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Trading disaster: Containers and container thinking in the production of climate precarity

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Abstract

This paper examines how global trade shapes and intensifies disasters. Juxtaposing three basic, everyday consumer goods – a t-shirt, a brick, and a tea bag – with disasters manifesting in their respective global supply chains, it highlights how climate change, local environmental degradation, and carbon emissions are dynamically shaped by consumption. Analysis of data collected in South and Southeast Asia reveals that local environmental degradation linked to international trade interacts with global climate change and the policies intended to mitigate it, influencing how and where disasters manifest. Underpinning this analysis is the physical and conceptual presence of the container. With more and more of the natural environment packaged and redistributed for global trade, the container thinking that underpins these logistics is increasingly imbricated in environmental processes. Indeed, as this paper aims to show, the container logic that frames analysis of these processes – linked to and drawn from the logistics of global trade – serves as both obfuscator and actor in the global landscape of environmental risk.

KEYWORDS

climate change, disasters, geographies of consumption, geographies of production, precarity, trade

1 | INTRODUCTION

International trade and material mobility are both growing aspects of the global economy. Global material use has tripled since the 1980s, with global consumption of raw materials forecast to double again by 2050 (UNEP, 2016). As the globalisation of production and consumption continues to deepen, a third of this material volume is now traded across international borders (UNEP, 2020). As 'international commodity trade is becoming the mainstay of many of the world's

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economies' (Gardner et al., 2019, p. 163), more and more of the world's material matter is being extracted, packed into containers, and mobilised between nations than ever before.

Amid all of this dynamism, the influence of climatic instability is becoming increasingly tangible. Mirroring trends in material mobility, recorded disasters such as floods, droughts, and landslides have tripled since the 1980s (Em-Dat, 2021), with climate change-linked hazards becoming more common and more intense (Moran et al., 2018). Although loss of life from such events has diminished over the same period, their economic impact continues to rise (Em-Dat, 2021). Moreover, much of the true impact of our increasingly unstable climate is hidden amid the deepening poverty of those it affects (Hallegatte et al., 2020; Lee et al., 2020). For many in the global South, a state of 'crisis ordinary' is the new normal (Brickell, 2020), as climatic threats to livelihoods proliferate.

These two processes have generally been viewed as running in parallel, connected by the indirect mechanism of carbon emissions, but not linked in the more immediate sense of how, when, and where disasters manifest. Yet recent work on climate change impacts and adaptation has begun to change this, emphasising the intersection of economic and climatic forces in co-producing the 'climatic precarity' engendering vulnerabilities and negative outcomes (Griffin, 2020; Natarajan et al., 2019; Natarajan & Parsons, 2021). Moreover, alongside these slower onset and often smaller scale impacts, a growing body of literature explores the socio-economic production of disasters (Kelman, 2020; Oliver-Smith et al., 2017; Thomas et al., 2019). Not only are disasters more likely to occur in poorer countries (UNISDR, 2015), but poorer people within those countries are also more likely to be their victims (Hallegatte et al., 2020). The economy articulates disaster.

Nevertheless, despite growing recognition of their intertwinement in economic landscapes, climate change impacts – and the acute hazards and disasters they promulgate – remain conceptually distinguished from the mobile, global economy by the 'container thinking' (Thrift, 2003, p. 89) within which they are framed. As global logistics have reduced the friction of trade, they have also decentred the physicality of geography, enacting 'a de-linking of the landscapes and seascapes of cargomobilities away from the quotidian spaces of the city' (Birtchnell et al., 2015, p. 6) and thus eliding the wider structural conditions that shape environmental vulnerability. Consequently, although 'the ultimate drivers of environmental and social change in producer countries are often far removed from the places where many impacts materialize' (Gardner et al., 2019, p. 164), this international dynamism of trade and material mobility is rarely accounted for in the analysis of disasters.

This presents both conceptual and practical problems. In simple terms, economic systems, like climate systems, are dynamic. Yet 'most adaptation plans underestimate the dynamism of modern economies' (Kocornik-Mina & Fankhauser, 2015, p. 22), thereby constraining the analysis of climate impacts and foreshortening the range of responses to those vulnerabilities. More broadly, though, the conceptual mismatch between geographically local analysis in a world defined by international processes presents a wider issue. As economic, human, and material mobility increases, container thinking is becoming an issue on multiple levels of environmental analysis. Confounding the pursuit of detail, the logistics of globalised production require a process of 'simplification, reduction, standardisation and dis-embedding from local social and ecological contexts' (Gardner et al., 2019, p. 164).

Consequently, while increasing transparency over certain economic actors and processes, the abstracted supply chains that result present an incomplete viewpoint on resource flows, obfuscating the nexus of trade and environmental degradation by limiting the scales and terms on which analysis occurs (Gardner et al., 2019). We argue that the deepening integration of these analytical logics helps to explain the mismatch between expanding environmental governance and deepening environmental degradation (Dauvergne, 2008, 2016). At every scale, 'policies and practices to mitigate climate-changing pollution and to deal with its impacts are increasing in number, yet simultaneously they are grossly inadequate to the task' (Harris, 2021, p. 3). Underpinning this disjuncture and impeding its resolution is the container logic that silos supply-chain sustainability from the uncontained 'orderly disorder' (Birtchnell et al., 2015) of climate breakdown in producer countries.

This paper aims towards a better understanding of these complex interactions. Employing the 'following' theoretical frame set out by Cook (2004) to connect the diverse processes and structures addressed in economic geography, transport geography, and climate geography, it foregrounds three fundamental basics of consumption: a cotton t-shirt from Cambodia, an imported brick from South Asia, and a Ceylon tea bag from Sri Lanka. Each object is then juxtaposed with a moment of disaster along its supply chain, from slow-burning droughts in Cambodia to sudden onset landslides in Sri Lanka. The objective is to confront the 'magic system' of frictionless consumption (Williams, 1960) advertised in the case of each good, peering behind the curtain of container logistics that 'simultaneously mask and highlight interdependencies' between global environments (Jordhus-Lier et al., 2021, p. 2).

Towards this end, the paper will proceed in four parts. First, it will set out a theoretical frame drawing together perspectives from economic geography with the literature on disasters and climate change, via the connecting principle of following. Second, it will outline the methodological approaches that underpin each aspect of the study. Third, the three case studies of consumption-linked disasters explored herein will be set out, before embarking, fourth, on a discussion of the conceptual, methodological, and practical implications of the frames set out herein.

2 | CLIMATE CHANGE AND TRADE: PRISING OPEN THE CONTAINERS

The term ‘natural disaster’ is still widely used to refer to events such as droughts, floods, and landslides. Yet as is increasingly recognised (Chmutina & Von Meding, 2019), this is a misleading term, attributing as it does such events to a ‘natural’ world distinct from the global economy. In reality, this is far from the truth. Not only are global processes of carbon emission driving such events with increasing regularity (IPCC, 2018), but the increasingly integrated global landscape of production and consumption (Lambin & Meyfroidt, 2011) means that local economic processes also articulate *how* they manifest. Nevertheless, substantial analytical distance remains between local accounts of disaster and the global processes that shape them.

In part, this is because visualising the environmental impacts of global trade, in all its complexity, is so difficult. Figure 1, for example, is what a supply chain looks like to most people. Yet supply chains involve – in reality – a whole range of actors beyond the key companies involved (Gardner et al., 2019). These secondary impacts of trade often aren't fully understood in supply-chain analysis because the supply chains themselves are merely abstractions, making ‘certain attributes more visible while obscuring others’ (Gardner et al., 2019, p. 164). This categorical uniformity brings great logistical efficiency, but it also generates opacity (Parker, 2013), concealing the characteristics and attributes not deemed relevant to production and consumption. In essence, a vastly complex network of actors, places, and interactions is overlaid by a set of containers that fit environmental impacts only partially.

