



THE CONSUMPTION EXPLOSION

The third UK Interdependence Report

The UK's global ecological footprint



The United Kingdom consumes products from around the world creating a large ecological footprint. The footprint measures natural resources by the amount of land area required to provide them. This map shows flow lines for imported resources that make up our footprint. To attribute impacts properly to the UK consumer, the area required to produce imported goods – a standardised measure of resource use called 'global hectares' (gha) – is subtracted from the footprint of the producing countries and is added to the UK's account. This map is based on data for the total footprint of imports, and summed across product categories. NB: Europe as a source of products is shown disproportionately large because adjustments are not made for re-exports due to the complications of tracing certain goods. This may create a bias suggesting that more raw resources come from European ports when in fact it was merely their most recent port of call on their way from their original source.



Our way of life in the UK would be unthinkable without the human, cultural, economic and environmental contributions made by the rest of the world. Our global interdependence is inescapable. But it can also be troubling. The burden in terms of resource consumption that our lifestyles exert on the fields, forests, rivers, seas and mines of the rest of the world is increasing. Months tick by to the point when it becomes much harder to avert runaway climate change. In spite of the global economic downturn, during a typical calendar year, the world as a whole now still goes into ecological debt on 25 September. In this context the UK's patterns of interdependence will have to change radically if our economy is to become remotely sustainable.

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Executive summary

'It does not require more than a simple act of insight to realise that infinite growth of material consumption in a finite world is an impossibility.'

E.F. Schumacher, 1973¹

'I can get no remedy against this consumption of the purse. Borrowing only lingers and lingers it out, but the disease is incurable.'

Falstaff, in Shakespeare's Henry IV Part II

The Consumption Explosion: the third UK Interdependence Report argues that a recently revived focus on global population as an environmental issue is a critical distraction from tackling overconsumption in wealthy countries. It makes the case by looking at the dynamics of population growth and current patterns of human migration. It contends that the only effective and socially acceptable path to influence population dynamics is through eradicating poverty and reducing inequality, and that, given environmental realities, this is hard-wired to ending rich-world overconsumption. For example, one person in the United States will, by 4am in the morning of 2 January, already have been responsible for the equivalent in climate change causing carbon emissions that a Tanzanian would take a whole year to generate. A UK citizen would reach the same point by 7pm on 4 January.

With the world as a whole going ever earlier into ecological debt, the report looks at the scale of UK and other wealthy nation's consumption, and the impact this has on setting economic role models for the rest of the world. *The Consumption Explosion* says that the most pressing need is to take a radically different view on the nature and quality of 'rich-world' consumption, in almost every area of life. Average levels of consumption, per person, in poorer countries have changed little over many decades. In rich countries, however, we are each consuming vastly more, yet with little or nothing to show for it in terms of greater life satisfaction.²

The report describes the vicious circle created by the current economic system. We are faced on one hand by overconsumption, climate change and resource scarcity, and on the other by destabilising inequalities between and within countries which in turn put pressure on population growth in some of the poorest nations and increases the risk of economic, political or environmental human displacement.

Key findings in *The Consumption Explosion* include that:

- **Global recession hardly alters overconsumption trend – only tiny blip shows in the pattern of ever-earlier ecological debt**

In spite of one of the biggest global recessions for a century – the trend towards ever greater overconsumption has been hardly altered. After more than two decades of going ever earlier into ecological debt – consuming resources and producing more waste than ecosystems can provide for and absorb – in 2009 there is a delay, in effect, of just 24 hours before the world as a whole goes into ecological debt. In 1995 it was 25 November. At the turn of the millennium, world ecological debt day advanced to 1 November. It was 6 October in 2007 and, a year later lurched forward by almost two weeks to 23 September in 2008. This year, World Ecological Debt Day falls on 25 September but, allowing for a leap year, it means that the impact of a massive world-wide recession has slowed its arrival by just a single day, leaving the overall trend deeply negative and humanity still environmentally over-extending itself to a dangerous degree.

- **But doom-mongering about population is misleading**

Approximately 50 years ago, the average woman had between 5 and 6 children; now she has 2.6 – closing fast on the level of 2.1 at which populations stabilise. Go below this rate, and over time levels begin to decline. This, too, is in the absence of tough government birth-control policies. Thirty years since China implemented its one-child family policy, research presented here warns of the potential unintended consequences of coercive population control, especially in contrast to simply following good, gender-aware development and poverty reduction. Redistribution of wealth is also seen to be central to a 'demographic transition' that can defuse any population explosion.

The current economic system, which both creates and depends on unsustainable consumption, has greatly increased income and asset inequality within and between nations. It has also degraded the environment, resulting in climate change, and failed substantially to reduce global poverty. High birth rates are a function of poverty, and are directly correlated to a number of factors: lack of basic education (particularly for girls); lack of access to reproductive health services; high infant/child mortality rates; and dependence on adult children for income (not least as migrants). Thus overconsumption drives both population growth and movement of people within and across borders. If the latter is to be reduced, the consumption patterns of rich countries must first be cut back to sustainable levels.

There are currently huge inequalities around the world in terms of environmental impacts per person. The world's richest half billion people – about 7 per cent of the global population – are responsible for 50 per cent of the world's annual greenhouse gas (GHG) emissions. The poorest 50 per cent of the global population, however, are responsible for just 7 per cent of global emissions.

- **Migration is typically good for the UK...**

Historically, immigration to the UK has risen as its domestic birth rate has fallen. In line with this pattern, the present decline in the UK fertility rate would normally increase the immigration flows into the country. Should anything block this flow, either because of lack of economic opportunity, perceived xenophobia, or prohibitive regulation, the UK may lose, both socially and economically.

In spite of an increasingly harsh political climate facing migrants to the UK, inward migration is typically positive. The tax paid by migrant workers outweighs their cost to the community in social benefits, but these data have not been widely publicised, and good recommendations for easing particular 'sectional problems' have been largely ignored. For example, the UK Government has flatly refused to contemplate 'regularising' undocumented migrants already resident and working in the country, and this is despite the fact that doing so could bring a £3-billion benefit to the economy, according to a study by the London School of Economics.³

- **...But can be bad for the sending country**

Many vital UK public services like health and education could not function without the arrival of skilled professionals from overseas. For example, the shortage of nurses in the UK, plus active international recruitment has been an important pull factor for nurses from developing nations. In the last five years alone, the UK has imported 160 trained nurses from Malawi, 227 from Botswana, 435 from Zambia and 9,322 from the Philippines. South Africa, Ghana, Kenya, Lesotho, Sierra Leone and Zimbabwe also send nurses who have been trained at Africa's public expense to work in the NHS. Since 1997, almost 80,000 international nurses have registered in the UK, making up approximately 45 per cent of new registrants. However, the latest Government figures on work permits and first permissions fell dramatically between 22,477 in 2005 to 7,500 in 2007 – a decrease of two-thirds. The fall is partly due to a fall in demand due to an increase in availability of qualified healthcare professionals in the UK resident labour market, as well as changes to immigration rules in 2006.

Ecologically wasteful trade	Trade Partner	Import (tonnes)	Export (tonnes)
Ice cream	Italy	4,400	4,200
Potatoes	Egypt	22,000	27,000
Gums and other jelly confectionary	Thailand	10	10
Sweet biscuits, waffles and wafers, gingerbread and the like	All partners	116	106
Toilet paper	Germany	5,000	4,000

Source: uktradeinfo.com (2008)

- **The UK's 'boomerang trade' continues – environmentally wasteful transport of identical goods still passes in the night**

Some of the more bizarre ways in which the economy fails to respect, or even recognise environmental parameters, have not changed since the earlier UK Interdependence Reports. All around us still, are ships, lorries and planes passing in the night, wastefully carrying often identical goods from city to city across the globe and back again to meet 'consumer demand'.

These are just some of the most recent examples involving the UK. For example, we export 4,400 tonnes of ice cream to Italy, only to re-import 4,200 tonnes. We import 22,000 tonnes of potatoes from Egypt whilst exporting 27,000 tonnes back again. Then there are the 5,000 tonnes of toilet paper heading from the UK to Germany, with over 4,000 tonnes returning, and 10 tonnes of 'gums and jelly' sweets going back and forth to Thailand. At the last count, 117 tonnes of 'sweet biscuits, waffles and wafers, gingerbread and the like' (to use the category used by trade statisticians), came into the UK, rumbling passed 106 tonnes headed in the opposite direction.

