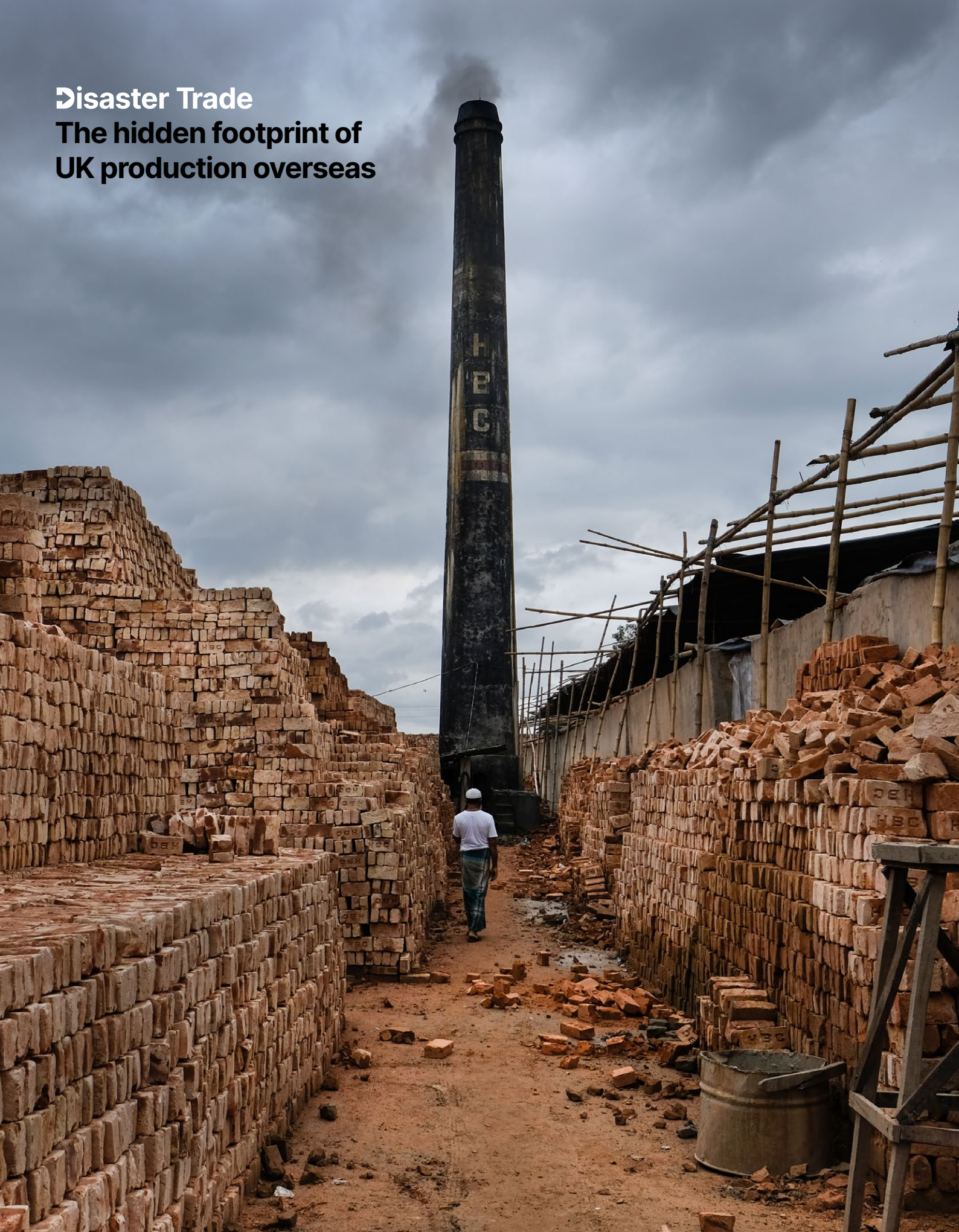


Disaster Trade
The hidden footprint of
UK production overseas





Importing goods, exporting disasters

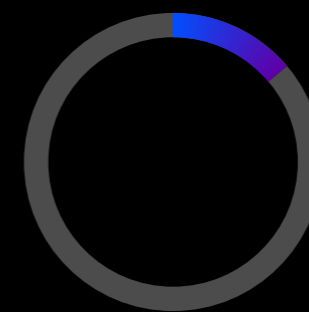
01
The UK's carbon footprint is increasingly international, with almost half emissions now imported.

