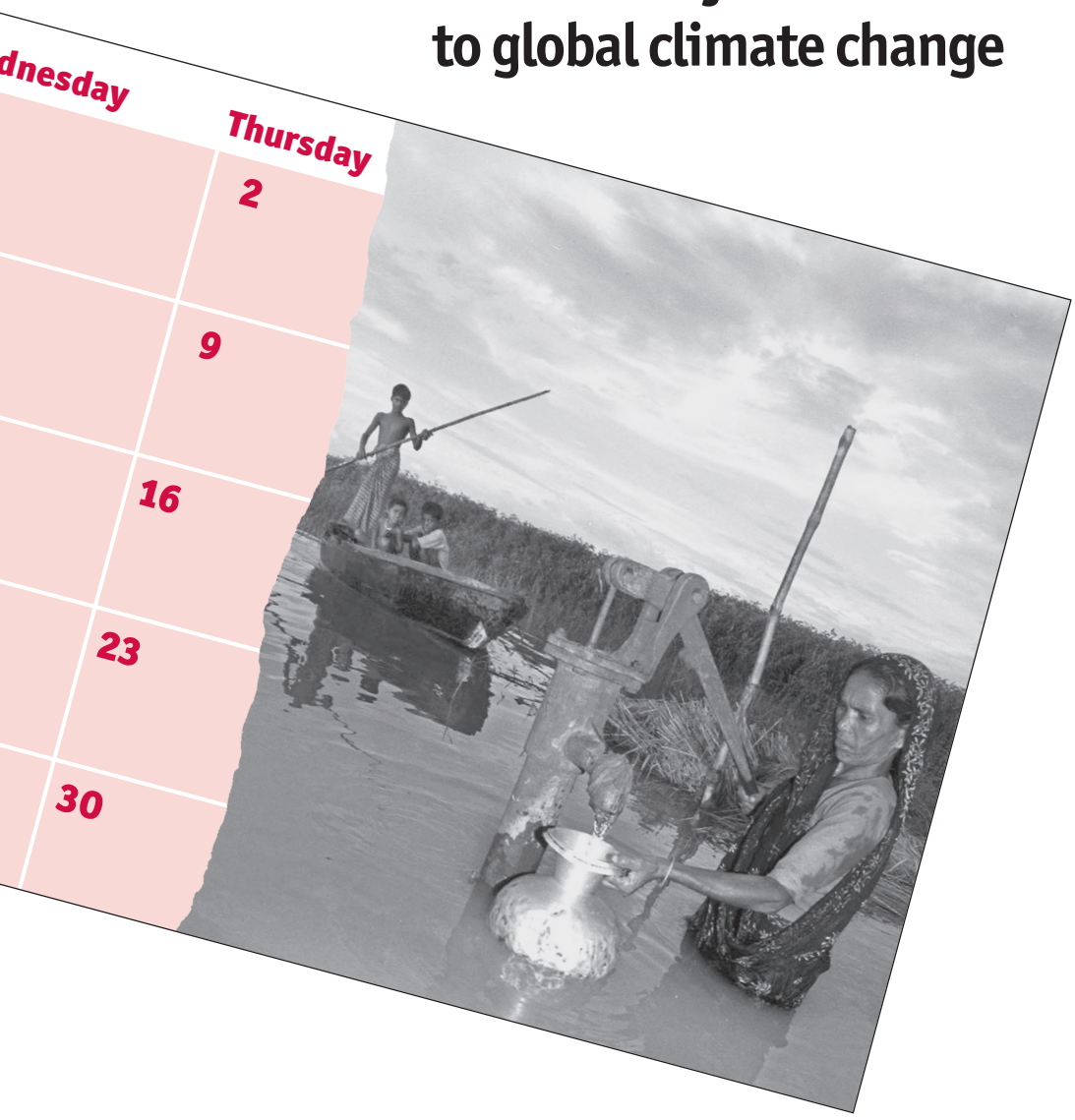
January 2007

Climate calendar

The UK's unjust contribution to global climate change



World Development Movement

By Tim Jones and Peter Hardstaff

With thanks to: Beverley Duckworth, Leila Deen and Ellen Berry

Front cover image: A woman standing in floodwaters collects drinking water from a hand-pump in the Narayangonj district of Bangladesh during floods in 2002. AP PHOTO/FARID AHMED

Design: Richard Reeve

About World Development Movement
WDM campaigns to tackle the root causes of poverty. With our partners around the world, we win positive change for the world's poorest people. We believe that charity is not enough. We lobby governments and companies to change policies that keep people poor. WDM is a democratic membership organisation of individuals and local groups. Please contact WDM for membership information.

This publication builds on WDM's long track-record in producing leading research and thought-provoking analysis on a wide range of development issues.

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Introduction

just *adj.* morally right and proper; fair
justice *n.* the quality of being just; fairness

Climate change is a justice issue

Poverty is not a 'natural' state; it is the product of human actions (or the lack of them). The World Development Movement (WDM) campaigns to tackle the root causes of poverty. WDM demands change to the policies and practices of industrialised countries and their companies that keep people in poverty. WDM demands justice for the world's poor.

The climate change that we are experiencing, and could continue to experience more dramatically in the future, is the result of human actions. The release of greenhouse gases into the earth's atmosphere is causing a global warming effect leading to climate change. The practical result of this warming is, amongst other things, more extreme weather along with sea level rise and glacial melting.

The evidence shows that the impact will be felt most by the poorest people in the world. And new evidence is appearing all the time that the impact will be worse than is currently predicted.

Climate change is perhaps the greatest *global* injustice. It is the richest people in the world who have produced and who are still producing most of the greenhouse gases causing climate change. Yet it is poor people in poor countries – those who contribute little or nothing to the problem – who will suffer the most severe consequences.

WDM's *Climate calendar* is a new way to look at the issue of climate change; who is responsible for it and thus who must take the lead in delivering the solution; reduced greenhouse gas emissions. After looking at WDM's *Climate calendar*, there is no escaping the fact that addressing climate change is a matter of global justice.

The calendar shows how the UK is a massive over-producer of the main greenhouse gas, carbon dioxide (CO_2). In just eight days, the average UK citizen produces as much CO_2 as the average person in one of the poorest countries will produce in a year. It takes only 40 days for the UK to produce as much CO_2 per person as India will in a year. After 161 days, the UK's per capita emissions are as high as the worldwide average for the year.