Moreover, supply chains themselves are not the only frame to obscure the economic dimensions of climate change. In the contemporary world, ‘the ultimate drivers of environmental and social change in producer countries are often far removed from the places where many impacts materialize’, yet the scalar conventions of environmental analysis remain anchored to a local (Gardner et al., 2019, p. 164) and, in particular, methodologically nationalist scale (Moore et al., 2018). Connected to this, the persistent emphasis on climate change as it impacts space rather than on flows of goods, people, and money has resulted in a predominantly static interpretation of the economic processes through which climate change is articulated. In essence, the scale of the containers used to measure economy–environment interactions leads to an underrepresentation of the systems and processes that connect these scales: an issue that cross-cuts the scientific, political, and corporate spheres (O’Lear & Dalby, 2016).

With so much of the environment’s fundamental matter – animal, vegetable, and mineral – now engaged in flows that transect local, national, and even regional frames, static, geographically bounded, spatial containers are losing relevance in a globalised environment ‘geared towards keeping goods in motion, circumventing obstacles, and closing the gaps between production and consumption’ (Birchnell et al., 2015, p. 4). In their place is a world defined increasingly by a logistical logic whereby containers – in the bulky metal rather than conceptual sense – have ‘reconstituted the spaces through which they travel’ (Haugen, 2019, p. 868). On one hand, this means recognising that environmental dynamism is shaped in real time by ‘the worldwide ‘complex systems’ of maritime transport, and so forth [that] are never identical at different times, not even from one nanosecond to the next’ (Schwanen, 2019, p. 6). On the other, though, it demands the interrogation of the conceptual containers that structure thinking on environmental change: metaphors of commodity



FIGURE 1 A typical supply-chain diagram. Source: Fairwear Foundation (2021)

spatiality like carbon footprints and commodity chains that imbue conceptualisations of environmental degradation with spatial characteristics drawn from the 'global surface of logistical integration' (Martin, 2013, p. 1021) and which have often proved challenging to depart from.

In re-evaluating this relationship, scholarship on 'container thinking' (Thrift, 2003, p. 89) presents a useful undergirding concept. It is an idea recently used in relation to containerisation and container logistics both within Geography (Birtchnell et al., 2015; Birtchnell & Urry, 2015; Haugen, 2019; Markkula, 2021; Martin, 2013; Parker, 2013) and in other disciplines (Leivestad, 2021; Levinson, 2006; Neilson, 2019). A variegated field, it has explored the physical, human, economic, and environmental impacts of contemporary container logistics, yet at base lies 'a recognition of the mutually constitutive roles of production, exchange, and consumption' and thus the inherently partial nature of the metaphors and conceptual containers used to describe such flows (Bridge & Smith, 2003, p. 263).

For the purposes of this paper, three containers are identified for confrontation. First, we interrogate the spatial container itself, emphasising the porosity and flows that shape environmental impacts, over the scalar conventions of national and local accounting practices. Second, the sectoral container is challenged, wherein industrial thinking tends to structure the assessment of environmental impacts both within particular industries and within the boundary of industry itself. As shown here, environmental degradations transect such boundaries, as social, cultural, and economic structures link otherwise disconnected spheres. The third and final container is temporal, seeking to challenge in particular the development teleologies – most famously exemplified in the environmental Kuznets curve (Stern, 2004) – which indicate a reduction in environmental impacts associated with late-stage economic growth. As this paper aims above all to demonstrate, societies such as the UK and its global Northern peers are not innovating cleaner methods of production, but in many cases are simply moving or trading out environmental impacts beyond the purview of the accounting mechanisms they employ.

In departing from these containers, the goal is freeing conceptions of climate change impacts and environmental degradation 'from the straitjacket of the container thinking of absolute space and replacing it with the process thought of relational space' (Thrift, 2003, p. 89). By emphasising the intersection of human, economic, and environmental processes, these processes are not only linked together but recast by 'the accelerated circulation of ships, goods, capital, and labor across the world' (Markkula, 2021, p. 26) that characterise 'the emerging container economies' (Markkula, 2021, p. 28) of global trade. With materials circulating at the current high and accelerating rate, it no longer suffices to view environmental impacts associated with their extraction, use, and consumption as static within space(s). Instead, they must be viewed as flowing through the 'tangible (yet often all too opaque) connection between the real lives of producers and consumers' (Bridge & Smith, 2003, pp. 259–260).

Though focused on supply chains, therefore, this reformulation is directed not towards a linear ontology of environmental degradation, but to a porous one capable of recognising the complex 'patch geographies' (Tsing, 2015, p. 225) and 'material biographies' (Crang et al., 2020, p. 3) that characterise contemporary global commodity trading and production. Hazards, pollution, and environmental degradation are the 'environmental bads' (Curran, 2018, p. 298) that emerge in complex and mutually interactive ways to construct climatic precarity. The resultant perspective aims to underscore the primacy of supply chains as environmental arbiters and opposes their abstraction within simplified linear logics, emphasising instead the porous, gaseous, and 'hazy' nature of emissions and their impacts (Bhojvaid, 2021, p. 1).

This is a perspective built, as noted above, on lively recent engagement with the topic in the mobilities and transport geography literatures in recent years. Yet as well as speaking back to those fields, it aims also to address a lacuna in economic geography, where despite substantial early forays into the intersection of trade, supply chains, and climate change (Hayter, 2008; O'Brien & Leichenko, 2000; Yohe & Schlesinger, 2002) the nexus has (with notable exceptions, see Bergmann, 2017) stagnated in recent years, as 'climate change, perhaps the biggest issue in labour and economic geography, seems to have barely registered attention' (Coe, 2021, p. 1) in the two decades since. In doing so, it draws on work exploring the geographies of consumption and production (Cowen, 2014, 2020; Dauvergne, 2008, 2016) and environmental geopolitics (O'Lear & Dalby, 2016). It also pays particular attention to the distinct tools developed in cultural geographic work on material 'following' (e.g., Cook, 2004, 2006; Hulme, 2017), wherein supply chains are defined iteratively and inductively, beginning with an object or consumer good and working 'outwards' into the processes and relationships that produce it, move it, and sell it.

This literature has much to offer a refocused geography on the intersection of climate change and trade, emphasising as it does the dynamism with which supply chains straddle the porous boundaries between society and environment, and thus helping to penetrate the container logic of mainstream analysis. As Ian Cook explains, this means disposing of containers at multiple scales, so that the 'bridging of divides would be unnecessary' (Cook, 2006,

p. 657). Indeed, key to the success of ‘following’ geographies is that the disposal of one container destabilises others, revealing that ‘chains, just like the objects they produced, [are] somehow mutable and disposable’ (Hulme, 2017, p. 157). Viewed thus, supply chains are revealed as far removed from the simplified abstractions through which they tend to be portrayed, being instead ‘symptomatic of a fragmented and constantly shifting just-in-time globalised economy, its ‘flow’ made up of numerous micro psychosocial, geographical and economic ruptures’ (Hulme, 2017, pp. 157–158).

Building on these approaches, this paper presents what is in some respects a ‘follow the thing’ approach to climate change impacts. By following three everyday commodities known to be implicated in environmental destruction amid climate vulnerable environments, the aim here is to highlight the role played by consumption in driving and intensifying environmental precarity. Moreover, by narrowing its focus to the manner in which production promulgates disasters specifically, the aim is to facilitate also an ‘upstream’ analysis: in essence a ‘follow the disaster’ frame through which to understand the processes and cultures of consumption leading ultimately to disasters elsewhere.