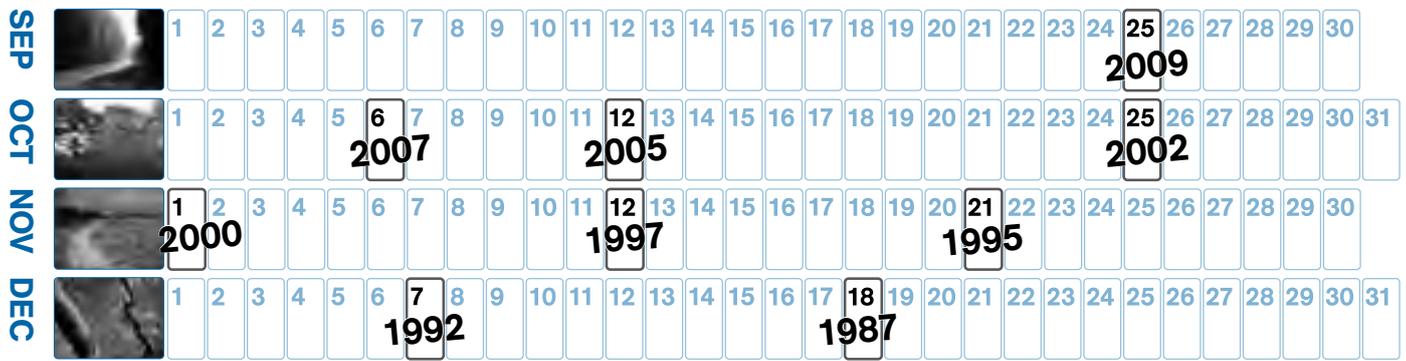
- **Our energy dependence is rising**

At a time of increasing global energy insecurity, the UK's dependence on energy imports has been steadily rising since about 1999. In 2004, we were no longer able to meet all our energy needs from domestic resources, and our ability to fuel ourselves has weakened since. **In the four years between 2004 and 2008, the energy dependence factor – a ratio that reveals how much we depend on imported energy – increased 5-fold, rising 30 per cent between 2007 and 2008 alone.** Symbolic failures to develop renewable energy alternatives, such as the close of the Vestas wind turbine factory on the Isle of Wight, suggest that the UK is far short of being prepared for the great energy transition in the face of climate change and as the oil age fades away. To reverse the trend, all the following could help: an obligation on suppliers to reduce demand, coupled with higher mandatory efficiency standards; the widespread uptake of renewables; and a shift to more decentralised energy generation.

- **We're eating up a fragile food chain**

The UK's food self-sufficiency appears to be below what it was 40 years ago. Yet, climate change, new human dietary patterns that put more pressure on land and energy, energy prices and shortages, and competition globally between land for food and land for biofuels, have all increased awareness of the vulnerability of the international food chain on which we depend. In response, many wealthy countries are relying ever more on some of the poorest to guarantee supplies. Since 2006, large-scale transnational land acquisitions and leases have targeted up to 20 million hectares of farmland in developing countries, according to the United Nations Special Rapporteur on the Right to Food, an area equivalent to all the farmland in France (Box 4). The UK is also Europe's second-largest importer of global fish stocks at a time when scientists warn of their imminent collapse due to over-fishing.

World ecological debt day calendar



One way of illustrating our impact on the environment that brings a sense of perspective, comes from looking at the day in a typical calendar year when the world, in effect, starts overshooting its biocapacity and begins eating into its stock of natural resources. The planet can tolerate a little give and take without environmental collapse as long as, in total, humanity lives within its overall ecological budget. The last year that humanity's levels of resource use fell within the means of our life-supporting natural assets was 1987. As global consumption grows, the day each year when the world as a whole goes into ecological debt creeps ever earlier in the calendar year. In 1995 it was 21 November. By the turn of the millennium world ecological debt day had advanced to 1 November. In 2007, the world's human population as a whole went into ecological debt on 6 October – two years on this has lurched forward 11 days to the 25 of September.



How the world goes into ecological debt by ‘overshooting’ Earth’s biocapacity

The ecological footprint is a measure that reveals our global interdependence. There are several indicators available to measure aspects of the content – ecological and otherwise – of trade. They can measure the ecological weight, or value, of trade flows in terms of matter, energy, or land. The crude tonnage of goods traded can be looked at, and to this can be added the additional weight of material involved in getting the final product. For example, to extract uranium as fuel for nuclear reactors, the waste ore would be included in the footprint, or, when fishing for tuna, the dolphins caught and killed would also be part of the impact. Widening the criteria still further requires a measure of all of the energy involved in producing and delivering a product to the final consumer – so-called ‘embedded energy’, shown as giga joules (GJ).

The ecological footprint measure is exactly what it sounds like. It estimates the full ecological impact of a particular product or activity. By gathering together a record of all the impacts that can be traced back to an individual company or country, it is possible to calculate its ecological footprint. The footprint measures how much ‘biocapacity’ land area is required to sustain a given population at present levels of consumption and technological development. Biocapacity is a composite of the ability of ecosystems to produce the things we need, like food, and their ability to absorb our wastes, such as GHGs.

If a country’s footprint is larger than its available biocapacity, it means that it is relying on someone else’s ecological resources to satisfy its levels of consumption. No individual country has to live entirely within its environmental means, but the planet as a whole does. If, collectively, our levels of consumption exceed what Earth has available, we begin to run down our life-supporting natural assets. Because ecosystems under stress behave unpredictably, it is often impossible to know when a system under stress will crash if, and as, we take more than can naturally regenerate.

One way of illustrating the footprint that brings a sense of perspective, comes from looking at the day in a typical calendar year when the world, in effect, starts overshooting its biocapacity and starts eating into its stock of natural resources. The day each year when the world goes into ecological debt has been creeping ever earlier in the calendar since the world first entered deficit in the 1980s. In 2009, the world’s human population as a whole goes into debt on 25 September.⁴

The footprint is a conservative measure of the planet’s surface area needed to sustain the flow of a given natural resource, whether a food crop or a building material. One reason it is conservative is that the threshold for available biocapacity assumes that all of the planet’s resources are available for human use. In fact, the healthy functioning of ecosystems almost certainly demands that significant areas of the globe be left fallow. There is, however, no scientific consensus on how much. This means that our assessment of human overconsumption of natural resources could be a significant under-estimate. The footprint is measured as standardised ‘global-average hectares’ or gha. The National Footprint Accounts are generated by the Global Footprint Network (Appendix 2), which itself draws data from standard (largely UN-based) internationally comparable datasets that assess, for example, the state of the planet’s forests, fisheries, and agriculture. Data to calculate the footprint primarily comes from international data sets published by the Food and Agriculture Organization of the United Nations, the International Energy Agency, UN Commodity Trade Statistics Database, and the Intergovernmental Panel on Climate Change.

Introduction: a declaration of interdependence

'The task is not to construct ever-larger structures but to decompose the organisations that overwhelm us, and to seek less abstract and remote dependencies. After all, this is what the revolt of two hundred years ago, the revolt against a vast, impersonal, and distant imperial structure, was originally about.'

Sheldon S. Wolin
Professor Emeritus, Princeton University⁵

Developed world lifestyles would be unthinkable without the human, cultural, economic and environmental contributions made by the rest of the world. At the same time the fate of both people and planet are inextricably bound together; near and distant – present and future: our global interdependence is a fact of life.

There is nothing new about proclaiming our interdependence and interconnection: human culture has played with these themes for millennia. But there are reasons why the word has particular power today. Indeed these simple but important truths are now part of US President, Barack Obama's thinking. In a key international affairs speech in Cairo Obama argued that:

*'Given our interdependence, any world order that elevates one nation or group of people over another will inevitably fail. So whatever we think of the past, we must not be prisoners to it. Our problems must be dealt with through partnership; our progress must be shared.'*⁶

Obama's speech marked a changed relationship between the USA and the Muslim world, but he also gave prominence to the phrase 'ecological interdependence' in a statement a few weeks earlier.⁷ Recognising our ecological, cultural and economic interdependence, however, also means recognising that our notions of progress need not just to be shared, but also redefined.