The UK's use of fossil fuels is highly unsustainable. If we are to have a reasonable chance of preventing global temperatures increasing by more than 2°C, each person needs to emit around 1.1 tonnes of CO_2 every year. It takes just 41 days for the UK to emit more CO_2 per person than this. For the remaining 324 days of the year, the UK is contributing to climate change.

This calendar shows the injustice of the UK's use of carbon emissions. It includes stories of how communities in countries making little or no contribution to climate change will be badly affected. With average global temperature increases of 0.7°C in the 20th century, southern Africa has already experienced more frequent and intense droughts and Bangladesh more frequent and intense flooding. The World Health Organisation (WHO) estimate at least 160,000 people are already dying every year due to climate change-related diseases. The greater the temperature increase on pre-industrial levels, the more severe will be the consequences (Box 1).

The rich world is riding on the back of a vast pool of poor people who make no net contribution to greenhouse gas emissions. If every country in the world emitted as much CO_2 per person as the UK, global emissions would more than double. Over the last ten years, if the whole world had emitted CO_2 at the same rate as the UK, global emissions would have been 120 per cent higher.[2]

Box 1. Global rise in temperature and predicted effects[1]	
Increase in average global temperature (°C)	*Predicted effects*
1.0	**Small glaciers in the Andes disappear completely, threatening the water supplies of up to 50 million people.** **The number of people dying each year from climate change-related diseases increases to 300,000.**
2.0	**Declines in crop yields across tropical regions, including a five to ten per cent decline in Africa.** **Between 40 and 60 million more people exposed to malaria in Africa alone.** **Up to ten million more people affected by coastal flooding each year.**
3.0	**Between 150 and 550 million more people at risk of hunger due to drought and lower crop yields, one to three million more of whom die each year due to malnutrition.** **Up to 170 million more people affected by coastal flooding each year.** **The proportion of the land surface suffering from severe drought at one time will increase from 10 per cent today to up to 40 per cent.**
4.0	**Between a 30 and 50 per cent reduction in water availability in southern Africa.** **Drastic decline in agricultural yields: 15 to 35 per cent in Africa.** **Between 70 and 80 million more people exposed to malaria in Africa alone.** **Up to 300 million more people affected by coastal flooding each year.**
5.0	**The final glaciers disappear, taking away the dry season water supplies of one-sixth of the world's population. Hundreds of millions affected in Latin America and Asia.** **Unprecedented consequences as a result of drought, flooding, declines in crop growth and increased disease.**

Over 84 per cent of the world's population live in countries which emit less CO_2 per person than the UK. Even within rich countries, the UK emits more than the average for the European Union (EU). Moreover, the UK's responsibility is higher when the historical contribution is considered. The UK was the first country which started contributing to climate change. In 1830, the UK began emitting more CO_2 a year than the current sustainable level.[3] For the past 175 years, the UK has been contributing to the climate change we are now seeing.

But such figures only highlight the inequality *between* countries. They take no account of the inequality *within* countries. Across both the industrialised and developing world, wealthy people consume more and cause more greenhouse gas emissions than poor people. It is safe to assume that half the world's population do not contribute to climate change (see page 19).

The UK's excessive emissions are causing suffering to the world's poorest people. Therefore, the only just response is to radically cut greenhouse gas emissions.

Latest scientific research suggests that to have a greater than 50 per cent chance of keeping the increase in global temperature since pre-industrial levels to 2°C requires the atmospheric concentration of greenhouse gases to stabilise at 450ppm CO_2e*.[4] Global greenhouse gas emissions need to fall by 70 per cent by 2050 in order to meet this target. The world currently emits an average of 4.2 tonnes of CO_2 per person, but on current population levels, this has to fall to 1.3 tonnes by 2050, and 1.1 tonnes by 2100. Sixty-nine countries containing 2.5 billion people already emit less than 1.1 tonnes per person.

* CO_2e means the 'carbon dioxide equivalent' which is the measure of all greenhouse gases. The CO_2e value gives a concentration of greenhouse gases which has the equivalent effect as the given amount of CO_2. 'ppm' is 'parts per million', a measure of the concentration of a gas in the atmosphere.

The UK is a disproportionate global emitter; with less than one per cent of the world's population we emit more than two per cent of the world's CO_2, at a rate of 9.6 tonnes of CO_2 per person. Therefore, tackling climate change requires the UK to make cuts in emissions of 85–90 per cent by 2050. Some have calculated that the cuts needed are even greater; 90 per cent by 2030.[5] Either way, what is clear is that the radical cuts in UK emissions need to begin now.

Climate justice and corporate globalisation

The inequality in emissions reflects inequality of income and wealth. The gap between the poorest fifth and richest fifth of the world's population doubled between 1960 and 2000.[6] The richest one per cent of the world's population receive as much income as the poorest 57 per cent.[7] Over the past 25 years, the global economy has worked to massively enhance the incomes of the rich, whilst leaving the poor behind. For every £100 of economic growth in the global economy, only 60 pence has gone to the poorest section of global citizens; those living on less than one US dollar a day.[8] This vast expansion of global inequality has been the result of an extreme liberalisation of the global economy, principally conducted by industrialised countries through the International Monetary Fund (IMF), World Bank and World Trade Organisation at the behest of multinational corporate lobbies.

Global economic growth has been viewed as the key indicator of global progress, but this is deeply flawed. Work by the International Labour Organisation demonstrates a long-term trend across the globe of failure to convert growth of Gross Domestic Product (GDP) into reduced unemployment.[9] In 2005, the number of people without jobs globally reached a record high of 191.8 million, in spite of the world economy growing by 4.3 per cent.[10] The United Nations Development Programme has shown that GDP growth does not necessarily mean pro-poor growth and consequently argues for different measures that better account for whether or not the lives of the poorest have improved.[11]

It has become increasingly clear that GDP growth can be accompanied by increased inequality, increased environmental destruction and persistent poverty. The global economy has been growing for decades yet inequality has increased, unemployment has increased, poverty has not been significantly reduced and we are facing the global crisis of climate change. The opposite can also be true; tackling problems like climate change can be achieved in ways that enhance our quality of life rather than reducing it, but this will require us to recognise the evidence and stop equating quality of life with GDP growth.