Accounting for the complex flows within which territories are entangled (Kenis & Lievens, 2017), we aim therefore not only to draw attention to ‘the wider relational roles territories play in emissions beyond their borders’ (Blakey, 2021, p. 8) but also to the histories and temporalities of these processes. Viewed from this historically and geographically embedded perspective, the territories within which emissions and environmental impacts are counted emerge not as disconnected containers but as dynamically interconnected sites within a process of globalisation that is restructuring environments as it integrates them (Dauvergne, 2008). Disasters thereby emerge from the economy not only through the lens of emissions but also the environmental precarities it generates. Far from ‘natural’, the distribution of these precarities – their effective trading from one site to another – reflects these precarities as played out on a global scale.

3 | METHODS

This study draws on data collected by an interdisciplinary team across five countries. In seeking to construct a novel perspective on how climate change emissions and impacts are linked through international trade processes, it combines primary and secondary data collection and analysis across the three material focal points of garment production in Cambodia, brick production in the South Asian brick belt (Bangladesh and India), and tea production in Sri Lanka. The study locations are shown in [Figure 2](#).

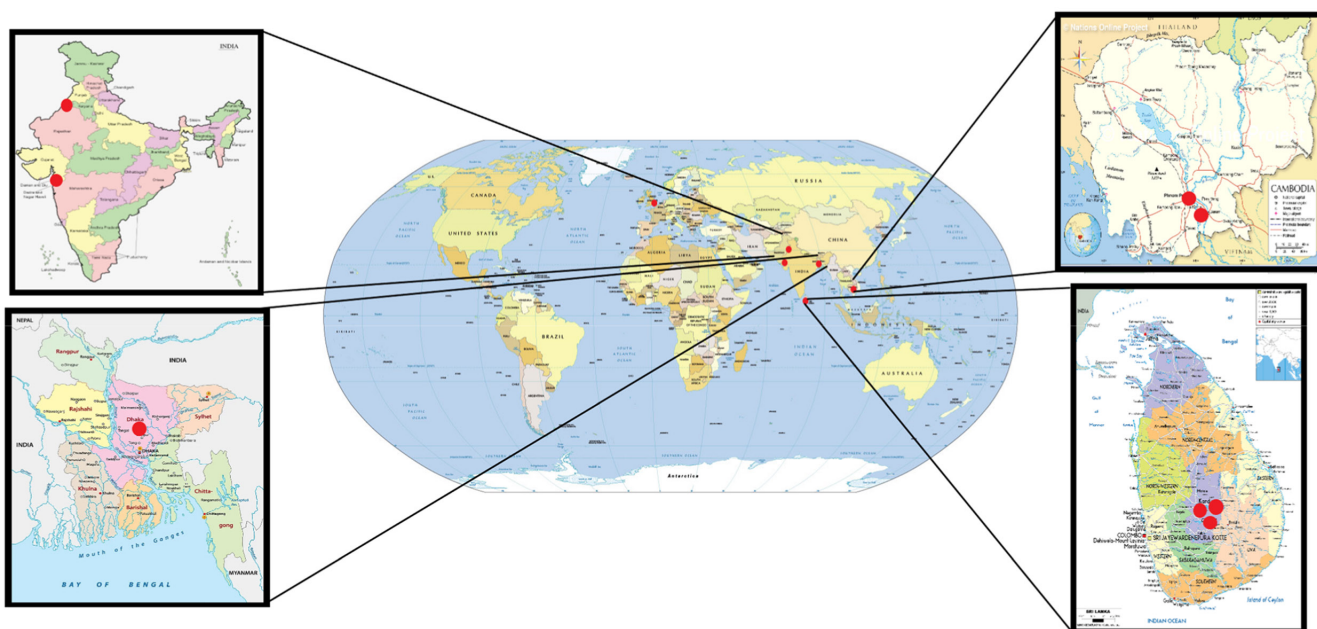


FIGURE 2 Map of field sites, including detailed insets

3.1 | Garment manufacture in Cambodia

This garment-focused component of the project comprised two dimensions. First, an analysis of international trade was undertaken using the UN's Comtrade database, in order to generate data on the volumes of garments and other textiles traded between Cambodia and the UK, as well as on the raw materials involved in their manufacture. Combined with a review of literature and existing published data, this secondary analysis produced data on (a) the volume of apparel flows between Cambodia and the UK; (b) the countries of origin and sub-national locations from which Cambodia imports materials used for manufacturing textiles; (c) UK companies linked to the Cambodian textile industry; (d) a review of existing data on environmental problems associated with the production of textiles in Cambodia and its supply chain.

These data subsequently informed a second component of research in the Cambodia site: primary data collection on the environmental impacts of garment production for UK brands. This second component, lasting six weeks from February to March 2021, involved visiting factory sites to observe the environmental issues with which they were associated. In total, 20 factories linked to British brands were observed in person, resulting in 30 qualitative interviews lasting between 10 and 40 min, undertaken with local people living and working in the vicinity of these target factories.

3.2 | Brick exports from the South Asian brick belt

The component on brick production in the South Asian brick belt also comprised two dimensions. First, a secondary analysis of carbon emissions associated with the South Asian brick trade was undertaken, based on data from HMRC on brick importation trends to the UK over time. Carbon emissions were calculated using frequency statistics on brick imports between the years 2015 and 2019, disaggregated by county of origin.

The second element of the brick-focused research component comprised fieldwork undertaken by research teams based in Bangladesh and India, to exemplify the wider trend of brick importation from the South Asian brick belt to the UK. Twenty-four interviews were undertaken with local people, brick kiln workers, and kiln owners of two exporting kilns in the Punjab and Gujarat regions of India, while 45 interviews were undertaken with local people, brick kiln workers, and kiln owners across five brick kilns in Bangladesh, of which one was an exporting kiln and four were non-exporting kilns.

3.3 | Tea exports from Sri Lanka

The third research component, focused on tea production in Sri Lanka, comprised two dimensions. The first element cross-referenced databases on tea holdings with geospatial data on landslide vulnerability and land use change to establish the relative landslide risk associated with tea landholdings, compared with other forms of land use. In addition, this element specifically focused on the landholdings of British-owned tea plantations to highlight the specific impact of UK investment on the risk of landslides in the Sri Lankan highlands.

The second element of the Sri Lankan work package saw qualitative data collected in three highland locations in Sri Lanka: two active British tea plantations located in areas of high landslide risk and one resettlement site for the survivors of a previous landslide on a British tea plantation. In total, 15 semi-structured interviews were carried out with tea plantation workers and supervisors, lasting between 30 and 60 minutes.

4 | TRADING DISASTER

The separation of production and consumption over the last 300 years has seen the drivers and impacts of environmental change move further and further apart (Lambin & Meyfroidt, 2011). This is true not only in spatial but also conceptual terms, with the complexity of supply chains rendering a comprehensive assessment of consumption-linked environmental impacts a practically impossible task, due to the trade-offs involved in terms of detail and breadth of analysis (Gardner et al., 2019). The inherent fungibility of global production necessarily generates not only efficiency but also opacity, as details and tangible materiality are substituted for sameness (Parker, 2013).