02
Measurement and regulation of overseas emissions and environmental impacts is less stringent.

03
Hazards are intensifying under climate change, but UK trade is worsening their impacts.

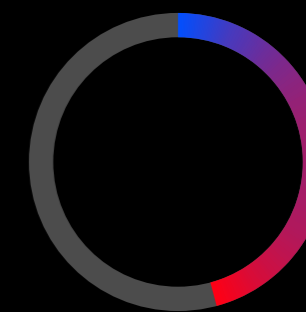
A brick factory on the outskirts of Dhaka. Brick factories like this generate air pollution and excess heat that are damaging to local people and agriculture.

1990



14%
of UK emissions were produced overseas

2016



46%
of UK emissions were produced overseas

Disasters like floods, droughts and landslides are a growing risk for millions of people in the global South. Yet in our globalising world, they are increasingly connected to processes originating in the global North. Focusing on imports from Cambodia, Sri Lanka and the South Asian 'brick belt', this project examines how British trade shapes the disasters that afflict the UK's trading partners. As it exemplifies, the UK's trade in garments, bricks and tea serves to displace emissions and environmental degradation, whilst intensifying the impacts of natural hazards linked to climate change. These complex impacts constitute the UK's hidden disaster footprint.

The UK and other countries like it have committed to ambitious targets on carbon emissions reduction, with apparent success. Yet the exodus of production overseas allows the environmental impacts of their manufacturing to be regulated less stringently and accounted for less carefully.

As of 2016, almost half of UK emissions were produced overseas, compared with 14% in 1990. Worse still, the process of moving these emissions creates emissions of its own. With freight expected to account for 28% of global emissions by 2050, the UK's carbon footprint is increasingly global, mobile, and harder to define as a result.

UK carbon emissions are increasingly being produced beyond our borders.