This report shows that while some of the most powerful world leaders are capable of interdependent *talking*, there has clearly not been enough *doing*. Climate change is proving that the lifestyles and economic frameworks generated by such foundation stones of the American dream as GM and Exxon are as destabilising as any terrorist threat – and also, insidiously, much more pervasive. As shocking as it sounds, this scale of threat from consumption-driven global warming has been described by people ranging from the theoretical physicist Stephen Hawking, to former UN Weapons Inspector Hans Blix, and former UK Government Chief Scientist David King. Humanity's search for wealth and security threatens to lead it on a fossil-fuelled journey to a dark dead-end. What kind of approach is going to help us reverse out?

The challenges facing this interdependent world are often expressed in numbers: calculations of debt, unemployment, investment levels; of numbers of troops (and more rarely civilians) killed; of helicopters or of roadside bombs. When our ecological interdependence is expressed, there are some new numbers being traded: of parts per million CO₂ (carbon dioxide), of tonnes of CO₂, and of carbon budgets.

But, there is one solitary number that generates a great deal of attention and fear, and that is the number of human beings alive today. Hitched to fears of population are fears of migration.

Consumption Explosion: the third UK Interdependence Report argues that a revived focus on population and migration is distracting, and that the most pressing need is to take a radically different view on the nature and quality of 'rich-world' consumption in almost every area of life. Research correlating the latest carbon emission trends with climate sensitivity suggests that from August 2008, there may be only 100 months before we enter a new, more perilous and potentially irreversible phase of climate change.⁸ This indicates a much shorter period than previously thought in which to make the transition to a lower carbon economy.

In other words, in rich nations, there needs to be a rapid and socially just transition to a low carbon and low consumption economy – what could be called a *consumption implosion* – if the brakes are to be put on what seems to be an unstoppable march towards catastrophic climate change.

Optimistically, far from the current economic climate being an obstacle to this transition, progressive policy proposals like the Green New Deal show the potential for that most elusive political fruit – a genuine policy 'win-win'. Huge economic gains are to be had from investing in the task of environmental transition to a much less wasteful economy, powered by renewable energy, with housing, food and transport sectors redesigned to optimise quality of life whilst minimising resource use. To date though, actual new resources have been minimal, and several policy initiatives such as 'cash for clunkers' to boost the car industry, and new incentives to pump more climate-change-causing oil from the North Sea, can be seen as running fast in the wrong direction.



The consumption explosion

'To attribute hunger to population pressure is to confuse cause with effect. Rather, both hunger and population pressure are the unavoidable excrescences of a malfunctioning socioeconomic system – or, more precisely, a system that functions at the expense of the great majority of the Third World peoples for the benefit of small native and foreign elite.'

Leften Stavros Stavrianos, Historian⁹

Population explosion – population bomb – population problem – population overload... Some of the least helpful, most depressing and disempowering conversations about global environmental issues start with these phrases. Using this one word, population, to summarise the character of the environmental challenge carries with it four problems.

First, it serves no practical purpose. Policies to reduce population growth rates directly have not worked except in the context of China's one-child family policy. However, that policy has been delivered at enormous social cost (Box 1) and in the context of an undemocratic, dictatorial regime which is today anachronistic among populations of the South.

Second, invoking a 'population problem' also tends to imply that the problem does not apply to the developed world (with its modest and declining family sizes) but to the developing world. Here are the seeds of division when it comes to negotiating important international agreements on issues like climate change. If 'Northern environmentalism' appears to be dictating the life chances of people in the South, few treaties will ever be signed. It drags debates back to the first UN Conference on the Human Environment in 1972.

Third, to talk of 'population bombs' also serves to stoke fears of migration. This report, however, details how migration – far from representing a threat to developed world economies – helps to sustain them. The flow of skills and labour, of creativity and flexibility, has been central to cultural and economic development across history, and promises to help economies such as the UK deal with its own 'demographic time bomb' of ageing populations.

But the mobility of people driven by choice and opportunity is very different to forced migrations caused by war, poverty and environmental crises. Most of these latter movements of people occur within the developing world. They threaten to undermine the stability of often already vulnerable communities, and place further pressure on resources, habitats, and biological diversity.

These facts underline increasing global interdependence. They also demonstrate that to match the global scale of the threats, global policies are needed to raise revenue and deliver investment to help the most vulnerable communities and environments become more resilient, secure and sustainable. The consequences of failing in this task will be felt across the world.

The fourth reason is that the population issue is a symptom and not a cause. Attempts to deal with it can only be palliative unless we solve the problem of overconsumption and global growth.

Box 1. Thirty years on from China's one-child family policy

Due to falling death rates and stability, China's population grew by 250 million between 1953 and 1970 – a rapid population growth rate of 2.8 per cent. Viewed by the State as a threat to economic prosperity and poverty alleviation, in 1979 the Chinese State Council introduced the one-child family policy (OCFP).¹⁰

The policy was only ever supposed to be short term, to move the nation towards a small-family culture, away from the Confucian tradition that emphasises large families and Mao Zedong's view: *'the more people, the stronger we are'*.

Views of the impacts of this policy are mixed, however. On the one hand, proponents argue that the policy has increased access to contraception and safe legal abortion; reduced the health risk of numerous pregnancies; and given women more freedom to work, skills and subsequent benefits in terms of independence and self-esteem. On the other hand, there is a clear violation of the individual human right to reproduction; there have been numerous unintended social consequences; and the actual effectiveness of the OCFP is questionable.

Under the policy, in rural areas where 70 per cent of the population reside, families of four are often tolerated, though unofficially. Generally, however, it is accepted that a second child is permitted (if a girl) and born four years after the first child. But this only applies to non-government officials. In cities, only one child is allowed with certain exceptions, such as: a second marriage where one partner has only had one child; if the first child is born with an abnormality or has a reduced life expectancy; if the father has a high-risk occupation (e.g., mining); or both spouses are only children. Late marriage is also encouraged, and marriage is not permitted until 25 for men and 23 for women in cities (respectively 23 and 21 in rural areas).¹¹

Between 1970 and 1979, there was a more conventional, voluntary approach. The 'late, long and few' policy encouraged later childbearing, greater spacing between children and fewer children, and resulted in a halving of the fertility rate from 5.9 to 2.9. After the OCFP was introduced until 1995, fertility rates fell more gradually, finally stabilising at around 1.8, 0.3 points below the population replacement rate of 2.1.^{12,13}

Thirty years on, has the policy had the desired effect, compared to the conventional family planning programme of the 'late, long and few'? Over the past 25 years and in the absence of any similar attempts to control population, many of China's neighbouring nations experienced some of the lowest fertility rates in the world. As such, there are reasons to believe that fertility rates would have fallen further had the voluntary policy continued beyond the 1970s.

On implementation of the OCFP, the historical preference for sons common in many Asian nations was exacerbated, resulting in female infanticide, neglect and abandonment of girls. While infanticide of girls is now rare, less aggressive ill-treatment of female infants is known to still occur. Also, often women with an unapproved pregnancy were reluctant to use health services in fear of fines or being pressurised into an abortion. As a result, risks both of maternal or neonatal mortality in some regions doubled for unapproved pregnancies.¹⁴

Recent research by a team of researchers from Zhejiang, China and University College London showed that in 2005, males under the age of 20 outnumbered females by more than 32 million in China.¹⁵ The researchers concluded that China will now see very high and steadily worsening sex ratios in reproductive age groups over the next two decades.

This uneven ratio creates a domino effect of social problems. For example, the research found that there has been an increase in mental health problems and socially disruptive behaviour among men. Some men, finding they are unable to marry and have a family, turn instead to kidnapping and the trafficking of females for marriage. There has also been an increase in the commercial sex industry and a connected rise in the prevalence of HIV and other sexually transmitted diseases.

Coupled with increased life expectancy, the proportion of elderly needing support has risen. A lack of adequate pension coverage has increased financial dependence on offspring. Figures suggest that approximately 70 per cent of elderly people are now dependent in this way. This has been described as the 4:2:1 ratio, where there are an increasing number of couples who are solely responsible for the care of one child and four parents.¹⁶

Evidence suggests that the voluntary policy was just as effective, if not more so, than the OCFP. While perceptions of the social impacts of the policy vary, overall China presents a clear warning of the potential unintended consequences of coercive population control, especially in contrast to simply following good, gender-aware development and poverty reduction.