Under this frictionless globalised system, “what you want whenever you want’ is the mantra’ to live by (Birtchnell & Urry, 2015, p. 33). Yet even amid this frenzy of consumption, the basic needs of shelter, clothing, and sustenance remain

the stuff of life, fundamental to a healthy environment. Each of the three basic commodities explored here has therefore been selected for its heuristic value, juxtaposed in each case against a disaster manifest in its supply chain, in order to highlight and critique the conceptual containers intersecting environment and trade which obfuscate their connectedness. In another sense, though, each choice is arbitrary. Other paths and other connections might have been selected with equal ease, yet this too constitutes part of the message in each case. No container constitutes an objective window on the environment. Rather, each given frame represents a prioritisation of certain processes, an elision of others and thus an expression of politics and power.

5 | FOLLOWING A COTTON T-SHIRT TO DROUGHTS IN CAMBODIA

The cotton t-shirt is one of the world's most ubiquitous garments. It can be bought from any clothes shop on any high street, with many people owning several. A UK retailer that sources in Cambodia described the product shown in [Figure 3](#) as 'crafted from pure cotton for cool, comfortable wear, this striped t-shirt is one for your essentials collection. Cut in an easy regular fit, with a classic crew neck. Fine stripes throughout for subtle texture. All of the cotton for our clothing is sustainably sourced and always will be' (Marks and Spencer, 2021, n.p.).

5.1 | Droughts, deforestation, and water exploitation in Cambodia

The drought of 2016 was declared by Prime Minister Hun Sen to be the 'worst natural disaster to hit Cambodia in 100 years' (Save the Children, 2016, p. 3), but similar patterns have since become routine, compounded by El Niño anomalies in four of the last five years (Climate Prediction Centre, 2021). As villagers in Kampong Speu province, one of Cambodia's most drought-hit and the site of a significant proportion of national garment-sector production, explained:

[Drought] has happened every year since 2003. In 2003, there was drought for the whole year. After that, the rain was not regular. Old people always said that since the forest has gone, the rain has never been regular anymore ... For rich people, they can buy a water pipe for 200 or 300 metres to pump water to their farm, [but] for the poor, they cannot do anything. They just watch the rice dying ...

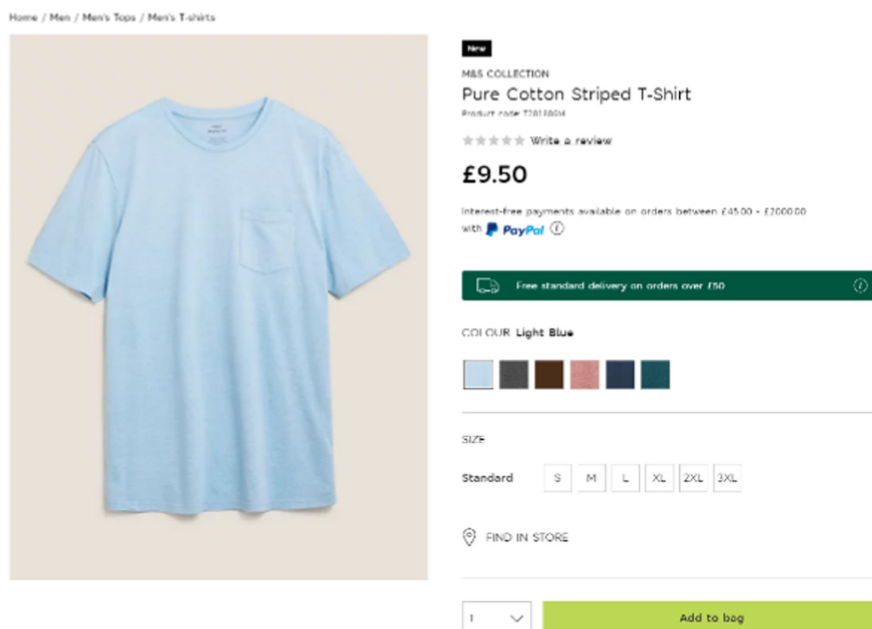


FIGURE 3 A cotton t-shirt. Source: Marks and Spencer (2021)

From this area till Koh Kong province, the forest was cut down or cleared [and] the rain is not regular as it was in the past. In [former King] Sihanouk's time [broadly 1941–2004], there was so much forest. Now the forest is very thin, the rain is irregular, the forest is gone, and even the firewood has almost gone. (Kampong Speu farmer, 9 March 2021)

Although harvesting firewood from forests is illegal in Cambodia – indeed, in announcing a recent crackdown, the Prime Minister stated he had commanded loggers ‘to be shot from helicopters in the sky’ (Khmer Times, 2018, p. 1) – a substantial proportion even of registered exporting factories to UK brands continue to burn forest wood due to its efficiency and low cost as a fuel. Locals report that ‘the firewood for factory [use], Korean trucks [large industrial trucks] come and deliver it out every day ... They collect firewood from the local mountain nearby ... We have to pay [the police] money at every checkpoint. Otherwise, they catch us’ (Aural roadside seller, 11 March 2021). Even in the vicinity of major national parks, such as Prey Lang, one of Cambodia's last remaining areas of old growth rainforest, logging for firewood to feed domestic industry remains common, as a second local wood seller outlined:

As far as I know, the firewood from every place goes to Phnom Penh. I think once one place is finished, then they will go to another place for firewood. They cut down the forest [for] firewood a lot in land concessions. Firstly, they cut the inside of the forest and just leave the forest next to the road standing, to prevent [themselves] being watched by other people ... Based on my perception, I think Prey Lang will soon be cleared. Now the big forest has been cleared in Prey Lang. I can say now 95 or 99% of the forest has gone. (Kampong Thom wood seller 24 March 2021)

The experience of countries suffering similar rates of deforestation suggest that villagers are correct in identifying forest loss as a key contributory factor to drought. Rates of deforestation have been statistically linked to dry season intensity in the Amazon (Staal et al., 2020), while the ‘experiences of African countries demonstrate that the removal of forest cover increases incidents of flash floods and worsens the effects of droughts’ (UNDP, 2018, p. 1). However, local processes have also played a role in intensifying the impacts of rainfall changes. Compounding the wider issue of Cambodia's changing rainfall patterns is the local problem of water usage by garment factories, most of which is unmeasured and unregulated despite the substantial volume utilised by the industry. Garment factories located in Kampong Speu province, for example, have been criticised by nearby residents for their abuse of local water resources in recent years, placing further pressure of scarce water resources. Local residents complained that:

In the past, there were five wells in my village that the Prasad and World Bank organizations had made for us. Later on, they did not have water anymore. Before the garment factories were established here, we could get water at a depth of 22 metres from the wells. After the garment factory made their wells too, then our wells did not have any more water. In the last two years, the factory wells ran out of water as well and then they used the water from the canal. (Kampong Speu Petty Trader, 11 March 2021)

5.2 | Trading drought: Simplified supply chains overlaid on a complex economy

Despite, or perhaps reflecting, its mundanity, the humble cotton t-shirt has become something of a flashpoint of concern over the environmental and human ethics of the apparel industry in recent years. The Primark £2 t-shirt was the subject of a parliamentary inquiry in 2019, which concluded that, ‘given the stark scientific warnings we face on climate change and biodiversity loss, we must reinvent fashion’ (Environmental Audit Committee, 2019, p. 50). Yet ever undermining the idea of ‘fixing’ fashion is the sheer size and complexity of an industry worth US\$2.4 trillion and accounting for more than 75 million workers worldwide. As per data provided to the Open Apparel registry, the top six British retailing brands as of 2020, for example (including the now defunct Arcadia group), sourced goods from an average of 560 factories in 25 countries each. Between all six of them, a total of 6194 factories in 57 different countries are involved in the supply of British garments.

