2023 and 2024 with input from a newly appointed ‘Chief Heat Officer’ (Mostofa 2024) – attempt to retain water in the city in basins and lakes, but together with waterlogging and a frequently blocked drainage and sewerage system after the seasonal monsoon downpours, these water reservoirs provide excellent breeding grounds for mosquitoes, which then increases the risk of dengue and other mosquito-borne diseases. Indeed, the combination of high-density population, rapid and unplanned urbanisation and atmospheric changes in the form of heavier rainfall and higher humidity are said to exacerbate the outbreaks (Bonna et al. 2023), and the outbreak in 2023 was reported by the World Health Organization to be the worst on record (WHO 2023). Climate change is also frequently connected to increases in the prevalence of dengue (e.g. Nabil 2024).

Where the severity and risk of dengue and other epidemics can be related directly to climate change, the attempts to devising urban infrastructural solutions on the one hand involve the direct control of water which is both manual (cleaning of gutters and sewers) but also frequently technological via data-sensing equipment used in attempts to predict, control and direct flows of water. During an interview with a senior municipal public servant, we were introduced to a ‘Smart Dhaka policy’ based on the vision of making municipal government decisions more data-driven. It included such collection of data (on water, air quality etc.) but also initiatives to increase public participation and coordination (see also Banu 2023). This policy thus on the other hand touched upon ideas for more indirect and long-term solutions promoted to mitigate climate change by national and municipal authorities. Our specific interest here was the initiatives put in place to reduce energy consumption in combination with the provision of cleaner energy. By this we refer to cleaner not only in terms of lower emissions of greenhouse gasses, but also in terms of air pollution. Dhaka’s air is frequently labelled unhealthy to breathe, even when compared other cities of the region. In December 2024, it was reported to reach yet another high (Islam 2025).¹ In 2024 Bangladesh ranked six last out of 180 countries on Yale University’s Environmental Performance Index.² This points to environmental challenges on a variety of parameters with air pollution and

¹ See for example the air quality monitoring website <https://aqicn.org/station/@469258/#/z/12> (accessed November 23, 2025).

² See <https://epi.yale.edu/epi-results/2022/country/bgd> (accessed November 23, 2025).

greenhouse gas emissions among them. Much of the air pollution originates from sources in neighbouring India, but the energy mix of Bangladesh itself is according to the website Electricity Maps also largely made up of fossil sources,³ although with nuclear and renewables in the making (Sarker 2023). Western tech-oriented commentators addressing clean energy transitions stress how ‘electrotech’ – technologies that engender electrification from renewables – is expanding rapidly in the Global South (Ember 2025). However, the roll-out of electrification involves a plethora of crisscrossing interests, and their success in reducing emissions or air pollution is by no means automatic.

Cluster 2: Electrification through bottom up or top down initiatives

To highlight the relations of social inequality entangled with electrification initiatives, we will here contrast two different technological transitions that both potentially could benefit the urban population by reducing air pollution. One (about the production of electricity) has been implemented top down through national legislation, the other (about decarbonisation of urban transport through electrification) has emerged bottom up through informal sector entrepreneurialism.

Taking the latter first, one of Bangladesh’s more notable ‘clean’ energy transition examples is electric rickshaws propelled by batteries rather than by gasoline (or the legs of a cyclist, which is not humanely sustainable in the increasing urban heat). This electrification of transport has come about earlier and faster than the similar electrification of vehicles in the Global North (e.g. Khan 2020), and it emerged on the initiative of small-scale importers and manufacturers in the country’s informal economy. It has happened without any formal support from national policy and without any central organisation or design. The electric rickshaws have in fact faced opposition from national elites (including industrial lobbying organisations) and they have been banned on major roads in metropolitan areas and thus primarily relegated to operate in side streets in Dhaka and in rural areas. The justification is that they are deemed unsafe and are contributing to the chaotic status of urban traffic. As characteristic of the unregulated informal sector, their emergence and popularity have been said to show the incompatibility between the grand technology-centric narratives of sustainability propagated by the state and national business elites, and the practices of small-scale actors that may be both energy- and resource-efficient (van der Straeten 2022). The electric rickshaws are here seen by elites as a ‘matter out of place’ both in space (as not belonging in a ‘modern city’) and time (as a technology of the past). Jokingly, they have even referred to the electric rickshaws as the ‘Bangladeshi Tesla’ (see The Economist 2025). These rickshaws are as much cultural symbols of class and status as they are an economic necessity for the less affluent, and the sociotechnical controversy over their role in Bangladesh’s transport infrastructure relates to a complicated national picture of political and economic power and inequality. No matter what, public interest has surged since their appearance and electrification of smaller vehicles more generally is still growing rapidly (Halder 2023). Recently, The Dhaka North City Corporation has moved to regulate electric rickshaws by commissioning a redesigned model with 16 types of safety features, such as, hydraulic brakes, improved seating, indicators, headlights etc. These are developed by the mechanical engineers from Bangladesh University of Engineering and Technology (Moslem 2025). Under this regulation, rickshaw owners and drivers will be required to purchase these new models exclusively