Box 2. Millennium development goals

There is a group of countries with a combined population of around one billion people that have made little progress in reducing poverty in recent decades.¹⁷ They tend to get caught in a variety of 'traps' including: 'the conflict trap', 'the natural resources trap', being 'landlocked with bad neighbours' and having 'bad governance in a small country'.

The necessity of addressing this situation through a coherent, long-term strategy was acknowledged when the millennium development goals (MDGs) were adopted unanimously by 191 countries in the year 2000. The MDGs are a set of eight development objectives to be achieved by 2015, and touch on critical areas:

- 1: Eradicate extreme poverty and hunger.
- 2: Achieve universal primary education.
- 3: Promote gender equality and empower women.
- 4: Reduce child mortality.
- 5: Improve maternal health.
- 6: Combat HIV/AIDS, malaria and other diseases.
- 7: Ensure environmental sustainability.
- 8: Develop a global partnership for development.

Associated with the MDGs are 18 quantitative targets and 48 indicators to ensure comparability across countries. The 2007 report of the UN indicates that while much progress has been made:

*'By pointing to what has been achieved, these results also highlight how much remains to be done and how much more could be accomplished if all concerned live up fully to the commitments they have already made. Currently, only one of the eight regional groups cited in this report is on track to achieve all the Millennium Development Goals. In contrast, the projected shortfalls are most severe in sub-Saharan Africa. Even regions that have made substantial progress, including parts of Asia, face challenges in areas such as health and environmental sustainability. More generally, the lack of employment opportunities for young people, gender inequalities, rapid and unplanned urbanization, deforestation, increasing water scarcity, and high HIV prevalence are pervasive obstacles.'*¹⁸

Numerous other, non-coercive approaches have, in any case, a successful track record of stabilising family sizes. This happens typically: where women have good levels of education and healthcare (including family planning); where food security is well established; where there are good water supply and sanitation systems; and where people can be more confident of their welfare in sickness or old age.

These, it should be noted, are not 'population problems,' but challenges of economic development, governance and investment. As an absolutely basic minimum, for example, it is in everybody's interest that the millennium development goals (Box 2) are pursued with the same urgency and energy as has been invested in the support of financial systems over the last two years.

Exploding consumption

The last 50 years has seen an explosion in the rates of consumption linked to rich-world lifestyles. We have changed almost every aspect of the way we eat, drink, travel, house ourselves, wash, rest, and play. In doing so, we have generally assumed that the resources and energy these activities rely on – energy from fossil fuels, in particular – are limitless and cheap, and their use free of serious consequences. Hence the ecological impact of the daily routines of middle class lifestyles across the world has increased like a slow-motion explosion.

In 1961, for example, the UK's consumption patterns were roughly aligned with one planet living – that is, one planet's worth of resources would be needed to support the whole global population at the UK's level of consumption. By 2009, this grew

to 3.1 planet living. In other words, we would need an additional 2.1 Earth-like planets if every human were to replicate the same levels of consumption in the UK.

Even this is a cautious, conservative assessment, as the methodology used to measure our ecological footprint is extremely generous in assuming how much of the Earth's biocapacity, i.e., all of it, should be available for human use (the issue being that most ecologists would argue that a significant proportion of ecosystems need to be left fallow to allow them to function healthily).

Nevertheless, even using this conservative measure, the world's ecological debt day – the day in the calendar year when, in effect, we start consuming more resources and producing more waste than ecosystems can provide and absorb – rolled forward by 11 days since 2007 to 25 September in 2009. This means humans are now consuming the Earth's resources ever faster than the biosphere is able to replenish itself. In terms of living beyond our means, in the UK we are less self-sufficient in producing food today than we were about 40 years ago. Similarly, our dependence on importing fuel is rising.

The way in which we dispose of more waste than the Earth's natural systems can assimilate is nowhere clearer than in the rising levels of GHGs in the atmosphere, specifically CO₂. Other examples include the accumulation of man-made materials in the biosphere, such as plastics that cannot be degraded. As the ecologist Barry Commoner argues: 'human beings have broken out of the circle of life, driven not by biological need, but by the social organization which they have devised to 'conquer' nature.'¹⁹

Some of the more bizarre ways in which the economy fails to respect, or even recognise environmental parameters have been tracked in this series of reports on the UK's global interdependence.^{20,21} For example, without putting a price on the environmental damage caused by using fossil fuels for transport, or implementing a realistic cap on overall GHG emissions, remarkable inefficiencies creep into the international trading system. All around us are ships, lorries and planes passing in the night carrying often identical goods from city to city across the globe and back again to meet 'consumer demand'.

These are just some of the most recent examples involving the UK. It is hard to explain, why, for example, it is necessary to export 4,400 tonnes of ice cream to Italy, only to re-import 4,200 tonnes. Or to import 22,000 tonnes of potatoes from Egypt whilst exporting 27,000 tonnes back again. Then there is the 5,000 tonnes of toilet paper heading from the UK to Germany, and over 4,000 tonnes returning, or the 10 tonnes of 'gums and jelly' sweets going back and forth to Thailand. At the last count, 117 tonnes of 'sweet biscuits, waffles and wafers, gingerbread and the like' (to use the category used by trade statisticians), came into the UK, rumbling passed 106 tonnes headed in the opposite direction (Table 1).

Defusing consumption

Yet, though perhaps counter-intuitive, when this growth in consumption, especially among rich countries, is compared to a host of other indicators, it becomes clear that rising consumption has delivered little in terms of greater life satisfaction. The evidence, in fact, points the other way. Constant pressure to define ourselves in terms of getting and spending, probably limits our chances of achieving a 'good life'.

Learning to live within the limits of a single interdependent world now represents the greatest challenge of our age. But too often the shift to a sustainable society and economy is portrayed as a step backwards – in time, in quality of life, in hard-fought freedoms. Instead, this report makes the case that it should be seen as a time to learn from recent mistakes and to start behaving more cleverly.

Consumption bombs can, for example, be defused by subtly redefining the work variously of product and systems designers, of architects and planners. Their professions have developed over the last century in the context of very cheap energy and raw materials, and the assumption of limitless landfill. They have only

Table 1. Ecologically wasteful trade

Ecologically wasteful trade	Trade partner	Import (tonnes)	Export (tonnes)
Ice cream	Italy	4,400	4,200
Potatoes	Egypt	22,000	27,000
Gums and other jelly confectionary	Thailand	10	10
Sweet biscuits, waffles and wafers, gingerbread and the like	All	117	106
Toilet paper	Germany	5,000	4,000

Source: uktradeinfo.com, 2008

Box 3. Population defused

The 'population bomb' is on the environmental agenda once more. Jonathon Porritt recently lambasted the politically correct for ignoring the demographic elephant in the living room – 'exponential population growth'.²² Is he right?

Back in the late 1960s, when Paul Ehrlich wrote his book *The population bomb*, population was seen as the number one threat to the planet's future.²³ Only strict birth control could prevent doomsday.

After scandals about forced vasectomies in India and China's draconian one-child family policy, such views became too hot for progressive circles. And Ehrlich's prediction of hundreds of millions of deaths from famine in the 1980s was put on hold by the high-yielding new seeds of the green revolution.

But the fears didn't altogether go away. Now the p-word' is being blamed for climate change and rising oil and food prices.

This is a false analysis for two reasons. The first is that there is no exponential population growth. The population 'bomb' is fast being defused. Where women in the developing world have the choice, they have confounded the doomsters and are electing to have dramatically fewer babies. They are doing it for their own good, the good of their families, and, if it helps the planet, too, then so much the better.

Half a century ago, the average birth rate was between 5 and 6 children per woman. Now it is 2.6. This is getting close to the replacement level which, allowing for girls who don't make it to adulthood, is around 2.3.

Most of southern and eastern Europe now registers fewer than 1.4 babies per woman. Japan, South Korea, China, Taiwan, Singapore, Thailand, and even Vietnam all have fertility rates well below par. However, as noted, poverty results in high birth rates, and there are holdouts in a few fundamentalist Muslim countries (but not Iran, where fertility is 1.7) and much of Africa. But rich or poor, socialist or capitalist, Muslim or Catholic, secular or devout, with tough government birth-control policies or none, most countries tell the same story.