The complexity and scale of the garment industry acts, essentially, as a container in itself, limiting the scope of environmental impacts assessed to the global scale applicable to the industry as a whole. To be comparable, indicators must be standardised between locations, limiting the inductive or exploratory potential of study into the impacts of the industry. Where sectors affect each other in unexpected ways, therefore, it tends to remain invisible to regulatory frameworks, even when the effects in question are clearly visible to the naked eye.

Indeed, in Cambodia this is precisely what is happening. Faced with high grid energy tariffs compared with other countries in the region (Climate Investment Fund, 2020), garment factories have long sought to mitigate energy expenditure through the use of boilers and burners which generate power through the combustion of forest wood. Far from being limited to isolated infractions of regulations, this instead reflects a widespread phenomenon in the garment industry as a whole (GIZ, 2021). Yet despite having experienced the highest rate of deforestation in the region (Lohani et al., 2020) and one of the highest in the world (WWF, 2020) since the 1990s, the loss of Cambodia's forest cover has been predominantly ascribed to land concessions linked to high-value wood (WWF, 2020). Despite its widespread prevalence, by contrast, the loss of low-value trees for firewood has received far less attention, tending to be perceived by scholars (Broadhead & Izquierdo, 2010), international advocacy groups (Griscom et al., 2009), and even local people in some cases (Ken et al., 2020) as predominantly associated with small-scale household consumption rather than larger scale industrial processes.

This, moreover, is despite the practice being a part of international supply chains. UK environmental legislation does not currently require a disclosure of the emissions and environmental impacts associated with corporate supply chains. Rather, while DEFRA provides specific guidelines for Scope 1 (direct emissions) and Scope 2 (purchased energy) emissions, reporting on Scope 3 (supply-chain emissions) is discretionary even within the voluntary guidance as a whole.

While this does not mean that the industry is unregulated – indeed, Cambodia's is one of the more carefully regulated garment industries in the region as a result of the ILO's Better Factories programme that 'engages with workers, employers and governments to improve working conditions and boost the competitiveness of the garment industry' (Better Work, 2021, n.p.) – environmental standards remain within the purview of companies and buyers themselves. Regular independent inspections maintain a clear focus on labour, leaving issues like deforestation and drought – though linked to production for UK markets – outside the sectoral container of industrial governance.

Consequently, despite being an issue of cross-cutting relevance to multiple government and non-government agencies, the international, displaced nature of the garment industry's environmental impact dislocates it beyond the reach of regulation. Although widely understood to be an issue, the sectoral focus on labour regulation has allowed the practice to remain beyond the purview of regulation and inspection, ensuring that garment industrial use of forest wood in Cambodia remains an issue hidden in plain sight. Not only does this render the practice invisible within the supply chain, this uneven geography of regulation also actively incentivises the practice, deflecting the 'costs of rising consumption away from those who benefit the most and toward those who benefit the least' (Dauvergne, 2008, p. 8).

6 | FOLLOWING A HOUSE BRICK TO SOUTH ASIAN FLOODS


Afforded nostalgic British names such as 'Stafford Imperial Red' or 'Manchester Blue', and available at a fraction of the price of British-made bricks, imported bricks are a booming business in the UK. Wholesalers, such as that shown in Figure 4, proclaim that 'this is a new, imported brick ... that is made to look like a reclaimed brick and is a great alternative to traditional reclaimed London brick stock' (Brick Wholesale, 2021, n.p.).

6.1 | Flood, drought, and crop failure in South Asia

The bricks that ultimately find their way into British walls leave a legacy of environmental impacts in the site of their production. As a resident near one brick kiln in Dhaka related, for example:

In the morning, it seems as if a gas has formed. You can't look ahead, your eyes burn a lot. The atmosphere is getting heated due to the smoke from the brick kiln, as a result of which people are getting infected with various diseases. Consequently, the average life expectancy is declining day by day. People are getting weak at a young age. Children are being affected the most. Again, those who are a little physically weak are also being attacked. (Ataur Rahman Bhuiyan, fertiliser business, 13 February 2021)

As evidenced by the testimonies of local residents, airborne and heat pollution linked to the brick kilns are critical every-day issues for local people, who face their own health degrading in parallel to that of their local environment. Nevertheless, while these acute hazards decline outside of the months of production, the wider impacts of the industry in terms of shaping the impacts of climate change are both enduring and cumulative, engendering both heightened vulnerability and intensified



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FIGURE 4 An imported brick for sale in the UK. Source: Brick Wholesale (2021)

impacts to floods and droughts in the vicinity. In circular fashion, this is an issue both driven by and contributing to the impacts of drought. Threatened by increasingly unreliable rainfall in areas traditionally reliant on rain-fed rice paddy (Rahman et al., 2017), many farmers are willing to sell parts of their topsoil to the brick industry to be processed into clay. As a farmer and local businessman in Narshingdi, on the outskirts of Dhaka, explained:

The local land is in extreme danger due to the collection of topsoil. The land around the area they are cutting out has collapsed and the hole gets filled by [dirt] again. Soil is being carried away by the trucks, which run over the land surrounding the part where the soil was extracted, leaving it in a dangerous condition. Afterwards, due to the accumulation of water in the hole, the surrounding lands are also unstable, which leads to their collapse. (Alamgir Bhuiyan, 13 February 2021)

In Bangladesh, a country badly affected by droughts and floods made more frequent and damaging through climate change (Rahman et al., 2017), soil harvesting by brick kilns is intensifying the impacts of climatic pressures. Disrupting flows of water in the vicinity of brick kilns by lowering one section of land within an agricultural landscape dependent on capturing a high volume of rainwater, this reshaped topography creates a draining effect that accentuates water shortage in surrounding fields (Hossain et al., 2019). Consequently, the widespread topographical changes arising from the brick industry's topsoil removal are well understood throughout the brick belt, as too are its impacts on agricultural livelihoods. Indeed, as an agricultural and construction worker nearby outlined, the loss of tracts of topsoil increases vulnerability to both flood and drought, even within the same area and in the same year:

There are changes to water flow due to the cutting out of topsoil from the croplands. Water cannot pass properly through the channels, which results in water logging in the lands. As most of the kilns are situated in a somewhat higher place [than the surrounding lands], our area goes under water during the monsoon period, which damages the fertility of the land. Consequently, during dry season the earth is dried up like a drought. (Ismail Hossain, agricultural worker and construction worker, 22 February 2021)

Even as the frequency and intensity of droughts and floods increases elsewhere in the area, therefore, this increase is greater and more acute where the influence of the brick industry's topsoil harvesting is most widespread. Yet intensifying farmers' struggles to adapt further still is the less visible issue of environmental heating linked to the continual firing of bricks. As farmers reported in the vicinity of export kilns in Gujarat, for example, 'because of the heat of the kiln, the plants in the surrounding area don't grow, and trees don't fruit or flower' (Abanindra Islam, 3 April 2021). As a second farmer elaborated, 'the brick season is for seven months, where [the kiln] is continuously burning. The kiln's heat seeps into the soil, and the groundwater up to 50 metres around the kiln comes up warm' (Chahal Khatun, 3 April 2021).

6.2 | Trading floods: National containers and the global production of disasters

Various conceptual containers support the 'trading' of floods and droughts to South Asian brick fields, the first of which is national carbon accounting. The UK imports 14% of its total brick stock, the highest proportion in the world (OEC, 2019). Moreover, there is a clear geographic trajectory to this phenomenon towards longer distance imports. The historical dominance of the geographically closest importing countries – specifically Belgium and the Netherlands, which supplied 58% and 32% of EU brick imports respectively in the last five years – is fading. Geographically further removed countries such as Italy and Portugal are increasing as a share of the total, even as the total volume of imports itself increases. And the trend of greatest relevance lies further afield still. A growing proportion of bricks are now arriving in the UK from sources such as India, China, Pakistan, and Turkey. The number of bricks imported from outside the EU increased more than tenfold between 2015 and 2019, from 3,088,902 to 32,942,280. With a 59% year-on-year growth in non-EU bricks, current trends suggest that non-EU bricks will surpass EU-produced bricks in under five years (HMRC, 2020).