Government policies are often designed with the primary aim of benefiting business. Global competitiveness is placed as a higher goal than tackling climate change or dealing with other social problems. Whilst most corporate lobbies now accept that climate change is happening, they often seek to prevent rules which will compel them to take action. The Confederation of British Industry (CBI), Institute of Directors and Federation of Small Businesses have stressed that measures to tackle climate change should not create "an undue burden on business".[12] Director General of the CBI, Richard Lambert, has said: "Unilateral action by the UK could seriously damage the competitiveness of our economy, with consequences for jobs and investment."[13]

It is worth noting that the CBI lobbies for international policies that will make it *easier* for companies to transfer operations overseas in order to exploit cheaper labour and poorer working conditions, so its concern for British jobs should be viewed in that context. Also, it is not always clear whether business lobby groups are representing all of their member's interests. In the case of climate change, the insurance sector and financial sector are increasingly sensitive to the issue.

Whatever the motivations of business lobbyists, the only way that governments can address climate change is by acting in the broader public interest rather than in the corporate interest.

The need for action

"Unless there is a radical shift in the pattern of consumption and production, humanity is heading for an environmental catastrophe. That message must be reiterated and made part of the vocabulary of the masses of people."[14]
Yash Tandon, executive director of the South Centre

The UK government has presented itself as the world leader on development, when it has actually been a key state supporting free market globalisation. In the same way, the UK government now presents itself as a world leader on climate change. Prime Minister of the UK, Tony Blair, has said: "There is nothing more serious, more urgent or more demanding of leadership, here of course but most importantly, in the global community. Britain is more than playing its part."[15] And once again, the rhetoric is different from the reality. The UK government has a target of reducing greenhouse gas emissions by 20 per cent on 1990 levels by 2010. Yet since New Labour came to power in 1997, carbon emissions have actually increased by six per cent.[16]

In the absence of concerted government action, calls for individual, voluntary action inevitably seem like attempts to pass the buck. For instance, Environment Secretary David Miliband consistently makes statements such as: "If one million people change three light bulbs in their house, it would be the equivalent of taking 100,000 cars off the road."[17] Yet climate change cannot be tackled by individuals, or businesses, without government creating the right framework to discourage high carbon emissions and encourage low carbon emissions.

ERIC BEGIN/FLICKR

Emissions from UK aviation make a greater contribution to climate change than the combined emissions of Bolivia, Ecuador, Peru, Paraguay and Uruguay.

The vast majority of us believe that government levying taxes is essential for a functioning and just society. We would not want to rely on voluntary contributions to the Exchequer to pay for our public services. Similarly, we cannot rely on voluntary action to address climate change. Personal lifestyle changes are essential but will not happen on anything like the scale needed if the government relies on simply exhorting us to 'do the right thing'. That is why WDM is campaigning for the UK government to take radical action.

This means using whatever instruments are available – taxes, regulations and subsidies – to create the conditions for a low carbon way of life. This kind of action will have to reign in the worst excesses of corporate greed and abandon policies designed to benefit business rather than people.

Tackling climate change means taking on the short-termism of corporate lobbyists and seeking support from those businesses and those millions of individuals who are prepared to take the long view. Contrary to more cynical analysis of human nature, people are more than capable of prioritising the long-term. Those who have had children know what it takes to significantly change their lives in order to give someone else a better future.

Of course, by itself UK reductions will not limit climate change; the UK is home to less than one per cent of the world's population. But, climate change cannot be tackled if the UK does not reduce emissions. If our government believes in justice, if it wants to make good on its lofty rhetoric on tackling global poverty, it must seek to radically reduce UK emissions. And the UK starting on that path is a prerequisite for gaining the legitimacy needed to have any influence in pushing for the agreements needed to reduce emissions globally. As the state which began the global industrial revolution, the UK has a particular responsibility to shift away from a fossil fuel-dependent economy.

For the government to implement across-the-board measures to shift the UK towards being a low carbon economy, it will need to face political pressure from the public. The impacts of climate change are clear; what is needed now is the campaigning to ensure the impacts are minimised. The climate change threat is so big and so urgent that politicians cannot be given any excuses for not acting. It is up to the masses of the people to campaign for a transformation to a low carbon British economy in order to see that global justice is done.

The climate calendar

Looking at total CO_2 emissions per country ignores the critical issue of equality; the amount each person emits. WDM's CO_2 calendar shows by when during 2007 the average UK citizen will have emitted as much as a citizen from another country will during the whole year.

January

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1 Afghanistan Chad	2 Democratic Republic of Congo Cambodia	3 Ethiopia Uganda Burundi Malawi Mali	4 Burkina Faso Mozambique Rwanda Nepal Central African Republic Lesotho Niger Somalia Tanzania	5 Madagascar	6 Guinea Bhutan	7 Eritrea Laos Comoros Sierra Leone
8 The Gambia Liberia	9 Haiti Zambia	10 Kenya Sudan Burma				

8 By 8 January, just a few days into the working year for most of us, the average UK citizen will have already emitted as much CO_2 as the average person in one of the poorest countries in the world, the Least Developed Countries (LDCs), will in the whole year. The LDCs are the 50 poorest countries in the world, containing 738 million people. Whilst making effectively no contribution to climate change, the LDCs contain many of the people who are most vulnerable to its effects. The following pages highlight how LDCs such as Zambia, Malawi and Bangladesh are already being affected by climate change.

Across sub-Saharan Africa climate change will bring declining crop yields, due to decreased water availability and higher temperatures cutting plant growth.[19] A 4°C rise in temperature could lead to between a 30 and 50 per cent reduction in water availability in southern Africa.[20] Seventy per cent of Africa's population depends on agriculture to make a living, yet across the continent there are already massive food deficits. **Malawi** and **Zambia** have increasingly suffered from drought over recent years, such as in 2002/03 and 2004/05. The 2004/05 drought contributed to a food supply crisis for ten million people.

"People can always withstand bad harvests and bad rains, but when it happens so often, like now, it is hard. Every year it happens, we become a bit weaker. Every year we become poorer. This is the big problem."[18]
Old Jonah, Chikani Village, Zambia

The increased drought conditions are already an indicator of the changing climate. Wulf Killman, chairman of the UN Food and Agriculture Organisation's climate change group has said: "Many countries are already in difficulties ... and

A Malawian farmer surrounded by her failed maize crop during a drought in 2002.

we see a pattern emerging. Southern Africa is definitely becoming drier and everyone agrees that the climate there is changing. We would expect areas which are already prone to drought to become drier with climate change."[21] Henri Josserand, the UN's famine early warning system director has commented: "In southern Africa especially, there is no question that drought has become much more frequent in the past few years. There has been a sequence of drought years for four or five years. What is unusual is the repeat patterns."[22]

Globally, the percentage of the earth's land surface that suffers from extreme drought has already increased from one per cent to three per cent. However, it is predicted that this will rise further to eight per cent by 2020, and 30 per cent by 2090. Historically, 20 per cent of the earth's surface has been in some form of drought at any one time. This has now risen to 28 per cent, and is predicted to be 35 per cent by 2020 and 50 per cent by 2090.[23]

The impacts of climate change are combining with global policies pushed on Zambia and Malawi to increase the vulnerability of their populations to drought. WDM has previously shown how in both Malawi and Zambia, liberalisation of the agricultural sector has led to lower food security.[24] In return for aid, loans and debt relief, agricultural liberalisation has been forced on both Malawi and Zambia by the IMF and World Bank.