The world's population, at 6.8 billion, is still rising by 70 million a year. This is mostly because the huge numbers of young women born during the twentieth-century baby boom are still fertile. They may only have two children each. But that is still a lot of babies.

Soon, however, if fertility rates continue to decline, the world's population could start to fall – for the first since the Black Death of the fourteenth century.

But that won't do a lot to solve the world's environmental problems. Because the second reason there is no elephant in Porritt's living room is that the real problem is not overpopulation but overconsumption – mostly in rich countries that have long since given up adding substantial numbers to their population.

Take carbon dioxide emissions. Stephen Pacala, Director of the Princeton Environment Institute, calculates that the world's richest half billion people – that's about 7 per cent of the global population – are responsible for 50 per cent of the world's emissions. Meanwhile the poorest 50 per cent are responsible for just 7 per cent of emissions.

Or take our overall 'ecological footprint', the number of hectares required to provide each of us with food, clothing and other resources. The average American takes 9.5 hectares, while Australians require 7.8, Britons 5.3, Germans 4.2, Chinese 2.1, and Indians and most Africans (where the majority of future world population growth will take place) 1.0 or less.

Of course, fast-rising populations can sometimes create serious local environmental crises. But, viewed at the global scale, it is overconsumption that matters. Economists predict the world's economy will grow by 400 per cent by 2050. If so, only a tenth of that growth will be due to rising human numbers.

Yes, some of those extra poor people will become rich. But it is the height of hubris to downgrade the culpability of our own environmental footprint because future generations of poor people might one day get to be as rich and destructive as we are. Every time we talk about too many babies in Africa or India, we are denying that simple fact.

Fred Pearce is a leading science writer and author of the forthcoming book *Peoplequake* (2010) published by Eden Project Books.

just begun to realise that designing in an interdependent world means a radically different set of design criteria. Now, rather than viewing environmental change as a constraint, it can be viewed as an opportunity to redefine what we mean by quality. Quality in our experience of our homes, towns, cities, journeys and food should mean that we know there is no 'hidden ugliness'. By this we mean that the hidden ugliness of the near or distant social or environmental impacts from products and services can be replaced by a sense of the deep beauty of thinking that is run through with consideration for sustainability, for people and the planet.²⁴

Box 4. The great land grab^{25,26,27,28,29}

As concerns about global population levels re-emerge in wealthy countries, many of those same countries are seeking to support their own population's high-consuming lifestyles by 'grabbing' the productive farmland of poorer countries. Although not entirely new, having the Ancient Roman Empire conquer swathes of North Africa to guarantee grain for the city of Rome, does not necessarily make a positive precedent for modern international relations.

Since 2006, large-scale transnational land acquisitions and leases have targeted up to 20 million hectares of farmland in developing countries. According to the United Nations Special Rapporteur on the Right to Food, this is an area equivalent to all the farmland in France.

The rise of the 'land grab' is one of the latest ironies of interdependence. Some of its dimensions are not entirely new, echoing, for example the 'scramble' for Africa's natural wealth by European colonial powers in the late-nineteenth century. Countries in Sub-Saharan Africa subjected to the current wave include Ethiopia, the Democratic Republic of Congo, Madagascar, Mali, Somalia, Sudan, Tanzania, Zambia, and Cameroon. But countries from Brazil to the Philippines are included, too.

Implicated in the deals are buyers ranging from the UK, to the USA, Japan, Norway, China, and Saudi Arabia, to Qatar and the United Arab Emirates.

This means that some of the world's most powerful nations, and oil-rich (but water- and soil-poor) Gulf States are extracting natural wealth from some of the world's poorest and most troubled nations, including failed states.

This recent phase, though, has specific triggers. It was fuelled in particular by the global food crisis of 2008. Suddenly, several governments and companies became more acutely aware that the global food trade system was more unstable and unreliable than previously thought. They reacted by seeking to guarantee food supplies by owning or directly leasing productive farmland overseas, rather than relying on a volatile and unpredictable global food market (what is sometimes referred to as the 'casino economy').

'Land grabs' sometimes offer initial attractions to both parties. On one level, the exchange of money for resources seems straightforward. Some jobs and infrastructure may also follow investment. But the hugely sensitive issue of ceding sovereignty over something as basic as the land with which you feed your population, and the one-sided power relationships involved, has led to violent protest, deaths and the fall of at least one government in Madagascar. The reasons for unrest are not hard to identify.

New jobs may be few, and a shift from small- to large-scale farming could cause a net destruction of employment. New infrastructure is all very well, but not if it is only geared towards resource extraction like the British investment in India in the nineteenth century. Agreements, too, are often made by governments over the heads of local people. Inappropriate land such as virgin forest might be ploughed up. Current smallholders without secure land tenure could be evicted and access to land for indigenous people, especially nomads and pastoralists, could be denied in a long historical echo of what happened to Native American Indians on the great US Plains. Much of the proposed farming is water-intensive and competition for water could deprive local communities and jeopardise local food production. There is the danger that all the food produced may be exported, either to the controlling country or to the profit of the commercial investors, in which case little or no benefit accrues to local people and it makes no contribution to development. Intensive cultivation to meet the demands of the buyer or leaseholder could degrade land as well as reducing the need for local labour. Lastly, and most importantly, local people's food security could actually decrease as a result.

There are ways to reduce potential negative impacts according to the UN Special Rapporteur, Olivier de Schutter: *'From a right-to-food perspective, host States and investors should... establish and promote farming systems that are labour intensive – instead of highly mechanised operations – in order to ensure that investment agreements contribute to reinforcing local livelihood options and provide living wages for the local population, which is a key component of the human right to food. Sustainable agriculture, in particular agro-ecological approaches and low external input farming practices should also be privileged in contract agreements.'*³⁰

Some means of containing the consumption explosion require that we revise the costs we attach to things: by paying the real environmental and social costs of goods and services society will be sending clear and efficient signals about waste and hazards. At the same time, taxing damage to the environment will allow other taxes, such as income tax, to be reduced. This demonstrates the most common-sense approach to taxation: we should tax less what we want more of, and tax more what we want less of. In turn, this will also create a clear and intuitive way to get the biggest polluters to pay into funds that will help the world's most vulnerable to adapt to climate change and other global environmental changes.

Attacking the consumption problem will also mean changes in the daily lives of many people in the developed world. What will this mean? In practical terms, we will spend less time trapped in traffic jams; less time at airports being processed for hours in advance of rushed weekend breaks. There will be less need to head into the shops to replace badly designed items made redundant by the loss or breakage of a single component part. There will be no hard-to-avoid consumption of goods produced with (invisible) child labour or reckless environmental harm.

To recognise that we live in an interdependent world is to recognise the need for a revolution in what we value and how we express that in our everyday lives. It is essential that we now recognise that making these changes can bring many benefits in terms of security, stability and well-being, in distant places as well as at home.

The consumption explosion and climate change

When atmospheric chemist Charles Keeling set up the first CO₂ monitoring site at the Mauna Loa Observatory in Hawaii in 1958, the atmospheric concentration of CO₂ was between 312 and 313 parts per million by volume (ppmv).³¹ By the end of 2008, concentrations had climbed beyond safe levels to 385 ppmv, 42 per cent above the concentration at the start of the Industrial Revolution, and rising at a rate of approximately 2.2 ppmv per year.³²

Since 1750, more than 1.1 billion tonnes of CO₂ has been released into the atmosphere in the name of economic development, due to both the combustion of fossil fuels and changes in land use. Even though the North's Industrial Revolution was powered by fossil fuels, almost half of the CO₂ emissions since 1750 occurred in the past 30 years. This is the case despite the rise of the environmental movement; green parties entering the governments around the world; a huge energy conservation drive after the 1973 and 1979 oil shocks; and a growing understanding of the science of climate change gleaned from four Intergovernmental Panel on Climate Change (IPCC) reports.

The latest figures from the Global Carbon Project, an international collaboration between leading climate research institutions, estimates that the average annual growth rate in emissions was 3.5 per cent between 2000 and 2007.³³ At the same time, globally, there is no sign of a slowing in the growth of emissions. There has been a constant or slightly increasing trend in the carbon intensity of energy (carbon emissions per unit of energy) over recent years, in both developed and developing nations.