From a carbon accounting perspective, the scale of the increase is starker still. The weighted average transport emissions from non-EU sources is 0.6 kg CO₂ per brick: 10 times higher than bricks imported from the EU. Combined with 39% higher levels of emissions released in production compared with EU brick production processes (0.55 kg per brick compared with 0.395 kg per brick), this means that non-EU bricks carry embodied emissions of on average 1.15 kg per brick: 2.9 times more than domestically produced bricks, or an excess carbon cost of 0.81 kg per brick. A standard house built with 8000 of these bricks would therefore 'cost' 9200 kg of CO₂ emissions, equivalent to a car driving 23,000 miles. The excess carbon cost alone (i.e., compared to the equivalent house built with domestically produced bricks) would be 6400 kg: over 15,000 vehicle miles, or burning 15 barrels of oil.

Nevertheless, none of the UK's currently mandated legal frameworks extends to the regulation of emissions and environmental degradation overseas. Rather, UK environmental policy on material imports – as well as more broadly – is governed predominantly by three statutes. First, the Climate Change Act (2008), which aims to reduce UK carbon emissions by at least 80% by 2050, but whose targets, though ambitious, refer to domestic emissions only. Second, the Planning and Energy Act (2008), which allows planning authorities in England and Wales to impose energy use and efficiency requirements on local planning applications but does not assess imported and embodied emissions. Finally, the Energy Act 2011, which requires energy providers to meet certain energy efficiency requirements relating to carbon emissions and home energy wastage but does not apply to overseas energy production.

Rather than ensuring a meaningful reduction in real-terms emissions, the domestic accounting of emissions targets serves in part to incentivise their export overseas. Referred to as 'displacement' (World Green Building Council, 2019) or 'carbon leakage' (Ben-David et al., 2018, p. 1), this is a widespread phenomenon that represents a major obstacle to the efficacy of environmental regulation. Far from successfully regulating the estimated 620 tons of CO₂ emitted in the journey of a 40-foot container full of bricks from South Asia, UK environmental legislation does not currently require even a disclosure of the emissions and environmental impacts associated with corporate supply chains.

Moreover, as highlighted in the contextual data outlined below, the carbon dimension of brick importation is only one element within a wider process of articulated environmental damage. Soil removal alters topography in such a way as to worsen the experience of climate-linked hazards, increasing the likelihood and severity of disasters. Combined with heat and fumes from the kilns, these local environmental impacts shape the experience of the climate, intensifying the wider impacts of the climate change by degrading local conditions and rendering adaptation more challenging.

Exemplifying how 'logistics actively produces environments and subjectivities' (Neilson, 2019, p. 567), the spatial container logic through which environmental regulation is enacted renders it effectively an actor in the landscape of environmental risk. Despite the huge scale of brick imports – 400 million imported to the UK according to HMRC figures for 2019 – the national spatial container segregating environmental regulation and non-regulation not only allows but arguably also incentivises (Ben-David et al., 2018) carbon-intensive and environmentally destructive

processes to occur beyond the purview of regulation. Whether this takes the form of local environmental degradation in the form of airborne pollutants or risk intensification through topographic change, the impact on health and livelihoods compromises the adaptive capacity of those affected, increasing the risk of floods and droughts and worsening them where they occur.

7 | FOLLOWING A CEYLON TEA BAG TO LANDSLIDES IN SRI LANKA

First cultivated by the British in 1839, in response to a catastrophic coffee blight which scuppered a prior effort at crop importation, Ceylon tea has been one of Sri Lanka's major exports for over 150 years. As one retailer describes the product shown in [Figure 5](#): 'Sri Lanka, previously known as Ceylon, is often described as The Pearl of the Indian Ocean. The steep dramatic hills and brilliant sunshine provide spectacular scenery and make for a very special cup of tea. It's the high altitude that gives the tea that deliciously refreshing quality' (Twinings, 2021, n.p.).

7.1 | Deadly landslides in the Sri Lankan highlands

As a supervisor on the British-owned Lookkandura tea estate in upland Sri Lanka admitted, 'yes, our labourers are at higher risk of landslide. In particular, Upper Gonawa division people are at high risk. They are experiencing landslide signals' (Kalana Perera, supervisor, 9 April 2021). Indeed, some on the estate already have direct experience of these events:

Yes, I have experienced it. There was a landslide event in 2006. That did not happen within our settlement, but it happened 800 m away ... That was a heavy rainy day. Our settlements were located at the top of the mountain. Suddenly small soil portions dropped from the lower part of the mountain. Then a huge soil portion moved downwards. Nobody was injured from the landslide, but our houses were damaged. (Nipun Dananjaya, farmer and former permanent worker, 9 April 2021)

Although workers now are keen to move away from the dangers of the estate, Lookkandura is a well-established community whose residents often go back several generations. As those longstanding residents explain, this is an area that has undergone substantial environmental change in recent decades, in order to give rise to the current high level of landslide risk. One worker explained that 'we have many signs of an upcoming landslide, so we know it will happen soon. Our settlement

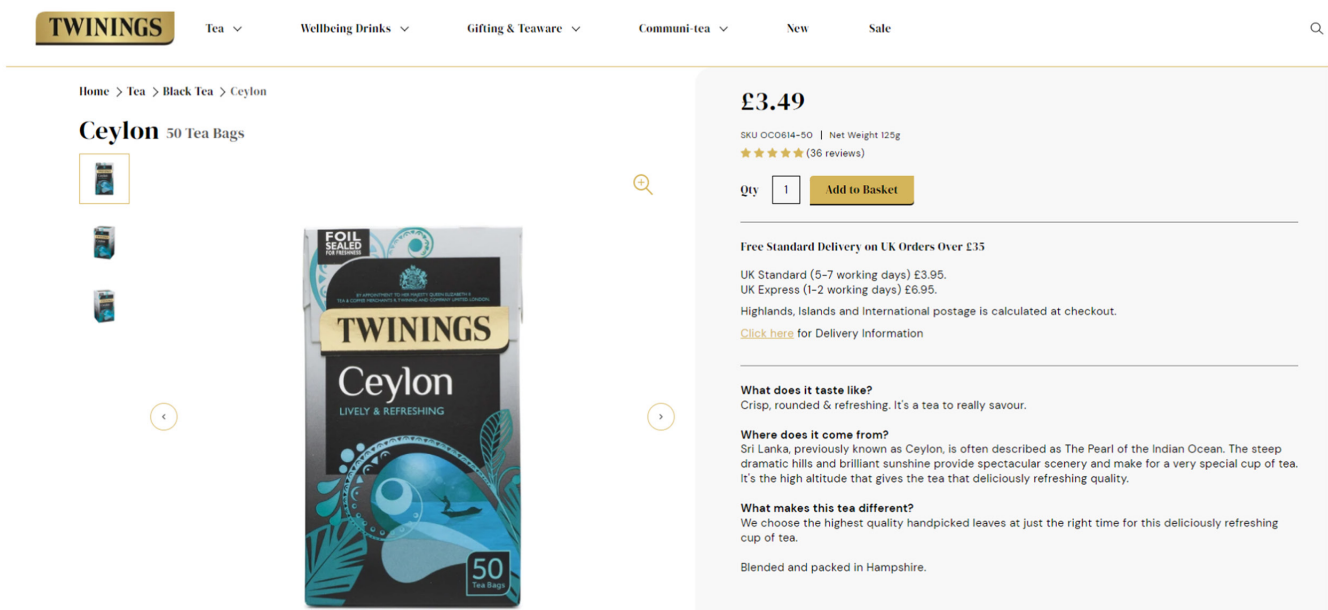


FIGURE 5 A packet of Ceylon tea. Source: Twinings (2021)

is located in a very risky area when compared with the other areas of the country' (Nipun Dananjaya, farmer and former permanent worker, 9 April 2021).