In Zambia, a 2000 World Bank study acknowledged that the removal of all subsidies on maize and fertiliser under World Bank/IMF structural adjustment loans led to "stagnation and regression instead of helping Zambia's agricultural sector".[25] In Malawi, the commercialisation of the state marketing board and lack of subsidised

STEVE ROE/FLICKR

Drax power station in the UK emits 20.5 million tonnes of carbon a year, more than the combined emissions of Kenya, Malawi, Mozambique, Tanzania, Uganda and Zambia.

fertiliser were directly attributed to contributing to the 2004/05 food crisis.[26]

Increasing food insecurity in southern Africa has been caused by a double injustice of climate change caused by rich country greenhouse gas emissions, and policies forced on countries through the western-controlled IMF and World Bank.

"Africa's hopes and aspirations are being dashed by the blind pursuit of economic development in the industrialised countries."[27]
Grace Akumu, Climate Network Africa

10 By **10 January**, the average UK citizen will have already emitted as much CO_2 as the average person in **Kenya** will in the whole year.

In east African countries such as Kenya, climate change already accounts for between 80 and 120 deaths a year for every million people.[28] In Kenya, Tanzania and Rwanda alone there are at least 7,800 deaths a year from climate change-related diseases; 47,000 so far in the 21st century.[29] These deaths are due to just three causes: malnutrition, diarrhoea and malaria. A 2°C rise in temperature may lead to 40-60 million more people exposed to malaria in Africa increasing to 70-80 million at temperature increases of 3-4°C.[30]

Longer rainy seasons and warmer temperatures at high altitudes have already started to increase malaria in parts of east Africa.[31] Kenyan highland areas were hit by a malaria epidemic in the middle of 2002. Because such epidemics would not normally extend so high, over 200 people died who had not built up any resistance to malaria.[32] A 2006 study by a team of US scientists found that climate change could be one cause of increased malaria throughout the east African highlands. The lead author of the study said:

"Malaria is indeed affecting more and more residents of Kenya's highlands, where cool temperatures have in the past meant that mosquito abundance is typically very low. Our results do not mean that temperature is the only or the main factor driving the increase in malaria, but it is one of many factors that should be considered."[33]

Since the 1970s, there has been a 0.5°C rise in average temperatures in the highlands. The frequency of malaria cases has increased from 16 per 1,000 people in 1986 to 120 per 1,000 in 1998.[34]

Estimated deaths attributable to malnutrition, diarrhoea and malaria caused by climate change in sub-Saharan Africa, 2001–2006[35]

Region	*Deaths*
West Africa	105,000
East Africa	140,000
Central Africa	55,000
Southern Africa	75,000
Sub-Saharan Africa	**375,000**

January *continued*

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			11 Benin Kiribati Guinea Bissau Bangladesh	12 Ghana	13 Côte d'Ivoire	14 Cape Verde Solomon Islands
15 Cameroon	16 Senegal Togo	17	18 Vanuatu	19	20 Yemen	21 Sao Tome and Principe
22	23 Sri Lanka	24 Paraguay Turks and Caicos Islands	25	26 Pakistan	27 Vietnam	28 Kyrgyzstan
29 Nigeria	30	31 Nicaragua				

11 By **11 January**, the average UK citizen will already have emitted as much CO_2 as the average person in **Bangladesh** will in the whole year. Flooding and erosion are part of life in Bangladesh, and are vital for the renewal of land. However, severe floods with devastating effects on people's livelihoods used to happen once every twenty years. They are now occurring every five to seven years, taking place in 1987, 1988, 1995, 1998 and 2004.[37]

Climate change will result in higher sea temperatures making cyclones more frequent and intense; rising sea levels flooding both low-lying land and slowing the speed at which rivers can remove water from the land; and increased rainfall by 10 to 15 per cent by 2030. All of which will mean increased flooding across Bangladesh.[38]

The 2004 floods in Bangladesh were some of the severest seen in decades, leaving 1,000 people dead and 30 million people homeless. It is estimated that the floods caused £4 billion of damage. Lessons had to be suspended in 18,000 primary schools.[39]

Alongside yearly floods, rising sea-levels could be calamitous. A 45 cm sea level rise would reduce 11 per cent of Bangladesh's land area, and force 5.5 million people to migrate. A 100 cm rise would remove 20 per cent of the land area, causing 15 million people to migrate.[40] And millions more people will be forced to live in flood endangered areas.[41]

"We are angry with the people who are doing this. We have made no contribution, but suffer the highest impact – that makes it a huge case of moral inequality against which the global citizenry, the global nation states, must take action. If not, we'll be calling it climatic genocide."[36]
Atik Rahman, Bangladesh

Globally, a 3°C rise in temperatures will lead to between seven and 170 million more people suffering from coastal flooding each year. A 4°C rise will lead to between 20 and 300 million more people suffering from coastal flooding each year.[42]

11 By **11 January**, the average UK citizen will already have emitted as much CO_2 as the average person in **Kiribati** will in the whole year.The Pacific state of Kiribati contains 33 islands which are home to around 90,000 people. Much of the islands are low-lying – they average two metres above sea-level – and so islanders face a massive threat of sea-level rise caused by climate change. Nearly half the Kiribati population live in South Tawara,[44] but half of South Tawara could be under water by 2050.[45] Rising sea levels also affect

GIL MOTI/STILL PICTURES

Flooded street in Naogoan City, Bangladesh.

"We don't cause climate change. It was something that was caused from outside our world over which we have no control. But ultimately we will be the first victims of it."[43]
Dr. Uentabo MacKenzie, Kiribati

water supply; salt water mixes with ground water making it unusable.