Of the 3.5 per cent mentioned above, 18 ± 15 per cent of the growth rate is due to carbon-cycle feedbacks (for example, less carbon being absorbed by ecosystems affected by global warming or other impacts), while 17 ± 6 per cent is due to the increasing carbon intensity of the global economy (the ratio of carbon per unit of economic activity). The remaining 65 ± 16 per cent is due to global economic growth.³⁴

Put simply, this means that each time governments congratulate themselves for achieving 'record levels of economic growth', global atmospheric concentrations of CO₂ conspicuously lurch forward.

In June 2009, Dutch researchers from the Netherlands Environment Assessment Agency (NEAA) found that growth rates in CO₂ from the burning of fossil fuels and cement production had halved between 2007 and 2008 due to the global economic recession.³⁵ The drop in production, however, was insufficient to stall

growth rates completely. Emissions are still moving fast in the wrong direction, growing at a rate of 1.7 per cent between 2007 and 2008. The analysis based on British Petroleum's (BP's) data on fossil fuel consumption in 2008 found that the slowdown in emissions growth was primarily due to a 0.6 per cent fall in the consumption of oil – the first observed decline in global oil use since 1992.

However, this trend was unevenly distributed around the world. According to researchers, oil use in China continued to rise, but at 3 per cent, down from an average of 8 per cent since 2001. While in the USA, oil consumption fell by 7 per cent, coal consumption slowed by 1.7 per cent, while consumption of natural gas remained constant.

The analysis by NEAA also shows that in 2008, the developing world accounted for 50.3 per cent of CO₂ emissions. It is the first time that emissions from developing nations have exceeded emissions from a combination of developed nations and international travel. This figure does, however, gloss over both the huge, continuing disparities in per capita emissions in rich and poor countries, and the far greater historical responsibility of developed nations for the accumulation of GHGs.

Cumulatively, since the mid-eighteenth century, developing and least-developed economies representing the great majority of the human population, have accounted for just 23 per cent of global emissions.³⁶ But even this, and the aforementioned figures, are extraordinarily conservative estimates due to the methods employed to monitor emissions.

In 2001, approximately five billion tonnes of CO₂ were embodied in the international trade of goods and services, most of which flowed from developing nations (non-Annex 1 nations of the UNFCCC) to developed nations (Annex 1 nations of the UNFCCC) – i.e., five billion tonnes excluded from developed nations emissions inventories.³⁷ **This is greater than total annual CO₂ emissions from all EU25 nations combined.**³⁸ Rather than decarbonising, the developed world has simply been outsourcing a significant proportion of its production with the effect of 'carbon laundering' the economies of countries like the UK and the USA.

While establishing the 'embodied emissions' of trade is notoriously difficult, a recent study, published by researchers from Lancaster University's Environment Centre, explores the embodied carbon within trade flows between the UK and China. The study shows that imports from China to the UK were embodied with 555 million tonnes of CO₂ in 2004.³⁹ Put another way – the carbon embodied in trade between China and the UK reduces the *apparent* CO₂ emissions of UK consumers by 11 per cent, but increases the *real* carbon footprint of UK consumers by 19 per cent and global emissions by 0.4 per cent. This is due to the carbon inefficiencies of Chinese industrial processes compared to those in the UK. Furthermore, the study estimated that the shipping of goods from China to the UK in 2004 resulted in the production of an additional 10 million tonnes of CO₂. This means that the UK's progress towards its Kyoto emission targets of 12.5 per cent below 1990 levels vanishes into the global economic atmosphere.

Consumption explosion – energy

In the family of development issues, access to modern energy services is the poor relation. Access to clean water, education and health services, or investment in productivity, job creation and infrastructure commonly take precedence. The irony is that all of the latter rely on the former.

Partly, this is because health and education services are seen as desirable ends in themselves, while access to energy services is viewed only as a means to these (and other) ends. The subtle difference, however, makes it no less important.

In the year 2000, over one-quarter (approximately 27 per cent) of the world's population, some 1.6 billion people, did not have access to electricity, while an even greater number of people had limited and/or costly access.⁴⁰ Table 2 shows that almost everyone without access to electricity (around 99 per cent) live in developing nations. Over 80 per cent of people without access to electricity are located in rural areas.⁴¹

Table 2. A regional overview of electricity access in 2000.⁴²

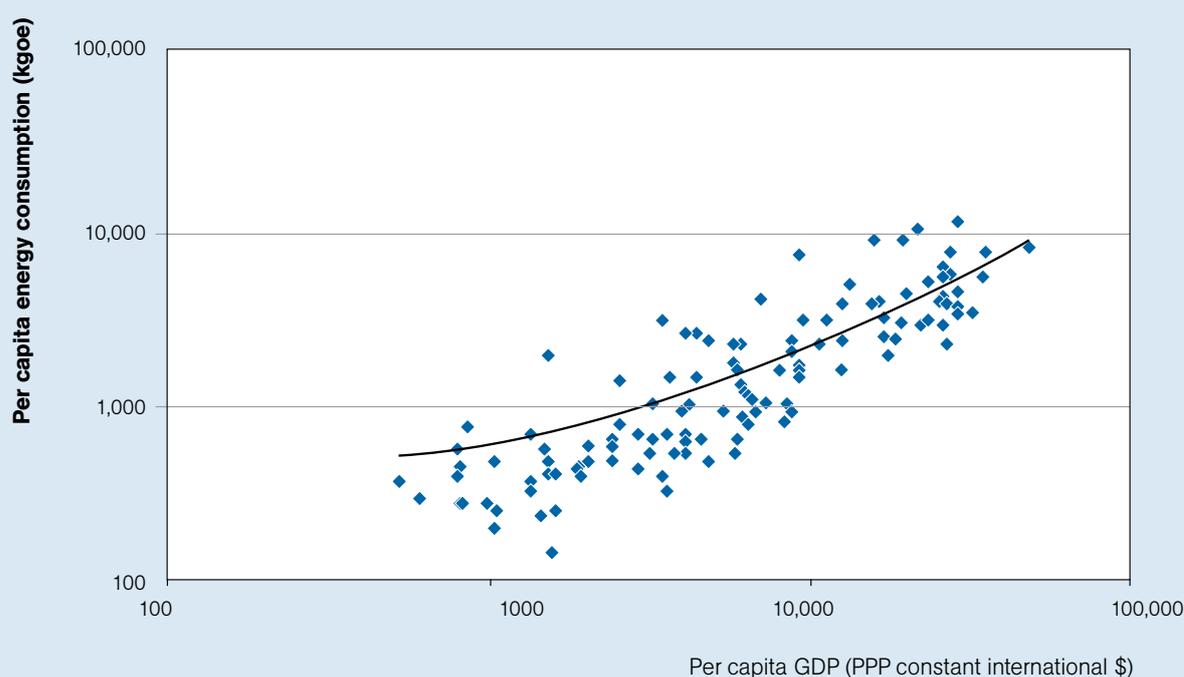
Region	Population without electricity (millions)	Population with electricity (millions)	Electrification level (%)
Developing countries (total)	1,634.2	2,930.7	64.2
Africa	522.3	272.7	34.3
Asia	1,041.4	2,147.3	67.3
Latin America	55.8	359.9	86.6
Middle East	14.7	150.7	91.1
Transition economies	1.8	351.5	99.5
OECD	8.5	1108.3	99.2
World	1,644.5	4,390.4	72.8

If access to modern energy services is inequitable on a global regional basis, even within the developing world (e.g., 86.6 per cent electrification in Latin America compared to 34.3 per cent in Africa), a similar story emerges when we look at electricity consumption within countries.