³ See <https://app.electricitymaps.com/zone/BD> (accessed November 23, 2025).

from authorised manufacturers, and drivers required to undertake training. This process arguably indicates a form of neoliberal state appropriation of a bottom up initiative with regulatory power used to handing it over to capital interests. It may effectively end up channeling profits towards select producers, reinforcing elite interests through control of both industry and market rather than addressing the needs or agency of the (informal) working class.

Even so, electrification of transport may not automatically be an indication of a ‘clean’ energy transition. As mentioned above, the electricity of Bangladesh’s grid is still far from being dominated by renewable energy, so the electrification of transport is not necessarily of benefit to the environment or the climate. Plans to provision renewable energy is not a new initiative, though. While in Dhaka, we noticed that many of the city’s high-rise buildings are equipped with solar panels on their rooftops, but during an interview we were puzzled when the interviewee (a senior municipal official) in passing made a sarcastic comment about the rooftop solar panels not working. In 2010, the government passed a law making it mandatory for all new constructions in Dhaka to include solar, and there are today more than 80 000 rooftop solar panels installed in the city. However, news agencies have reported that the majority of these panels – perhaps as many as 80% – are not operational (Antara 2023a), which explained the comment of our interviewee. The law from 2010 did not make any demands about how the installed solar was to be integrated into the urban grid (each building had to purchase its own batteries for storing electricity), nor did they set any requirements on quality or maintenance. As a result, many of the existing panels and batteries were the cheapest possible options, which did not last long (Antara 2023b). Nor were they easy to integrate into the infrastructures of the (usually high-rise) buildings where they were placed. Users (whether these were owners, renters or janitors of these buildings) were not equipped to – nor interested in – doing maintenance work, and the dust from air pollution likewise reduced the capacity of the panels to operate effectively. According to critics, the policy has at best resulted in a waste of money. At worst it has – again according to critics – generated a major source of hazardous e-waste, which Bangladesh’s renovation systems are not equipped to handle (Antara 2023a). Altogether, the failure of the policy meant to introduce renewable energy into Dhaka demonstrates one of the challenges in planning and rolling out technological solutions: when doing so, there is a need to take into consideration at the very least how various infrastructures will be interacting, how different types of users become defined through the process and may or may not work well with the technology, and how the technology may go through different life-cycles, where its value changes along the way.

Cluster 3: Labour and technology in the garment industry

The third and last cluster of relevance to our discussion is the textile industry, which is one of the biggest consumers of electricity in the country (e.g. Habib 2016). One recent assessment ranks it as using one third of the country’s total industrial energy consumption (Uddin et al 2024). For that reason alone, it is difficult to address public climate mitigation policies without paying attention to this sector. Yet electricity consumption is not the only challenge for this industry, nor where technological solutions are necessarily deployed first. Bangladesh is one of the major producers of readymade garments for the world market, but the industry has had a checkered reputation not the least because of the 2013 Rana Plaza disaster, which forced factory owners to rethink how to administer health and safety conditions for their workers. The industry has likewise been heavily polluting both in global terms (Anon 2018),

as well as local ones, with for example Hazaribagh, a neighbourhood in Dhaka, at one stage being labelled by *Time Magazine* to be among the 10 most polluted places in the world due to the many tanneries in the area (Walsh 2013; see also van Schendel 2020: 281-85).