In explaining this rising risk, residents noted the changing environmental profile of the area, but were keen also to note the role of degrading residential infrastructure in intensifying this risk. As heavy rain and strong winds have become more frequent, they have progressively degraded the structural stability of tea workers' housing. Large cracks have appeared in the walls of many houses and roofs are increasingly vulnerable to the effects of storms. One retired worker explained that:

Lookkandura tea estate is my original and current home. Environmental risk on the estate has increased compared with my younger days. We did not experience this much risk of windstorms when we were young, because the walls of the houses were not cracked at that time ... Our houses' roofs are not in good condition now. Furthermore, we have a huge landslide risk now. The size of the wall cracks increases on every day of heavy rain ... We notice cracks in our lands when heavy rains occur. So now we are at high risk. (Hasitha Boyagoda, retired permanent worker, 9 April 2021)

There is, therefore, a strong sense in Lookkandura that the effects of their changing environment are accumulating in the infrastructure they depend on to protect them, heightening the risk of disaster with every new hazard they face. Roofs, frequently needing repair following increasingly intense storms in the area, sit atop walls too cracked to climb in order to access them. One worker outlined how this instigated a vicious cycle of degrading infrastructure, wherein 'damages and the risk of windstorms have been exacerbated by the nearby landslide incident that had occurred in 2006 ... [so that] ... we cannot repair our houses because of the cracks in the walls' (Lookkandura Interview 4, day labourer, 9 April 2021). Consequently, many workers had a bleak outlook on their future prospects, stating that 'now we are living without any future hopes. Because we are expecting future landslides which will destroy everything if we do not move away from this area' (Dananjaya Lakshan, day labourer, 9 April 2021).

7.2 | Trading landslides: A vicious cycle of climatic and economic impacts

At the height of its global dominance in the 1970s, the Sri Lankan tea industry supplied some 40% of the world's tea (World Tea News, 2019). Yet the industry has since faded substantially from this apogee. In recent years, 'changes in temperature, rainfall, and the occurrence of extreme weather events have adversely affected the sector', leading to significant dips in tea production (Gunathilaka et al., 2017, p. 577). Both the yield and production of tea are influenced by weather patterns (Gunarathna et al., 2018; Uyeturk et al., 2020), with drought in particular affecting both the quantity and value of tea harvests, leading to considerable loss of export earnings. Compounding this, production costs often increase during periods of drought due to the need for additional inputs such as irrigation (Gunathilaka et al., 2017), rendering them a triple blow to the economy of the industry.

In economic terms, this is clearly problematic for an industry that employs some 600,000 people, roughly 7% of the country's labour force (Gunathilaka et al., 2017). Yet there are also implications for acute human impacts of climate change in Sri Lanka. Landslides linked to rainfall changes are one of the major current and projected impacts of climate change and have increased substantially in frequency in the last 30 years. Within this rising profile of risk, 'human-induced' landslides, linked to land use change, are estimated at 80% of total landslide incidents (Sugathapala & Prasanna, 2010) and tea plantations stand out as especially problematic. As studies consistently highlight (Gunarathna et al., 2018; Hewawasam, 2010; Jayathilaka & Hennayake, 2018; Perera et al., 2019; Senanyake, 1993), tea cultivation is the form of land use most closely associated with landslides, with statistical analysis suggesting that tea plantations account for 35% of landslides, the greatest share of any form of land use (Senanyake, 1993).

This has been noted in a global literature encompassing cases studies from Shizuoka, Japan (Sugawara, 2013), to Riza (Uyeturk et al., 2020) and Anatolia (Hacisalihoglu et al., 2018) in Turkey, to the Central Kenyan Highlands (Davies, 1996; Wahlstrand, 2015). Yet the threat is increasing under climate change. This combination of increasing natural hazards with the local impacts of land use change and built infrastructural decline contributes to a triple threat to the inhabitants of tea plantations. As rainfall becomes heavier, less predictable, and more intense, the frequency of landslides is increasing, yet their threat is not evenly distributed. Rather, the threat of landslides is articulated by the specific environmental characteristics of the tea sector, effectively channelling the impacts of climate change through the lens of economic structures and international trade. Lethal climate-linked landslides in

the Sri Lankan uplands are therefore socio-economically articulated disasters, which the tea trade plays a key role in shaping.

The result is a situation in which climatic change, economic change, and the impacts of both combine to produce a vicious cycle of disaster risk. Long-term climatic changes impact on agricultural productivity, leading to declining industry, land use change leading to heightened landslide risk, and reduced capital for risk mitigation. That the decline of the tea industry has occurred in relation to the expansion of the more carbon-intensive manufacturing sector – from 20% of Sri Lankan GDP in 1960 to 30% in 2015 (Athukorala et al., 2017) – provides the final link in a cycle. Climate change and economic change respond to one another longitudinally, with the legacy of both contributing to contemporary disaster vulnerability.

Fully appreciating the provenance of this disaster vulnerability requires interrogating more than one container. On one hand, it is necessary to transect the container separating economic from environmental processes, manifest most famously in the ‘wedge’ separating adaptation and mitigation scholarship (Schwanen, 2019, p. 1). Though hardwired into contemporary climate governance, this is – as exemplified in all three cases here – a distinction far removed from the everyday realities of disaster risk. Yet beyond this, there is also a further, temporal container in need of interrogation. Simply put, since ‘global warming is a protracted phenomenon developing over hundreds of years and happening in a growing economy, we need an assessment model that is dynamic and incorporates the implications of this growth on carbon emissions and adaptation over time’ (Cruz & Rossi-Hansberg, 2020). Yet our ability to discern this dynamic relationship is hampered by sectoral containers separating environmental and economic processes on the one hand and the temporal container prioritising cross-sectional analysis on the other. This requires resolution. Rather than acting simultaneously, disasters such as landslides may be seen, as shown here, to be the product of economic and environmental factors acting both parallel and in sequence to generate intensified hazards *and* intensified vulnerability.

8 | CONTAINER LOGIC AND DISASTERS: THE LOGISTICAL DYNAMICS OF ENVIRONMENTAL DEGRADATION

Clothes, a roof over one’s head, and a hot beverage are, for many people, the fundamentals of domestic life: the most intimate and local of commodities. Juxtaposing basic goods such as these with the destruction of homes and livelihoods thousands of miles away is therefore an implicitly unsettling act, revealing the obscurity of the myriad processes predating the arrival of that commodity at home. Amid this obscurity of provenance, however, remains one of the few certainties about any given object: that it – or parts of it – has travelled a substantial distance in a container.

This is important to reflect on, not only for the mobility it alludes to, but also for the opacity of those processes of mobility. Where goods are shut into containers they become opaque, no longer directly observable (Parker, 2013). Their path can be traced only through logs and manifests at either side of their journey, rendering their movement visible only in secondary terms. Which characteristics of those goods are recorded and how is therefore the result of corporate priorities on one hand, and systems of governance far removed from empirical realities on the other.