Anote Tong, president of the Republic of Kiribati, says: "For us it's a matter of survival. We seriously cannot discuss issues of development if in the longer term we are facing an issue of survival. So no matter how much we develop in the next decades, if in 50 years' time we're going to go under, what is the purpose of it all?"[46] Over the next fifty years it is likely that a mass migration of people away from Kiribati will be needed.

Such a migration is already taking place in Kiribati's neighbour, Tuvalu. Seventy-five people a year are leaving Tuvalu to resettle in New Zealand. Enele Sopoaga, Tuvalu's ambassador to the UN, is concerned that the migration which has already begun distracts attention from efforts to combat climate change:

"Tuvaluans want to live in their own islands forever. To relocate is a shortsighted solution, an irresponsible solution. We're not dealing here with Tuvalu only. All of the low-lying island coastal areas are going to be affected. You tell me whether the world is ready to evacuate everybody. There is a challenge to reverse and address climate change, to try to mitigate greenhouse gas emissions, and I think the world should focus on that."[47]

31 By the **end of January**, as memories of New Year resolutions begin to fade, the average citizen in the UK will have emitted more CO_2 than the average person in 54 countries will in the whole year. While still principally African, these countries include the poorest from Latin America, the Pacific, Asia and the Middle East.

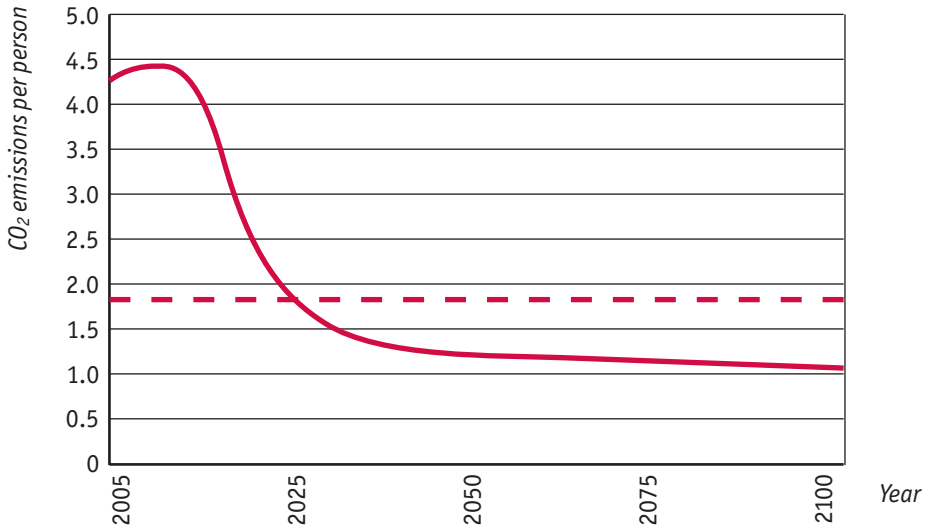
February

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			1 Samoa	2 Honduras Republic of Congo Papua New Guinea Philippines	3	4 Guatemala Georgia Morocco
5 El Salvador	6	7 Peru Tajikistan Zimbabwe	8	9 India	10 Western Sahara	11 Mauritania
12 US Pacific Islands	13	14 Swaziland	15 Albania Tonga	16	17	18 Bolivia Indonesia
19 Colombia Namibia	20	21	22	23	24 Moldova	25
26	27	28 Costa Rica				

9 By **9 February**, the average UK citizen will have already emitted as much CO_2 as the average person in **India** will in the whole year. India, along with China, is regularly labelled in the UK as one of the main culprits causing climate change. This is not true. Whilst holding 16.8 per cent of the world's population, India emits just 4.1 per cent of the world's CO_2. High emitting countries are actually indebted to India, as India currently emits a sustainable level of 1.04 tonnes of CO_2 per person.

In order to have a reasonable chance of keeping the increase in global temperatures below 2°C, by the end of the century global greenhouse gas emissions need to have been reduced by 75 per cent on today's levels. The vast bulk of this reduction needs to happen over the next 25 to 40 years. For carbon emissions, this means a reduction in CO_2 emissions to 6.8 billion tonnes a year; 1.08 tonnes per person on current world population levels. The 68 countries mentioned before 10 February in this report, containing

Global emissions per person required to stabilise atmospheric concentration of CO_2e at 450ppm[48]



"Ultimately, climate change is the true globaliser. It forces our world to come together not just to make short-term profits for some, but long-term economic and ecological benefits for all."[49]
Sunita Narain, Centre for Science and Environment, India

2.5 billion people, currently emit less than this level, and so cannot be considered as contributing to climate change.

Whilst not contributing to climate change, India is going to suffer from the emissions of others. The effects of climate change in India include increased disease, flooding, drought and falling crop yields.

It is currently predicted that the warming climate will increase Indian monsoon rainfall by 20 per cent.[50] This will primarily be through an increase in the intensity of heavy rainfall events. In July 2005, extreme rainfall in Mumbai broke the Indian record for the most rain in 24 hours.[51] The resulting floods caused more than 1,000 deaths.[52] This may already be an example of a change in the monsoon.[53]

In contrast, semi-arid areas such as Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra and Rajasthan will receive less rain.[54] Moreover, meltwater from glaciers in the Himalayas and Hindu Kush region feed seven of Asia's largest rivers, but this is set to fall dramatically due to glaciers disappearing as a result of climate change. The Ganges, on which 500 million people are dependent for water in the dry season, receives 70 per cent of its dry season flow from glaciers.[55] Together, meltwater from Himalayan glaciers and snowfields supply up to 85 per cent of the dry season water in the rivers in the North Indian Plain. Over the next 50 years, this dry season supply could fall to just 30 per cent of its current level.[56] Syed Iqbal Hasnain of the University of Calicut says: "Even a slight increase in global warming would turn the seemingly apocalyptic predictions into reality by the middle of this century."[57]

Crop yields are predicted to decline across India.[58] One climate scientist has said that India, along with other tropical countries, will face short periods of super-high temperatures – into the high 40°C. These temperatures could completely destroy crops if they coincide with the flowering period.[59]

And the WHO estimates that every year there are already between 40 and 80 climate change-related deaths per million people in India. This means that during the 21st century there have been between 250,000 and 500,000 deaths in India because of the climate change we have already seen.[60]

March

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			1	2 St Vincent and the Grenadines	3	4
5 Fiji	6 Ecuador	7 Uruguay Angola	8	9 Dominica	10 Brazil	11
12	13	14	15 Egypt	16	17 St Helena	18
19	20	21 Tunisia	22	23	24	25
26	27 Guyana	28 Dominican Republic	29	30 Botswana	31	