Recently, pushes for sustainability among customers and retailers in the Global North has forced the garment and textile industry in the Global South to 'do something' on both working conditions and pollution, and at least according to international building certifications something has happened regarding compliance to codes addressing worker safety. For what it is worth, Bangladesh factories today dominate the rankings made by the US Green Building Council – a private organisation which promotes sustainability in building design and construction, and has developed a standard for building rating systems called LEED (Leadership in Energy and Environmental and Design). Of the 100 most 'eco-friendly' apparel factories in the world, 52 stem from Bangladesh (Anon. 2023). Yet, regardless of the improvements within the workplace itself, many of the garment workers still live in cramped accommodation near the factories and the polluted rivers, where exposure to mosquitos is high. Industrial areas are often cited as having a higher prevalence of dengue (e.g. Bhuiyan 2024).

Our visit to a medium-size garment factory in Dhaka was meant to bring us insights about how the managers or owners of such a factory saw the potentials for digitalisation of their production, and how the digitalisation could potentially make it more sustainable. Would digitalisation save resources and (or) be seen as more environmentally friendly? A communication platform for the garment industry claimed that "Bangladeshi apparel manufacturers have introduced cutting edge software technology to reduce waste of clothing, laser technology in denim washing and latest technology in washing to reduce environmental impacts." (Anon 2019). Yet to our surprise the factory owner we met was adamant that human labour was cheaper than technology, so while he was intend on taking some sustainability targets seriously (e.g. saving and reusing water and providing basic benefits for his workers including training), he did not see more advanced technology as a solution he would invest in. He also felt that many of the demands from buyers in the Global North (e.g. to reduce the environmental impact of their production) would be costly to implement, because the buyers were not willing to pay more for the products. When we were later given a tour of the factory, we were then surprised to see that they did have one factory line which was automated, and some specialised stitching was likewise carried out by machines, but it may as well be these examples that convinced the owner that the cost-benefit calculations of automation do not always work out as promised.

Considerations of sustainability are obviously more complicated than the owner's answers indicate. Yet, one could interpret them as a signal of a positive change compared to the early 2010s, when then-WHO Director-General Margaret Chan noted how international trade agreements resulted in two predominant strategies from global commercial interests. One was to water down public health policies in industry through lobbyism (where the public sector in the Global South was perhaps more easily swayed than for example European environmental protection agencies), while another was for those same interests in the name of free trade to take governments to court over environmental regulation aimed at protecting citizens, aka factory labour (Chan 2013, see also Fortun 2014; Karim 2014). International capital (the global brands that own or fund production in a country like Bangladesh) has since then pushed for the introduction of safety compliance measures in collaboration with other textile industry stakeholders. The motivation for the multinational corporations have been to gain legitimacy to their brands, yet the new measures are by some seen as a fig leaf that fails to address the structural problems of the sector, where the state still pursues neoliberal

policies that favour the interests of international capital over the local rights and needs of labour (Alamgir & Banerjee 2019).

The flexibility of technology-driven capitalism

What can we analytically make of these observations of clusters? Obviously the case of the garment industry brings to mind well-rehearsed Marxist debates about the costs of capital versus the costs of labour, and what purpose the introduction of technology plays in this calculation (see, e.g., Harvey 2017). We will thus begin our discussion by first relating the last cluster presented above to some of the most frequently stated theoretical claims about the role of technology in neoliberal capitalism.

Only a few years ago the majority of discussions of labour conditions in the Global South would emphasise the exploitation of a disposable workforce, which is denied rights, protection and decent wages (see, e.g., Harvey 2005: 167-171; Karim 2014). This is still not entirely a thing of the past, although some reports claim that things have improved. Brands, retailers and trade unions signed a legal accord on fire and building safety in 2013 (Bangladesh Accord s.a.), and also women's labour unions have managed some – albeit arguably small – victories (e.g. Karim 2014). Critics on the other hand point out that this accord may herald a new CSR (Corporate Social Responsibility) paradigm that provides buyers with new ways of controlling liabilities in their supply chains (Salminen 2018), and that it has generated a divide between on the one hand 'mainstream unions' aiming at a conciliatory stance and technocratic improvements, and on the other hand workers more radically opposed to the structural conditions of precarity that many of them face (Ashraf & Prentice 2019).