Indeed, in our increasingly interconnected and interdependent world, packaging, quantification and the division of material resources overlay the organic complexity of locality. As more and more of the natural environment is packaged in this way, so a greater proportion is reconfigured according to the ‘spatiotemporal ideology of containerisation’ (Parker, 2013, p. 1023). Reflecting an owned and often opaque landscape of practice, inductive analyses are subsumed within existing categories, shaping and delimiting what is observable. This entrenchment of logistical thinking into the environmental geopolitics of both economic growth and environmental breakdown presents a major challenge to the analysis and practice of environmentalism (O’Lear & Dalby, 2016), demanding a fresh interrogation of the conceptual containers that govern the division, mobility, and redistribution of the environment.

Contributing to this reassessment, this paper has examined the other side of the coin of containment: the environmentally destructive ‘shadows of consumption’ (Dauvergne, 2008) hidden between the cracks of container logic. It is not the first to do so. Indeed, there are a number of connected literatures devoted to the measurement and analysis of these flows, from the ‘outsourcing’ of carbon emissions (Baumert et al., 2019; Malik & Lan, 2016), to toxic exports (Balayannis, 2020; Clapp, 2018) and waste disposal (Liu & Wang, 2019; O’Neill, 2019). Nevertheless, visibility of these waste flows is limited by the same logic that governs the flows of commodities more generally. To become visible, they must first be containerised and labelled as waste.

Where flows of goods affect environments in less direct ways – intensifying climate-linked hazards through environmental degradation, depleting resources, or reshaping environmental risk in the production of ‘climatic precarity’ (Griffin, 2020;

Natarajan et al., 2019; Natarajan & Parsons, 2021) – they remain out of sight of such analysis and thus local in their interpretation. Disasters, in consequence, though increasingly acknowledged to be predicated on precisely such a combination of socio-economic and environmental precarity (Hallegatte et al., 2020; Kelman, 2020; Oliver-Smith et al., 2017; Thomas et al., 2019), remain analytically confined in their causality to the sites in which they occur. Governing these threats more effectively means ‘recognising and confronting the international, national and human pathologies that have undermined most efforts up to now’ (Harris, 2021, p. 9). Thus, it means designing analysis capable of re-drawing these severed linkages.

In pursuit of this goal, each of the three examples here has been selected to highlight particular disjunctures of containment. In the case of a cotton t-shirt ‘produced’ in Cambodia, this manifests in non-alignment of sectoral priorities in the industrial regulation of environment and labour. In the case of the imported brick, it is the spatial mismatch between stringent national regulation of brick production set against voluntary regulation of international industry and transportation. In the case of Ceylon tea, it is the longitudinal nature of climatic–economic interactions that remain unaccounted for, with the intertwined nature of economic decline and climatic change intensifying the likelihood of disaster in a way that is experientially inextricable, yet conceptually segregated by disciplinary and policy containers.

Crucially, moreover, these three examples demonstrate how analytical containers are more than merely passive observers of environment–economy interactions. Rather, the dynamism of the economy in response to regulation renders the containers within which regulation is enacted effectively actors within the landscape of environmental change. By generating incentives to circumvent the container logic of regulation – either sectorally or spatially – regulation sets in train new processes of material mobility and environmental degradation. As a result, analytical containers become progressively less well fitted to the processes they endeavour to examine over time, as consumer goods and their hidden, often distant, environmental impacts move beyond the purview of regulation.

This is, unavoidably, a deeply complex process, redolent of the ‘complex, nationally unique, political and policy institutions that shape it’ and the ‘variable human, cultural and social characteristics affect it in countless ways (Harris, 2021, p. 10). The containers with which we frame the environment must, on this basis, be subject to constant renegotiation, highlighting the need, on a methodological level, for an inductive strand of research into the economy–environment nexus, capable of cross-cutting methodological and focal containers. Trade flows can be obscure and inaccurate in their reporting, requiring recourse to official databases, such as the UN’s Com-Trade databank, to shed light on hidden flows. Yet ground level work is also essential, in order to explore what may be missed by the accounting mechanisms recorded in these flows. The adapted ‘following’ methodology employed here, in which databases of economic flows and linked environmental and climatic impacts are used in combination with inductive ground-level fieldwork, is an example of such an approach.

On a conceptual level, moreover, any such grounded method should inform a newly critical approach to the containers that undergird environmental regulation. The sectoral, spatial, and temporal containers that undergird environmental analysis – often implicitly – must be subject to challenge not because they are wrong, but because they describe *and shape* dynamic processes. Amid a global environment increasingly governed by container logistics, understanding container logic is paramount as a means to understand disasters and what promulgates them. In the simplest terms, disasters are the product of environmental hazards and local circumstances. Just as hazards must be understood as resulting from the interaction of global and local environmental systems, so too must the circumstances that turn hazards into disasters be recognised as such.

Overarchingly, moreover, this interrogation of container logic challenges the implicit teleology that undergirds environmental regulation. The idea of environmental ‘progress’ is a powerful one, supported by environmental Kuznets curves relating to atmospheric, ground-based and waterborne pollutants in the global North, but positioned firmly on a foundation of container logic. Today, almost ‘every multinational corporation is now promising ... a future of zero carbon emissions, of zero waste to landfill, and zero deforestation’ (Dauvergne, 2016, p. 3) and ‘just about every state is managing the global environment in ways that do not impede economic growth, or deter multinational investors, trade, and financing’ (Dauvergne, 2008, p. 7). Yet while the presence, impacts, and dangers of environmental degradation linked to processes of production have declined in certain spheres, extending analysis beyond the given sectoral and spatial containers reveals a less positive reality. Dangers that appeared to have been resolved over time have in fact been moved through space and across sectors. Climate change impacts, including the slow-burn disasters of droughts and floods, have been traded out by wealthier countries and imported by less wealthy ones as the price of economic growth.

9 | CONCLUSION

Disasters are neither natural nor local. Rather, in an era of global environmental change and global material dynamism, climatic and economic trends interact to co-produce complex risks and precarities, shaping and directing how disasters

manifest. As material mobility plays an ever-greater role in shaping the natural environment, the logistics of international trade are becoming more deeply imbricated in the co-production of climate precarity. In its most extreme manifestation, patterns of global trade are shaping, directing, and intensifying climate-linked hazards, promulgating disasters in places thousands of miles from where traded commodities are ultimately consumed.

Throughout all of this, the container, both as physical presence and conceptual frame, is playing an increasingly central role, defining what is valuable, what is vulnerable, and what is mobile. By overlaying and abstracting the natural environment, the logic of the global container economy supplants the complexity of local environments with globally transferable container logics. For material to possess relevance and value within the contemporary container economy it must be codified, categorised, and counted. Yet while elucidating certain processes, these abstractions obscure others, allowing harmful environmental processes to emerge and persist between the interstitial cracks in container thinking.

In exemplifying this, this paper has juxtaposed three everyday commodities with disasters linked to the supply chains that produce them. These examples reveal environmental regulation to be an actor in the dynamic landscape of environmental degradation, alongside changes in economic and climatic systems, incentivising the mobility of materials and goods across borders, between sectors, and beyond the reach of predominantly nationally focused regulations. The result of this 'outsourcing' of environmental impacts along supply chains is that environmental impacts reflect the channels of economic and physical goods through which they influenced and directed, rather than the sites in which they are consumed. Climate change impacts and disasters are thereby revealed as intertwined in the global economic geography that shapes and directs their impacts.

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DATA AVAILABILITY STATEMENT

Data is available through ResearchFish.

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