One study revealed great variations in the inequity of household electricity consumption. For example, half of all electricity is consumed by about 38 per cent of the households in Norway compared to 25 per cent of households in the USA, 15 per cent on households in El Salvador, 13 per cent of households in Thailand, and 6 per cent of households in Kenya.⁴³

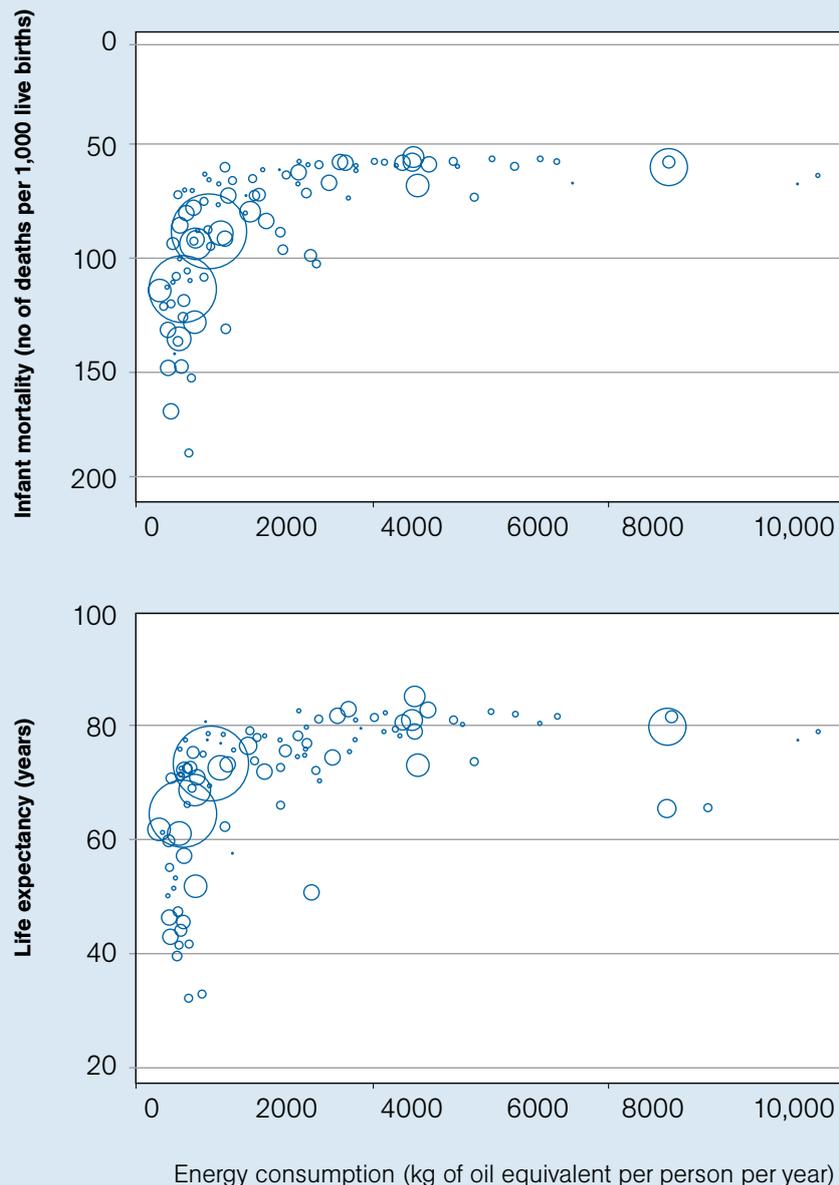
The relationship between energy consumption in kilograms of oil equivalent and national income (GDP per capita) across the world is shown in Figure 1. Higher levels of GDP are associated with higher levels of energy consumption. However, there is significant variability with some countries producing far more income per

Figure 1. Per capita energy consumption rises broadly with per capita GDP.⁴⁴



Source: World Development Indicators (2008)

Figure 2. Relationship between energy consumption and infant mortality (top panel) and energy consumption and life expectancy (bottom panel) (symbol sizes are proportional to country populations).⁴⁵

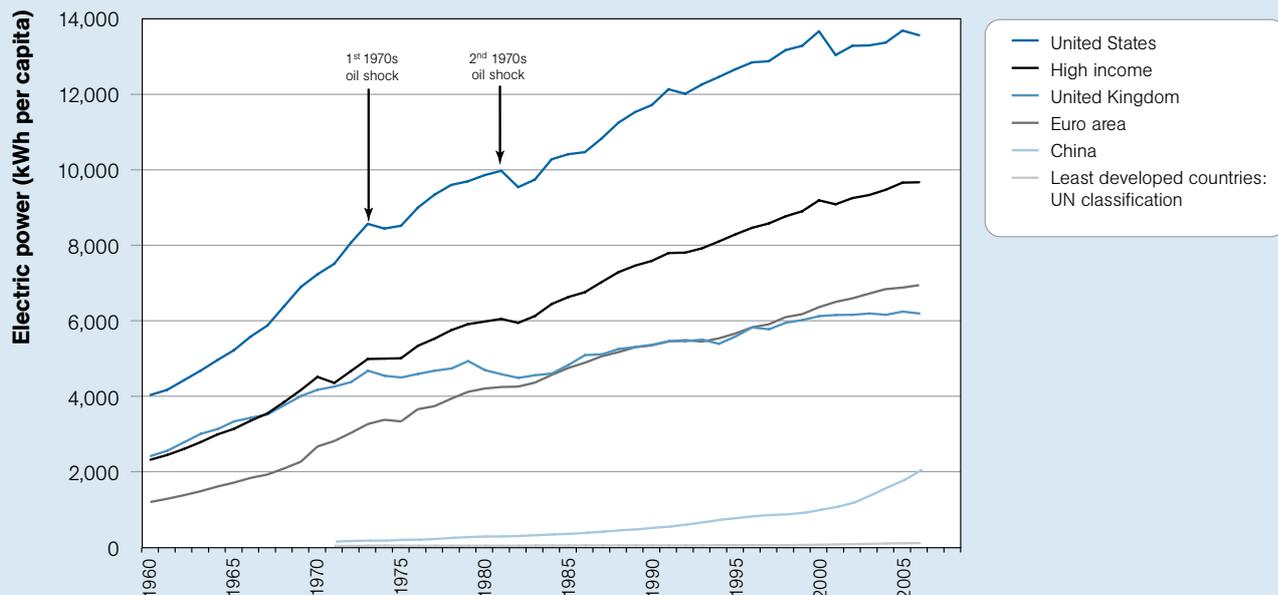


Reproduced from: Wilkinson et al (2007)

unit of energy used. Many, for example, are surprised to learn that large parts of Africa use far fewer fossil fuels compared to many rich countries, for every unit of GDP produced (probably the result of high levels of human and animal labour during the production of goods). Nevertheless, the strong link between poverty and GDP means that significant reductions in poverty will necessarily be associated with increased energy consumption.

There are human and developmental implications to this relationship. They can be seen in Figure 2 which shows the relationships between energy consumption and infant mortality (top panel) and secondly life expectancy (bottom panel). They indicate that in general, improvements in both infant mortality and life expectancy correlate strongly with initial rises in energy consumption. But, much as with the strong initial relationship between rising income and life expectancy, this relationship quickly breaks down beyond a point, a point reached quite soon on the rising curve. It is worth spelling out here the obvious implication of these relationships. Raising incomes and access to energy services from very low levels bring huge gains in poverty reduction and human development. In those countries with high infant mortality and/or low life expectancy, large gains are associated with relatively small increases in energy consumption. According to one estimate,

Figure 3. Trends in per capita electric power consumption



Source: World Development Indicators (2009)

substantial improvements in quality of life can be achieved by providing as little as 100 Watts of power per capita per year.⁴⁶ This should be an obvious policy priority.

Beyond the point that the relationship breaks down, however, to continue increasing human well-being, these trends suggest that the focus should shift away from a quantitative focus on income and consumption, towards more qualitative improvements in the human environment to do with culture, civic, community and family life, long-term learning and those other dimensions that contribute to relatively long and happy lives.