Our observations, but also the circumstances of weak labour regulation and the attempts to enact a form of safety standards, brings us back to the role of technologies in the workplace, because where specific parts of a production process may be automated for the sake of reducing costs, automation has often been accused of making it easier to manage and control labour. This is a classic theme in discussions of technology in labour processes (e.g. Crawford 2021), and while we did not pursue such questions about management and control empirically, it is always potentially at stake where automated processes are intertwined with the widespread construction and collection of data, which characterises the contemporary era of surveillance capitalism. That is, weighing the costs of labour and how to control it is not a new managerial concern. Karl Marx famously argued that technology weakened the bargaining power of labour when it replicated skills held ('monopolised') by human workers (see Harvey 2017: 122). In a classic article in *Science and Technology Studies* (STS) on the politics of artefacts Langdon Winner in a similar vein relies upon the views of Marx and Engels to discuss how the introduction in California of the automatic tomato harvester led to the development of hardier tomatoes (that could be harvested mechanically without being squished) but also to a concentration of production in fewer companies (those that could afford to invest in the harvester). Yet this was, in Winner's interpretation, not simply a conscious plot between large agribusiness and academics in mechanical engineering to force small growers – and their labourers – out of business. He concluded that "What we see here instead is an ongoing social process in which scientific knowledge, technological invention, and corporate profit reinforce each other in deeply entrenched patterns that bear the unmistakable stamp of political and economic power" (Winner 1980: 126). The allure of technology may thus stem in a multiplicity of concerns and circumstances, and not the least in the commercialisation of technology itself as David Harvey argues in his discussion of Marx's view

on technology. “When technology becomes an independent business, it no longer responds primarily to needs, but it creates innovations that have to find and define new markets.” (Harvey 2017: 125). How many industrialists have historically introduced technologies for the sake of disruption alone, or simply because they would not risk that their competitors would do it first, even if they knew it would come with losses? And how many of these introductions are the result of the tech sector convincing businesses of other sectors that new technologies are indispensable? As Harvey further states, such a “business thrives upon and actively promotes the fetish belief in technological fixes for all problems” (ibid.). Kate Crawford’s (2021) excavation and mapping of the origins and deployment of artificial intelligence is a case in point.

Yet this is where we also see the actual unfolding of technological deployment within capitalism to be more nuanced. The capitalist push for technological solutions is strong but not always overbearing. The factory owner we interviewed may not be interested in deploying technology for its own sake, but it was certainly present despite his claim to the contrary. Likewise, the technological solutions to heat, air pollution or traffic problems end up being entangled in other concerns or controversies. For example, the current national government earlier this year signed a directive that air condition should be set to a maximum temperature of 25 degrees Celsius to reduce pressure on the electricity grid (The Business Standard 2025). This regulation is understandable and probably useful, if there is any way to enforce it. Even so, the government is often criticised for doing little to address the causes of the problems (air pollution and emissions), despite calls to regulate motor vehicles or industrial emissions (Islam 2025).

While the global reach of capital surely affects whatever choice governments, industrialists and labourers feel that they have, it does not mean that new technology always need to be, or even end up as, the answer. Beliefs in technology as purely ‘enabling’ (see Strathern 1996), or as a teleological given, are in themselves cultural phenomena. Harvey’s view is that the emancipation needed by labour is more likely to be one that sets it free from the dominance of capital (2017: 126), but his discussion of Marx makes it clear that technology – as an investment of capital – is an agent in service of neoliberalisation, not an emancipatory one. At least not for those still engaged in industrial labour (Harvey 2005: 157-59).

This perspective may of course also need nuance, when countered with the controversy over bottom up innovation in electric rickshaws. Here Jonas van der Straeten concludes that their popularity while having little to do with environmental sustainability per se can be derived from a potential for being “highly competitive in a largely unregulated market environment characterized by a scarcity of material resources and financial capital but [...] high availability of low-paid labor” (2022: 159). In other words, not all technologies are easily governed or controlled by capital or the state even if they face alternatives bolstered by state support (see Moslem 2025). The attempts at governing rickshaws should be seen in the light of the above-mentioned criticism that the government has failed to curb air pollution by insufficiently regulating heavier vehicles (busses and private cars), unauthorised construction work and industry such as (sometimes illegal) brick kilns and other smoke-producing factories (Islam 2025). Also, not all centralised and regulatory demands to technology lead to the expected outcomes like the regulation demanding solar panels on buildings in Dhaka. Government efforts in total may here appear uncoordinated and the Bangladeshi public administration is often accused in public of consisting of an excessive bureaucracy, where the different departments fail to coordinate efforts (Adhikary 2023). This rehearses classic debates in anthropology about state actors as more or less coherent agents (e.g. Gupta 2012), and it

invites the consideration that neoliberalism is likewise a non-uniform process. Neoliberalism transforms and mutates over time (see Harvey 2005), and – as it is known to incorporate critique – it has been accused of co-opting sustainability as a concept and as a discourse. The latter becomes presented as a matter of “technological adjustment and innovation” (Tulloch and Neilson 2014: 33) as a way to reconcile it with the market and economic growth.