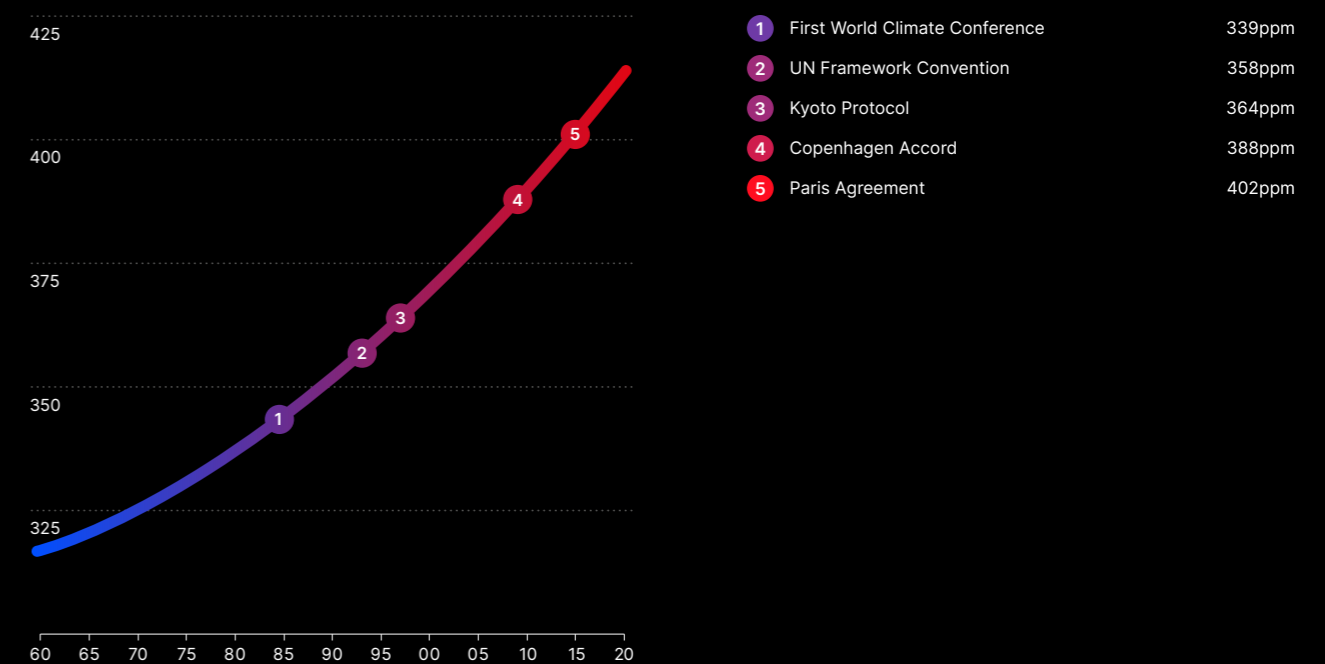
The hidden footprint of British trade

The UK is now the G7's largest proportional importer of emissions, with carbon consumption from imports now 28% higher than 1997 in absolute terms. This rise in imported – or embodied – emissions chips away substantially at the UK's domestic emissions reductions, reducing the government's gross 44% figure to a net 10% reduction. The UK is effectively outsourcing its carbon intensive industry to the global South.

A wood depot outside a major exporting garment factory in Cambodia. At full capacity, large factories like this one burn thousands of tons of forest wood every week to generate power for production processes.

Atmospheric CO₂ concentration

Parts per million



This outsourcing of emissions is a key reason why global atmospheric CO₂ concentrations have continued to increase despite decades of increasingly stringent regulation. At the time of the first World Climate Conference, atmospheric CO₂ stood at 339 parts per million (ppm); at the foundation of the UNFCCC 13 years later, it was 358ppm. As the Paris agreement was signed it was 402 ppm; and today, it stands at 417ppm.

Yet emissions are only part of the story. Climate change is intensifying natural hazards such droughts, floods, heavy rain and very hot days, but a hazard only becomes a disaster when it meets local vulnerabilities. British trading practices play a role in heightening these vulnerabilities overseas, worsening disasters where they occur and intensifying climate change impacts in the locality of goods produced for UK consumers. Despite their global reach and severity, these environmental impacts of British trade, which turn global hazards into local disasters, are not recorded in the UK's statistics or strategies on climate change.

A hazard only becomes a disaster when it meets local vulnerabilities. British trading practices play a role in heightening these vulnerabilities overseas.



Revealing the UK's disaster footprint

The term 'natural disaster' is still widely used to refer to events such as droughts, floods and landslides. Yet as is increasingly recognised, this is a misleading term, erroneously attributing disasters to 'natural' processes dislocated from the global economy. Not only are global processes of carbon emission driving such events with increasing regularity, but local economic processes articulate their manifestation in practice.



Climate change impacts are effectively traded out by wealthier countries and imported by less wealthy ones as the price of economic growth.

When floods destroy houses and droughts destroy crops, where, who and to what extent they impact depends on the flows of goods, people and money that structure the local environment. For every good that we use and every object we import, therefore, there is a triple cost. First, there is the carbon cost which contributes to climate change and makes extreme weather more likely. Second, there is a local environmental cost, which exacerbates the effects of extreme weather. Finally there is a human cost, as people and communities absorb the impacts of climate change, driven and intensified by global trade.

Climate change impacts, including the slow burn disasters of droughts and floods, are therefore effectively traded out by wealthier countries and imported by less wealthy ones as the price of economic growth. Yet this environmental degradation remains hidden by an emphasis on individual nations that is no longer appropriate for a globalised and interconnected world. What is necessary is a broader conception: a 'disaster footprint' that recognises disasters as linked to economic processes of industry, trade and consumption.

Overleaf: A waste burner attached to an exporting garment factory. Waste burning is common practice in the Cambodian garment industry, often being used to generate power for the factory.

Above: A garment sector dump on the outskirts of the Cambodian capital, Phnom Penh.

Garments



The fabric of disaster Hidden environmental impacts of garment imports from Cambodia

01

Garment supply chains are long, complex and obscure, resulting in hidden environmental impacts.

02

The length of garment supply chains conceals high levels of emissions from transport.

03

Limited supply chain regulation means that serious environmental abuses are hidden within UK overseas production processes.

04

Changes to overseas energy production generate massive increases in the UK's consumed carbon footprint.