April

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						1 Saint Lucia Algeria
2	3	4 Grenada	5	6	7	8
9	10	11 Cook Islands	12 Syria	13	14	15
16	17	18	19	20	21	22
23 Mongolia	24 Cuba	25	26 St Kitts and Nevis Bosnia and Herzegovina Armenia North Korea	27 Turkey	28	29 Belize
30 British Virgin Islands						

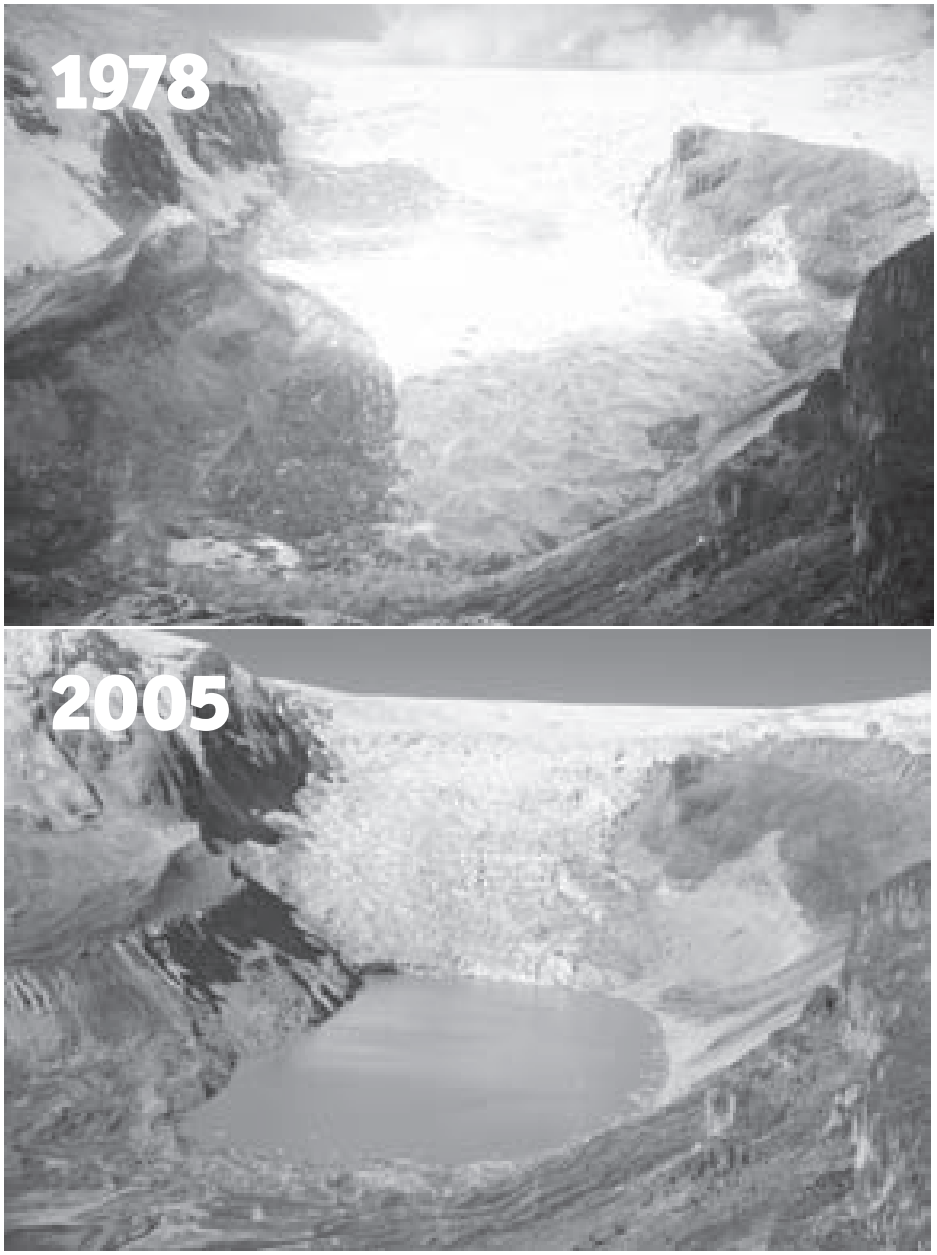
1 By **April Fools' Day**, the average UK citizen will have already emitted as much CO_2 as the average person in Saint Lucia and Algeria will in the whole year. No joke.

"Unfortunately we are suffering the consequences of environmental problems that other countries are producing. We in Cotacachi can pass a resolution to use our resources more sustainably, but other countries have yet to do that."[61]
Francisco Grijalva, Cotacachi Environmental Director, Ecuador

6 By **6 March**, the average UK citizen will have already emitted as much CO_2 as the average person in **Ecuador** will in the whole year. On **22 March** it is World Water Day, yet, along with other Andean nations such as Bolivia, Colombia and Peru, Ecuador is facing a huge water crisis due to melting glaciers in the Andes. Glaciers act as gigantic water towers, releasing a steady flow of freshwater which is vital to millions of people during dry seasons. However, one of the earliest signs of climate change has been the rapid retreat of glaciers. It is now known that 99 per cent of glaciers around the world are in retreat.[62]

The residents of the Cotacachi region of Ecuador are dependent on glaciers for their freshwater in the dry season. Yet over the last five years, the ice cap on Cotacachi Mountain has vanished. Rosita Ramos, a 34-year old mother of four, says: "We realise that it doesn't snow much anymore, and that the soil is drier every day. Many people say they have no water in the irrigation ditches. When the corn harvest begins in the summer, it is like a desert here. Everything is ugly."[63]

This story is set to be repeated across Latin America. Lima, the capital of Peru and home of eight million people, relies on glaciers in the Cordillera Central region of the Andes for all its dry season water. But Cordillera glaciers lost a third of their volume between 1970 and 1997.[64] The Chacaltaya Glacier in Bolivia, which provides water to the capital city La Paz,[65] is losing 1.2 metres a year.[66] In total, up to 50 million people in Latin America will be affected by the loss of dry season water.[67] Worldwide, the retreat of glaciers could threaten the water supplies of one-sixth of the world's population. [68]



LONNIE THOMPSON

The Qori Kalis glacier in Peru shrank by 1.1 km between 1978 and 2002. The 400,000 residents of the Peruvian city Cuzco rely on Qori Kalis and the Quelcaccaya ice cap. They have already had to implement water rationing and pump water from rivers 15 miles away.[69]