Connections to the Global North

Yet there are significant differences between the clusters when it comes to how visibly their controversies over technology and sustainability transcend different social or national boundaries. The Bangladeshi garment industry is deeply reliant upon global supply chains and of markets of retailers and customers, and any discussion of its sustainability (including of what counts as ‘sustainable solutions’ and who are the relevant agents that can bring sustainability about) must take such transcendence into account. To draw out what expectations to sustainability and their technological couplings mean for this industry in particular, let us shift the gaze to sustainability debates in the Global North, and Denmark in particular, where we as researchers are located. Here there are strong calls for pursuing a circular economy with either reuse or recycling of materials in order to make reductions in the unsustainable production of garments. Yet this pursuit of a ‘solution’ to the global overproduction of garments – however justified it may be – seems as much to be about generalised cultural perceptions of what different populations around the world ‘need’ (often in the form of technologies) rather than an accurate understanding of the global processes, relations and inequalities at stake. Lamia Karim, an ethnographer who has done research in the ready-made garment industry since the 1990s, was asked in the wake of the Rana Plaza disaster by one of her students “What should I do? Should I stop buying clothes manufactured in Bangladesh?”. Karim refers to this ‘what is to be done?’ as ‘the great modernist question’ (2014: 52). In our reading of this comment, it points to a modernist cultural belief that the speaker (the western consumer) sees him or herself as the maker of their own fate – and as a privileged western individual also as the maker of the fate of others. This is a form of agency that often is associated with neoliberalism (Gershon 2011). It nonetheless disregards the agency of the factory workers themselves, which Karim’s ethnography tries to evoke.

A similar modernist reaction could be expected in a Danish context. Danish consumers for example may own more clothes than they ever use (Garde 2023), and second-hand apparel markets in Sub-Saharan Africa are being flooded with garment leftovers from the Global North (Hansen 2022). Much of this is ‘fast fashion’ of poor quality and little durability, which makes it difficult to reuse or upcycle. Yet reducing imports and the purchase of garments from a country such as Bangladesh will have very tangible but negative effects in the form of layoffs of textile workers. Western consumers and fashion retailers are increasingly concerned about the climate impact of the textile production, but the rural poor in Bangladesh still often rely on having kin employed in urban areas so they can remit money to help pay for school fees, for investments in tools or materials, for medical bills or just contribute to the daily subsistence and survival. Even banning child labour – which would be done out of the best of intentions – may be problematic if it undermines local economies and does not set in place opportunities for those same children to, for example, go to school (see Harvey 2005: 177). Reductions in demand in the Global North will invariably lead to fewer income-earning opportunities for rural or working class people in the Global South, unless some-

thing else is developed in its stead. How this can be done is the difficult issue. Karim's suggestion is to ensure that consumers and retailers support producers that allow for unions, and especially those that support female workers because their income also provides them with a leverage for increased women's rights in their broader social networks. As Karim's interlocutor's stated in response to her student's question: "'Made in Bangladesh' is a label they have to support to help improve our lives. Tell them not to give up on our labor." (2014: 62). Continuing such support may not be a move that on its own changes much in the bigger picture of neoliberal capitalism outlined by David Harvey (2005), where modes of production are dominated by the power of global capital, but all small moves may matter.

One further reflection from this discussion could be that reusing or recycling clothing in the Global North does not help generate incomes, where they are needed the most. Demand for better quality garments or 'slow fashion' could be an alternative option (Anon 2018), but to enforce it will not be easy as long as fast fashion is the more profitable for both factory owners and retailers. According to Luc Boltanski and Arnaud Esquerre (2020) the popularity of fast fashion stems in what they call the trend form of valorisation. By this they refer to the production of culturally and symbolically authentic and 'enriched' commodities that are valuable because of a combination of three factors: the frequent turnover of items in circulation, an unequal distribution of these same items (yet with an opportunity also for less privileged consumers to desire and attain these items), and an association between these items and the hierarchical positions of privileged actors (2020: 222). These commodities (typically clothing) furthermore rely upon prior commodities – the items that are no longer trendy – being turned into 'trash'. Thus a part of the trend form's logic "impels it to make things outdated" (2020: 234). How to change such deeper cultural logics of valorisation is an open question, and not a change that will happen overnight. However, paying more for more durable items – and thus hopefully allowing for more decent wages and social benefits for garment industry workers – or supporting the development of other less polluting sectors in the Global South would allow for a more equitable impact than one that can be reached by merely focusing on reusing and recycling fashion which is produced in a way that does not even allow for it to be reused or recycled (Hansen 2022).