The hidden footprint of garment imports

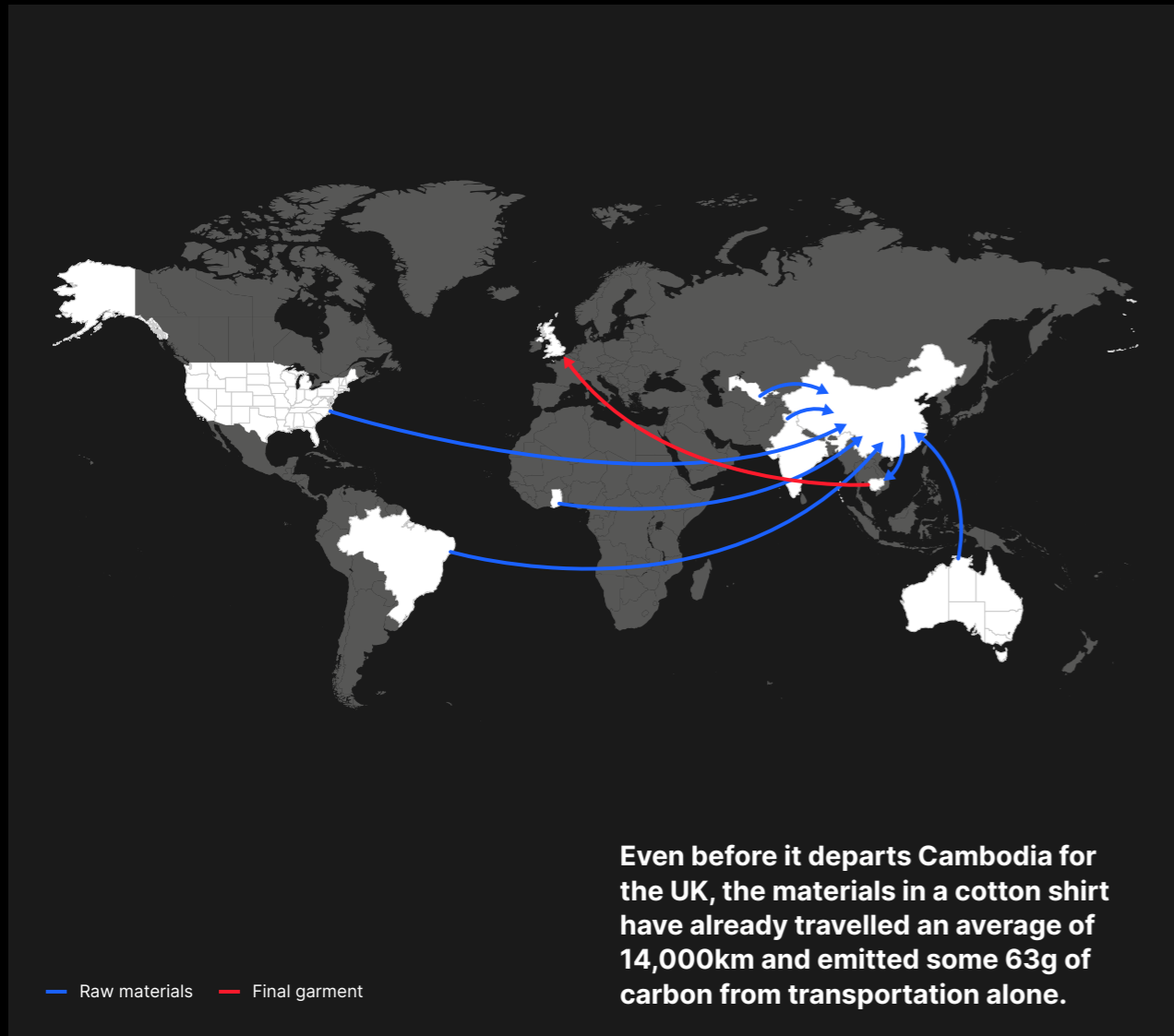
In the UK, we make very few of the clothes that we wear. Just over 20% of our apparel comes from China, followed by almost 11% from Bangladesh. A little lower down comes Cambodia, whose annual 40,000 tons account for just under 4% of the UK's clothing needs. Yet the complexities of contemporary garment manufacturing mean that the name on the label is often only the final stage of a much longer and more complex journey.

Before your garment labelled 'Cambodia' arrives for the first time on Cambodian soil, the raw materials from which it is made have travelled between 5530km and 10284km, predominantly from China. Bearing in mind China's own cotton imports from Australia, The United States, Uzbekistan, India and Brazil, the materials in a garment labelled 'Cambodia' have travelled up to 64,216km on their way to you: over one and a half times the circumference of the Earth.

Extrapolated to the 23,000 tons of cotton-based exports from Cambodia to the UK that originate from China, this equates to emissions from transport of over 6000 tons CO₂e annually, of which more than 2,500 tons are derived from the transport of raw materials. That's the equivalent of 33 tanker trucks full of gasoline being burnt, or the average total annual emissions of almost 1000 Europeans, concealed by the logistics of global production.