May

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	1	2 Mauritius	3 Maldives	4	5	6 Iraq
7 Jordan	8 Reunion French Polynesia	9	10	11 Thailand	12	13
14	15	16	17	18 Argentina Gabon China	19 Latvia	20 Mexico
21	22	23 Macedonia	24	25	26 Lithuania	27
28	29 Chile	30	31 Suriname			

June

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6 Panama	7 Djibouti	8	9	10
11 Romania	12 Jamaica	13	14 Lebanon	15	16 Guadeloupe	17
18	19	20	21	22	23 Uzbekistan	24
25	26	27 Azerbaijan	28	29	30	

18 By **18 May**, the average UK citizen will have already emitted as much CO_2 as the average person in **China** will in the whole year. China is often presented as the main culprit behind climate change. Tony Blair has said, "Close down all of Britain's emissions and in less than two years just the growth in China's emissions would wipe out the difference."[70]

The reality is that China produces a lot of greenhouse gases, but this is primarily because it has a large population. China holds 20.4 per cent of the world's population, but produces 17.4 per cent of the world's CO_2. It is true that a global emissions reduction strategy will need to include China. But the inaccurate portrayal of China as a profligate user of fossil fuels by countries which are themselves far more profligate does not help.

Climate change poses a massive threat to China. For instance, in the north-west of the country, 300 million people rely on snowmelt from glaciers for water supply.[71] In the south-west, glaciers on the Qinghai-Tibet plateau are retreating at the rate of seven per cent a year.[72] The Yangtse, Yellow, Brahmaputra, Mekong and Salween rivers all originate on the Qinghai-Tibet plateau, and the high plateau itself is already turning into a desert and droughts and sandstorms will increase.[73] Cai Jiarang of E Ling Township on the plateau says that the Yellow River runs lower every year, and cattle and herdsmen have difficulty accessing drinking water.[74]

The climate change threat is recognised by the Chinese government which has adopted a target of reducing energy use for each unit of GDP by

20 per cent by 2010.[75] China is already a world leader in solar power; 55 per cent of global solar heating capacity is in China.[76] The city of Dongtan, north of Shanghai, is being built for hundreds of thousands of people as an 'eco-city' which will generate almost no carbon emissions.[77]

10 By **10 June**, as we start to go on our summer holidays, the average Briton will have produced as much CO_2 as the average citizen worldwide. Every country mentioned in the calendar before 10 June emits less than the global average of 4.24 tonnes. This includes almost every country typically seen as 'developing'. The exceptions are a few countries with high oil production in comparison to their population, such as Venezuela and Trinidad & Tobago, some former Soviet states with low human development but higher emissions, and the vastly unequal South Africa.

Of course, there is no average world citizen. 4.8 billion people, 76 per cent of the world's population, live in countries emitting less than the world average. The 4.24 figure is skewed by those countries which are excessive emitters. And this only shows the inequality *between* countries, not the inequality *within* countries. Given that 2.5 billion people live in countries emitting less than the sustainable level, and given the vast numbers of poor people in countries such as China and Brazil who emit less than the sustainable level, it would be safe to assume that at least half the world's population make no contribution to climate change.

July

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						1
2 Croatia	3	4 Serbia	5	6	7	8
9	10	11	12	13	14	15 Macao
16	17	18	19	20 Martinique	21	22
23 Belarus	24	25	26	27	28	29
30	31					

August

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1	2 Hungary	3	4 French Guiana	5 Venezuela
6	7	8	9	10	11	12
13	14 Iran	15	16 Switzerland	17 Portugal	18	19
20	21	22	23	24	25 Barbados	26 Bulgaria
27	28	29	30	31		

September

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
					1	2
3	4 Malaysia	5	6 Sweden	7	8	9
10	11	12 France	13	14	15	16
17	18	19	20	21	22	23
24 Montserrat	25	26 Slovakia	27	28	29	30

During the holiday season in August, the average UK citizen will have already emitted as much CO_2 as the average person in **Portugal** or **Bulgaria** will in the whole year. Something to think about for those sunning themselves on the beaches of the Algarve or the Black Sea.

The UK party conference season will be in full swing during September and, in all likelihood, Gordon Brown will take his first bow as Labour leader with some lofty rhetoric about poverty, climate change and the UK's leading role in the world. However, the average UK citizen will have already emitted as much CO_2 as the average person in fellow EU countries **Sweden**, **France** and **Slovakia** will emit in the whole year.

October

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	7
8 Equatorial Guinea	9	10 Poland	11	12	13	14
15	16	17	18	19 Ukraine	20	21 Malta
22	23	24	25	26	27	28
29	30	31				

November

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			1 Oman	2 Antigua and Barbuda	3	4
5	6	7	8	9	10	11
12 Italy	13	14	15	16	17	18
	20 Austria	21	22	23 Cayman Islands	24	25
26	27	28	29	30		

December

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
					1 EU	2 Bermuda
3 New Caledonia	4	5 Libya	6	7 Spain	8	9
10	11 Slovenia	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26 New Zealand	27	28	29	30 Turkmenistan
31						

"If Britain continues to take a lead in Europe and in international negotiations, as we have done on both Kyoto and European emissions trading, we can both meet our environmental obligations at the same time as having a growing economy."[78]
Ed Balls MP, UK treasury minister

1 On 1 December, the average UK citizen will have emitted more than the yearly average for the **EU**. The Labour government tries to portray itself as a leader on climate change within the EU, yet the UK actually emits more than the European average of 8.81 tonnes per person. Fifteen EU member states emit less than the UK.* Whilst the

* Austria, Bulgaria, France, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

EU collectively is clearly a huge contributor to climate change, within the EU, the UK is not the leader on climate change which the government proclaims it to be. Portugal, France and Sweden all emit substantially less than the UK. Sweden generates 49 per cent of its electricity from renewable sources, and this is targeted to increase to 60 per cent. Swedish homes have also been built with high levels of insulation since the 1930s.[79]

By the end of **New Years Eve**, as 'Auld Lang Syne' is bellowed from millions of lungs across the country, the average citizen in the UK will have emitted more than the average citizens of 164 other countries containing 5.4 billion people; 84 per cent of the world's population.

Countries emitting more than the UK

Of course, there are countries containing 15 per cent of the world's population who emit more CO_2 than the UK. These include other rich countries such as Germany, Japan and, most importantly, the US. However, the injustice of others emissions is no excuse for the UK not to deal with its own unjust emissions. Furthermore, radical cuts in UK emissions can only help in getting cuts from other countries.