By way of a conclusion

While there are no easy solutions to the sustainability challenges in a country such as Bangladesh – whether related to heat, outbreaks of diseases, electricity, or work and labour conditions in the garment industry – the conflux of what scholars of various orientations have referred to as neoliberalisation (e.g. Harvey 2005), the enrichment economy (Boltanski & Esquerre 2020), and the remnants of late industrialist processes of production (Fortun 2014) does at least indicate that particular sustainability initiatives cannot stand on their own. Nor can sustainability issues such as those we have outlined above be solved 'technologically.' They must be integrated with sector-wide policies and even with initiatives that go beyond the limits of specific sectors. As mentioned, this could be initiatives that generate jobs in other sectors than the garment industry, yet are also fitted to the types of – often gendered – labour that is affected by shifting consumer trends in the Global North. Fast fashion with all its afflictions – as much as the drive to solve problems technologically – is a neoliberal cultural dream, where one may never feel 'good enough' or 'trendy enough' and always can have more or improve (solve) things even further (also through technology). Somehow doing away with this dream will surely help the individual consumer, but if we want to address

the interlocking social, economic and environmental aspects of the current climate crisis then merely stopping the shopping is not sufficient in itself.

The concept of neoliberalisation has for a long time presented the social sciences with a very general umbrella term that can somewhat address many of the factors behind these asymmetries, including how technologies may – or may not in some of our cases – play a role in this. Yet noticing how problems are tied up in neoliberalisation cannot stand alone if we want to approach an understanding of the more down-to-earth aspirations of specific actors trying to relate to these circumstances of asymmetrical interconnection. Firstly, increases in epidemics worsened by climate change may for example usher in renewed investments in biotech (as a privileged citizen from the Global North one of the authors was inoculated with a brand new type of dengue vaccine before departing for Bangladesh), but for the most vulnerable it not only causes new risks, it may even mean delays of social services when white collar municipal public servants are commandeered out to clean gutters to stop the spread. Secondly, the climate crisis may result in idealised expectations to renewable energy such as rooftop solar, or it may cause national elites to make plans for grand-scale energy revolutions, but when these are not sociotechnically integrated into existing infrastructures – urban, social or technical – their benefit is negligible and may even generate harmful e-waste. Thirdly, discourses of sustainability and circular economy may logically appeal to consumers and retailers in the Global North, because they reflect frustrations with a fast fashion-dominated culture of valorising ever-shifting trends. Yet, only few appreciate the complications at the other end of the supply chain, where some may prefer environmental destruction over poverty. For these reasons, concepts such as Fortun's late industrialism, or similar attempts at stressing the uneven geographies and sociocultural perceptions of the global economic system, will play an important role in social scientific explorations of how technologies, economic growth and climate crisis responses come to be coupled or decoupled under a larger umbrella of achieving 'sustainability'.

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Author Information

Steffen Dalsgaard is Professor in Anthropology of Digital Technology at the IT University of Copenhagen, where he is heading the interdisciplinary Center for Climate IT. For his PhD in Anthropology and Ethnography (from Aarhus University) he conducted long-term research in Papua New Guinea. More recently he has explored how 'carbon' has become a central value form in the cultural transformation of western societies. He is currently PI of the ERC-funded research project DecouplingIT.

Hasib Ahsan is a socio-technical researcher and an Assistant Professor in the Section of Technologies in Practice (TiP) at the IT University of Copenhagen (ITU). Prior to his academic career, he worked as a research practitioner and designed and implemented large-scale digital intervention initiatives across the LMICs. He holds a Bachelor degree in Sociology and a Master degree in Development Studies, along with postgraduate diplomas

in Design Thinking and ICT Entrepreneurship. For his PhD he investigated digital interventions in the Global South and conducted fieldwork in Bangladesh, Cambodia, and Jordan. His research interests lie at the intersection of climate-smart and digital agriculture, and global and digital health, with a particular focus on climate-affected communities, displacement and refugee settings, and marginalised areas in the LMICs.