Emissions and garment supply chains

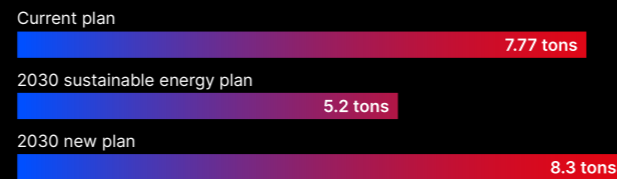
The UK government has announced plans to end coal burning for energy by 2024. Nevertheless, in the UK's supply chains, coal burning is increasing. Since 2020, four coal burning power plants have been proposed by the Cambodian government: three planned within Cambodia's borders and a further plant, intended to be based in Laos for Cambodian supply. This latter station will generate a staggering 3.4 GW of electricity for Cambodia each year, in the process consuming so much coal that it will require its own coal mine to be dug to fuel it.



Cambodia's four new plants will see 80% of the Kingdom's energy generated from non-renewable sources by 2030, up from 34% today. The new energy plan underway in Cambodia therefore represents a relative increase in the carbon cost of garment of 37% over the previous energy plan, a change of direction that means each 220g t-shirt supplied to the UK will be associated with an additional 680g of CO₂ emissions: over three times the weight of the garment itself.

Extrapolated to the UK's over 40,000 tons of annual garment imports, this policy-shift, which has gone almost entirely unnoticed in the UK, will by 2030 have therefore increased the UK's consumption-based carbon footprint by some 126,200 tons of CO₂ annually, equivalent to almost 70,000 tons of coal being burned each year in the UK, all from 4% of the UK's garments.

CO₂ emitted per ton of garments produced



Deforestation and garment burning



Cambodia has experienced the highest rate of deforestation in the region and one of the highest in the world since the 1990s. Yet despite a recent crackdown, 31% of factories continue to use forest wood for fuel.

Truck drivers unload wood at night in Kandal province. Forest wood harvesting is illegal in Cambodia and has been cracked down on heavily since 2018, yet remains a common source of fuel in the garment and other industries.

Each factory burning forest wood uses a daily average of 3.25 tons. This indicates an average of 562 tons of forest wood being burned by the Cambodian garment industry every day, or 205,130 tons, equivalent to 810 to 1,418 hectares of forest, being burned each year. In addition to the carbon emissions associated with production, therefore, the contribution of the industry to Cambodia's 'alarming rate of deforestation' represents a substantial concern in its own right.

In addition to the problem of forest wood use, factories also pollute in other ways. 13.9% of Cambodian garment factories burn their own garment waste for fuel: a practice associated with both carbon emissions and the release of multiple toxic substances in the local environment.



15%

Factories use garments for fuel exclusively or in combination with other fuels



32%

Factories use forest wood for fuel exclusively or in combination with other fuels

Garment industry Key messages and recommendations

01

Greater regulation of UK supply chains is necessary in order to prevent serious environmental degradation occurring in the course of manufacturing British clothing. Large-scale deforestation, in particular, is a key issue requiring immediate attention.

02

As the UK transitions away from domestic manufacturing, there is an urgent need to address energy generation in international supply chains. Changes in exporter energy profiles have a major impact on the UK's carbon footprint, yet receive little scrutiny from government, or buyers.

03

Action is needed to tackle the current obscurity of garment manufacturing supply chains. At present, it is extremely challenging, if not impossible to trace global supply chains in full. More accurate supply chain mapping is a key step towards greener overseas production.

Bricks



Constructing climate change

Environmental and human impacts of brick imports from South Asia

01 The UK is the world's largest importer of bricks, importing over 400 million each year.

02 These bricks are often produced in dangerous and exploitative conditions.

03 A brick imported from South Asia 'costs' almost triple the carbon emissions of a domestic brick.

04 Brick production in South Asia enhances disaster risk, intensifying the impacts of climate change.

Brick imports to the UK

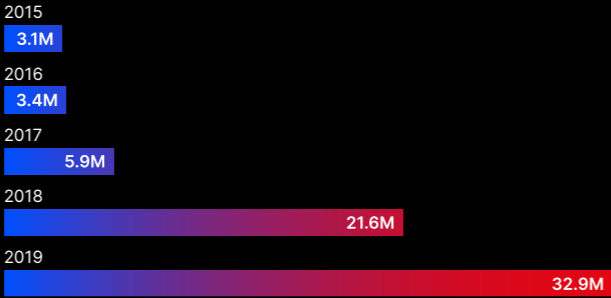
As the UK economy transitions away from manufacturing, the nation's urban infrastructure is becoming ever more prone to carbon embodied in the global materials trade. This is exemplified by growing brick imports to the UK. Having exceeded its capacity to produce bricks domestically, the UK's response to its looming 'housing crisis' has left domestic brick production insufficient to meet demand, leaving the UK facing a 'brick deficit' of more than half a billion bricks per year.