A few small states have the highest emissions in the world per person. These come from the high concentration of rich people in countries such as Singapore and Luxembourg. Whilst their total emissions are negligible on a global scale, these examples again emphasise the link between emissions and the rich. Small oil producing states also have extremely high emissions per person.

Country	*Annual CO_2 emissions per person*
UK	9.62
South Africa	9.66
Japan	9.91
Greece	9.97
South Korea	10.26
Denmark	10.26
Germany	10.46
Cyprus	10.66
Israel	10.69
Ireland	10.69
Czech Republic	10.97
Norway	11.18
Kazakhstan	11.38
Russia	11.70
Finland	11.79
Iceland	12.10
Taiwan	13.54
Estonia	13.59
Saudi Arabia	14.15
Belgium	14.27
Netherlands	16.36
Canada	18.09
Australia	19.39
United States	20.18
Luxembourg	26.62
Singapore	29.73
Trinidad and Tobago	30.03
Kuwait	30.88
Bahrain	33.53
Qatar	46.25
United Arab Emirates	55.92

Appendix[80]

The chart below lists all the countries that emit less CO_2 per person than the UK, alongside the figure for how much they emit. They form the basis of this Climate Calendar. The emissions for those countries emitting more than the UK are on page 22.

Country	*CO_2 emissions per person tonnes*
Chad	0.02
Afghanistan	0.02
Democratic Republic of Congo	0.03
Cambodia	0.04
Mali	0.06
Burundi	0.06
Uganda	0.06
Ethiopia	0.06
Malawi	0.06
Central African Republic	0.09
Burkina Faso	0.09
Somalia	0.09
Rwanda	0.10
Mozambique	0.10
Tanzania	0.10
Lesotho	0.10
Nepal	0.10
Niger	0.10
Madagascar	0.12
Bhutan	0.14
Guinea	0.14
Comoros	0.16
Sierra Leone	0.17
Laos	0.18
Eritrea	0.18
Liberia	0.19
The Gambia	0.19
Zambia	0.21
Haiti	0.21
Burma	0.25
Sudan	0.25
Kenya	0.26
Bangladesh	0.27
Benin	0.27
Guinea-Bissau	0.28
Kiribati	0.29
Ghana	0.29
Cotê d'Ivoire	0.34
Cape Verde	0.35
Solomon Islands	0.36
Cameroon	0.39
Togo	0.40
Senegal	0.41
Vanuatu	0.45
Yemen	0.53
Sao Tome and Principe	0.54
Sri Lanka	0.58
Turks and Caicos Islands	0.61
Paraguay	0.62
Pakistan	0.67
Vietnam	0.70
Kyrgyzstan	0.73
Nigeria	0.75
Nicaragua	0.80
Samoa	0.82
Republic of Congo	0.85
Honduras	0.86
Papua New Guinea	0.86
Philippines	0.87
Georgia	0.90
Morocco	0.91
Guatemala	0.91
El Salvador	0.93
Zimbabwe	0.98
Tajikistan	0.99
Peru	0.99
India	1.04
Western Sahara	1.06
Mauritania	1.09
US Pacific Islands	1.11
Swaziland	1.18
Albania	1.19
Tonga	1.19
Indonesia	1.29
Bolivia	1.29
Namibia	1.29
Colombia	1.31
Moldova	1.44
Costa Rica	1.54
Saint Vincent and the Grenadines	1.60
Fiji	1.66
Ecuador	1.71
Angola	1.71
Uruguay	1.72
Dominica	1.77
Brazil	1.83
Egypt	1.94
Saint Helena	1.99
Tunisia	2.09
Guyana	2.25
Dominican Republic	2.28
Botswana	2.34
Algeria	2.39
Saint Lucia	2.40
Grenada	2.71
Cook Islands	2.90
Syria	2.94
Mongolia	2.97
Cuba	3.00
Bosnia and Herzegovina	3.04
Saint Kitts and Nevis	3.05
Armenia	3.05
North Korea	3.06
Turkey	3.07
Belize	3.13
British Virgin Islands	3.15

Appendix *continued*

Country	*CO_2 emissions per person tonnes*
Mauritius	3.21
Maldives	3.23
Iraq	3.31
Jordan	3.32
French Polynesia	3.36
Reunion	3.36
Thailand	3.43
China	3.62
Argentina	3.63
Gabon	3.64
Latvia	3.64
Mexico	3.67
Macedonia	3.75
Lithuania	3.83
Chile	3.92
Suriname	3.98
Panama	4.13
Djibouti	4.15
Romania	4.26
Jamaica	4.28
Lebanon	4.34
Guadeloupe	4.39
Uzbekistan	4.56
Azerbaijan	4.67
Croatia	4.80
Serbia	4.87
Macau	5.15
Martinique	5.28
Belarus	5.36
Hungary	5.62
French Guiana	5.68
Venezuela	5.70
Iran	5.95
Switzerland	6.00
Portugal	6.03
Barbados	6.24

Country	*CO_2 emissions per person tonnes*
Bulgaria	6.27
Malaysia	6.53
Sweden	6.57
France	6.71
Montserrat	7.03
Slovakia	7.09
Equatorial Guinea	7.40
Poland	7.46
Ukraine	7.68
Malta	7.73
Oman	8.03
Antigua and Barbuda	8.06
Italy	8.35
Austria	8.54
Cayman Islands	8.60
Bermuda	8.84
New Caledonia	8.87
Libya	8.91
Spain	8.98
Slovenia	9.08
New Zealand	9.46
Turkmenistan	9.59
UK	9.62

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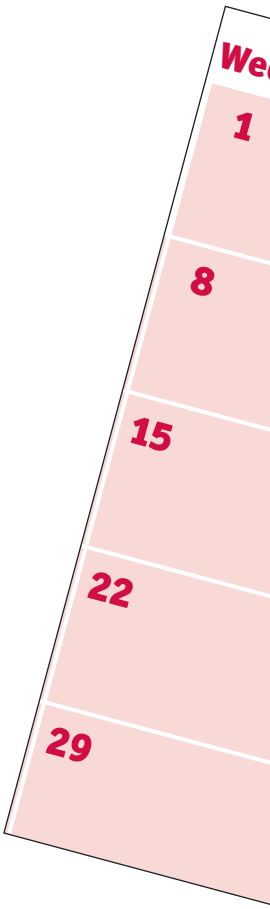
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