The result has been a rise in brick imports to more than 400 million per year, mainly from the European Union but increasingly from outside Europe. The UK now imports 16% of its total brick stock, the highest proportion in the world.

In terms of the emissions embodied in UK construction, this is cause for significant concern. In particular, the transportation costs associated with importing heavy, high-volume materials such as bricks, ensures that they are associated with a considerably higher volume of CO₂ emission than those produced domestically.

In addition, the wider environmental and social footprint of these imported bricks, recognised as a source of key humanitarian and socioeconomic issues, including modern slavery, has similarly been ignored in UK policy.

Non-EU brick imports



Workers collect fired bricks in a brick factory in Narsingdi.

Emissions and the international brick trade

With a 59% year on year growth in non-EU bricks, current trends evident in HMRC data suggest that non-EU bricks will surpass EU produced bricks in under 5 years – a trend that Brexit is expected to exacerbate. The far greater distances involved in transporting bricks from major non-EU exporting countries means that the carbon emissions embodied in brick imports from these non-EU sources are several times higher than those produced domestically.

Whilst brick importation from the global South in this way is a relatively new phenomenon, it is one that is growing rapidly. In 2015, the proportion of imported bricks arriving to the UK from outside the EU amounted to just 1.1%, but within five years this had increased to 8.8%. From a carbon accounting perspective, the scale of the increase is starker still. The exceptionally high transportation emissions associated with brick imports from the global South mean that they carry an outsize influence, accounting for 25.5% of all emissions from brick imports in 2019.

In addition, brick production in the South Asian brick belt has a profound effect on the local environment. Brick production linked to UK imports results in heightened vulnerability to climate change, increasing the frequency and intensity of droughts, floods and crop failures in the surrounding area.



“I feel weak due to the heat from the fire. My head gets hot. My skin has deteriorated as well. I feel terrible breathing in the fumes from the burning coal gas.”

Human impacts of the brick trade

Brick production in the South Asian brick belt has been widely noted for the dirty, dangerous and physically degrading conditions in which work takes place. Many of the industry’s labourers are debt-bonded, made to work – alongside their families in many cases – in unhealthy and sometimes lethal conditions to pay off interest on long term debts accrued outside of the kiln.

Brick kilns in South Asia are notorious spaces of labour exploitation with low, mostly piece-rate, wages for long hours of work. Wage arrangements often involve debt bondage to keep workers attached to the kiln for months or years on end. Consequently, the labouring population working in brick kilns consists of some of the poorest and marginalized sections of the informal workforce. Child labour is widely prevalent, workplace hazards are common and living conditions are generally poor. Nevertheless, bricks produced in conditions like these are now increasingly commonly used in the UK.

Construction industry Key messages and recommendations

01 Despite strong legislation on domestically produced emissions, weak legislation of supply chains and imports means that much of the UK’s consumption-based carbon footprint remains unaccounted for.

02 Stronger regulation of Tier 3 supply chain emissions and environmental impacts is necessary in order to prevent the UK’s consumption-based carbon footprint and environmental footprint being ‘outsourced’ to overseas suppliers.

03 In addition, there is a need for greater regulation of labour practices associated with goods produced overseas. As the case of imported bricks shows, production practices involving human-rights violations including child labour and bonded labour remain a prevalent but hidden feature of UK supply chains.

A brick factory labourer covered in brick dust. The industry is renowned for the difficult and unhealthy conditions brick workers must endure.

Tea



For the price of a cup of tea Ceylon Tea and the intensification of landslide risk in Sri Lanka

01
Climate change is linked to changing rainfall and growing risk of landslides in Sri Lanka.

02
Tea plantations are intensifiers of landslide risk.

03
Many of these plantations are British owned, whilst others produce goods for the British market.

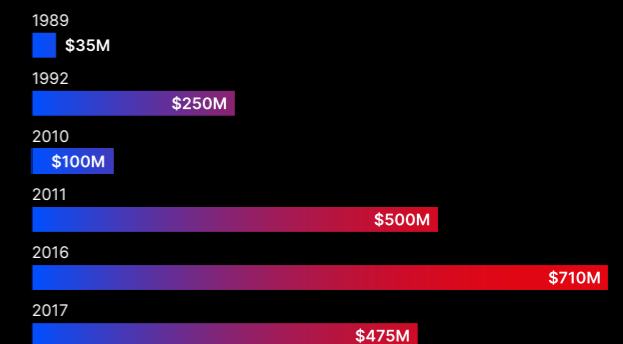
Tea plantations and disaster risk

The UK imports around 16% of its tea from Sri Lanka, amounting to 1.3 million tons each year. Yet as the global climate changes, producing this tea is associated with growing dangers. The need to situate tea plantations on slopes, to avoid waterlogging, in areas associated with monsoon rainfall patterns, places the large number of workers involved in the cultivation of tea crops at heightened risk of landslides.

The case of tea exemplifies how the hazards associated with primary agricultural production are shaped by the twin forces of economy and climate, resulting in heightened dangers and intensified environmental impacts in the global South. Whilst Sri Lanka experienced an average of less than 50 annual landslides up to 2002, this number has since rapidly increased as part of a rising trend in both incidence and fatality in recent decades. They are now a clear and ever-present danger to communities living in the affected areas, punctuated by intermittent major disasters.

In 2014, 37 people were killed on the British-owned Meeriyabadda tea plantation, when part of a cultivated hillside collapsed, burying dozens. In 2017, floods and landslides were responsible for the deaths of over 150 people, whilst December 2019 saw flooding and landslides prompt the evacuation of over 20,000 people.

Damages due to landslides in Sri Lanka





Climate change and the tea trade

In Sri Lanka and other tea producing countries, the effects of climate change are already being felt by the industry. Both the yield and production of tea are influenced by the country's changing weather. Yet there are also implications for acute human impacts of climate change in Sri Lanka. From 1990 to 2001, an average of 587 Sri Lankans were affected by landslides each year. From 2002 to 2019, this annual figure rose to 15,400: a 26-fold increase. Tea plantations account for 35% of landslides, the greatest share of any form of land use.

This combination of increasing natural hazards due to climate change, with the local impacts of land use change and built infrastructural decline constitutes a triple threat to the inhabitants of tea plantations. As rainfall becomes heavier, less predictable and more intense, the frequency of landslides is increasing. These risks are enhanced by the specific environmental characteristics of the tea sector, placing those who work in it at greatest risk.

Lethal climate change-linked landslides in the Sri Lankan uplands are therefore part of the footprint of British trade. Almost half of all British tea plantations are located in areas where landslides are to be expected or most likely to occur, meaning that British tea production is heavily implicated in the risk faced by workers.

From 1990 to 2001, an average of 587 Sri Lankans were affected by landslides each year. From 2002 to 2019, this annual figure rose to 15,400: a 26-fold increase. Tea plantations account for 35% of landslides, the greatest share of any form of land use.

A worker repairs a wall damaged by a landslide in the Sri Lankan highlands. Landslides are a growing threat to workers in the area.



"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."

Living landslide risk in British tea plantations

Producing tea for British consumers means living against a backdrop of environmental threats to life and property. For workers in the more than 10% of British tea plantations located in areas categorised as the highest level of landslide risk, this danger often manifests in physical signals, integrating an awareness of the dangers of landslides into everyday life and labour.

A worker points out the large cracks in his house.

These low-level impacts have a cumulative impact on vulnerability. 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. In the words of one worker:

“Lookandura 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 house were not cracked at that time ... Our houses' roofs are not in good condition now. 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.”

Tea industry

Key messages and recommendations

01
In many of the areas producing goods for British consumers, the impacts of climate change are making work increasingly risky for workers. These risks are shaped and intensified by the conditions in which goods are made.

02
Tea plantations make landslides more likely because they weaken soil integrity. This high risk is cumulative, as changing conditions weaken residential infrastructure, making future landslides more deadly.

03
Ethical trading practices should therefore take into account the ways in which trading practices enhance the risk of climate change and the likelihood of disasters.

04
In addition, investment in adaptation should take account of trade and production as intensifiers of disaster risk, in order to reduce the environmental and human impact of goods produced for British consumers.

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