The other implication that it is worth being explicit about, is that a redistribution of energy consumption between low and high users stands to bring enormous gains to the 'underconsumers' without having to damage in any way the quality of life of the overconsumers. This, too, is backed up by **nef's** (the new economics foundation's) own research comparing individual consumption patterns with levels of life satisfaction.⁴⁷

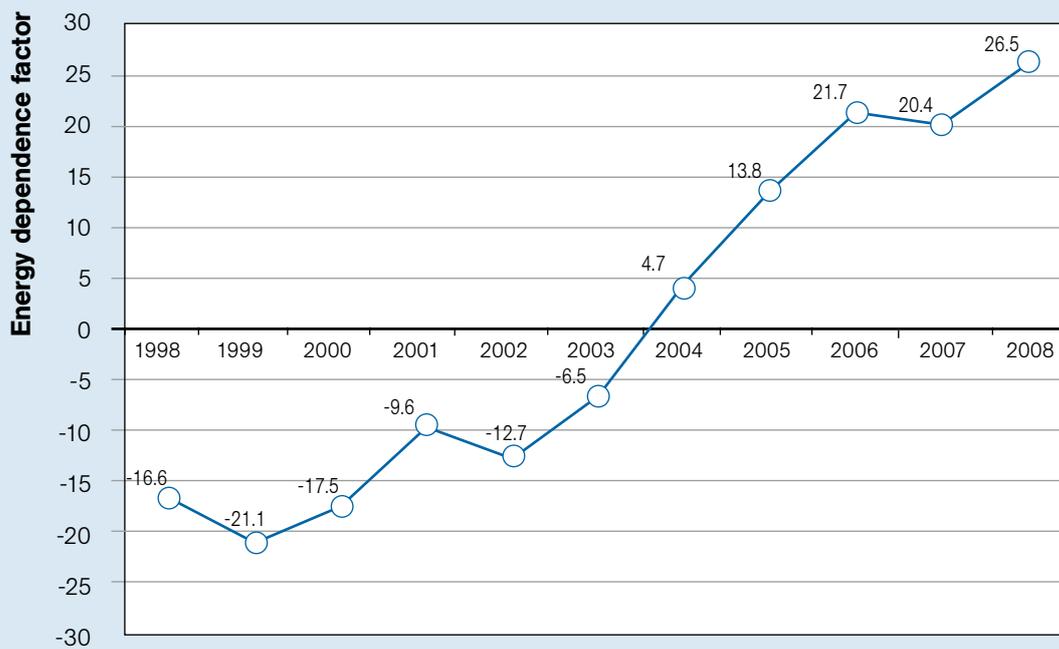
Figure 3 shows the trend in per capita electric power consumption for a number of high income and developing nations. The graph shows, for example, that electricity consumed by one person in the UK each year is more than 48 people living in the least developed countries would consume in a year.

In a typical calendar year, one person in the United States will, by 4am on the morning of 2 January, already have been responsible for the equivalent in climate changing carbon emissions that it would take a Tanzanian a whole year to generate. A UK citizen would reach the same point by 7pm on 4 January.

The UK's rising energy dependence

The UK's ability to meet its domestic demand for energy from domestic resources continues on a downward trend. Since 2004, in spite of huge untapped renewable energy sources, due to the UK's continuing dependence on fossil fuels, rising demand, and inefficient supply, the nation has lost its energy independence and is heading further in the wrong direction. We now increasingly rely on imports to balance supply and demand.

Figure 4. The rise and rise of the UK's energy dependence*: the UK's rising dependence on imported energy over the past 11 years



Source: nef estimates based on DECC (2009), Digest of UK Energy Statistics (Table 1.1 – 1.3)

* Defined as: $\text{Net Imports} \div \text{Energy Demand} \times 100$, a negative number means that the UK is energy independent because we indigenously produce more than we use. Energy independence does not equate with sustainability.

The 'energy dependence' factor is the ratio of net energy imports to demand multiplied by 100 to produce scalable figures. When it becomes 'positive', it means that we are obliged to import energy to meet our demand – in other words, our independence declines. The factor when the UK recently lost its independence in 2004 was 4.5. In 2005, it rose to 13.8, and went up again to 21.7 in 2006 – a 60 per cent increase in the dependence factor in one year.

The slight dip in the energy dependence in 2007 shown in Figure 4 was a relative effect, due to an increase in exports (mostly coal). The import of primary energy still grew by 5 per cent compared to the previous year. But in 2008, imports rose by 4 per cent, and exports fell again. Therefore, between 2007 and 2008, the energy dependence factor increased by almost 30 per cent, and has risen almost 5-fold since 2004.

Declining energy independence means that a nation's energy supply becomes increasingly vulnerable to the frequently hostile global geopolitics of energy. A high and volatile oil price on the global market is a major threat to countries like the UK and Ireland whose transport, food system, and much of its economy depends on oil and petroleum products. The loss of control over supplies is also a threat to a nation's sovereignty.

Who's doing all the consuming?

Household final-consumption expenditure (formerly 'private consumption') is the market value of all goods and services, including durable products (cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licences. Here, household consumption expenditure includes the expenditures of non-profit institutions serving households, even when reported separately by the country.

Box 5. Overwired: the ever-expanding universe of gadgets

In the 1970s, the average UK household had just 17 domestic electrical appliances. By 2006, this had almost trebled to 47 appliances, which includes computers, DVD players, digital set-top boxes, mobile phones, power tools, juicers, cappuccino makers, ice-cream makers and games consoles. While the efficiency of homes and the products we use improved by 2 per cent per year since 1970s, between 1972 and 2002, electricity consumed by household domestic appliances in the UK doubled, and is anticipated to rise by a further 12 per cent by 2010.⁴⁸

Too much TV is bad for you (and the planet)

A recent study published by researchers at the University of California found that the consumption explosion of liquid crystal display (LCD) screens has resulted in a surge in the GHG NF_3 . Nitrogen trifluoride is used as a plasma etchant (used for making circuit boards) and also for cleaning equipment in the semi-conductor industry. Although the concentration in the atmosphere still remains low, there has been a rapid increase in its production. And, its Global Warming Potential (GWP) makes it 17,200 times more powerful as a GHG compared to CO_2 over a 100-year period. Two studies published last year drew attention to its growth and called for it to be included in the next phase of the Kyoto Protocol.^{49,50}

Figure 5. Electrical goods arriving in the UK from China, Germany and USA

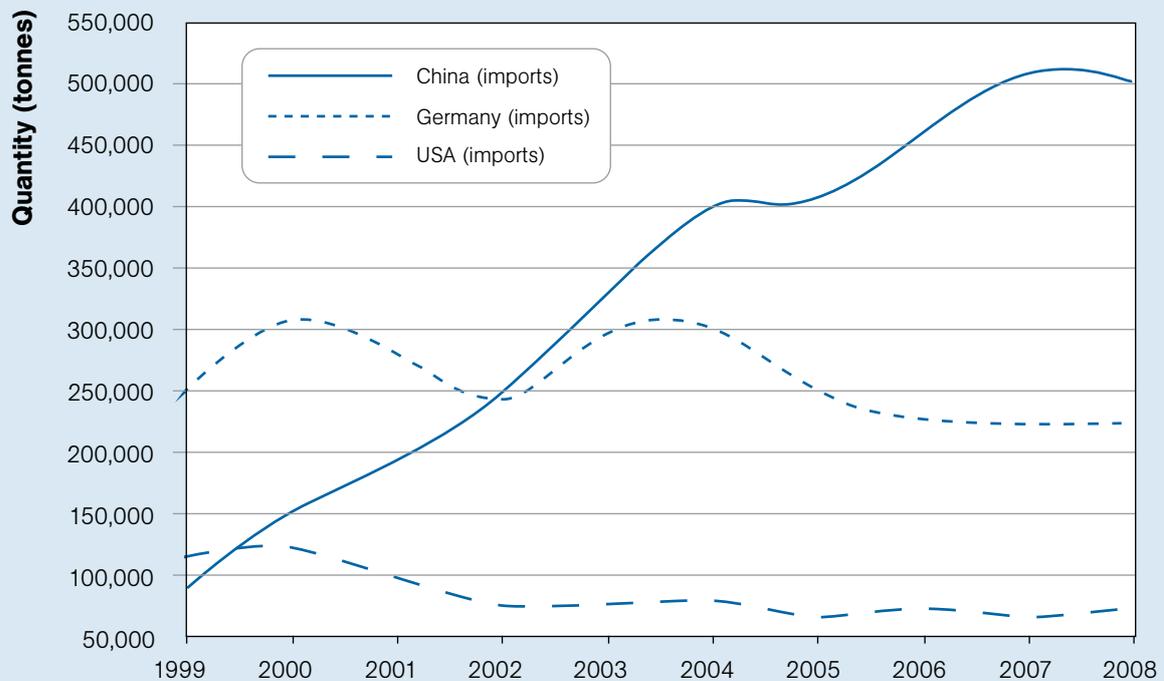
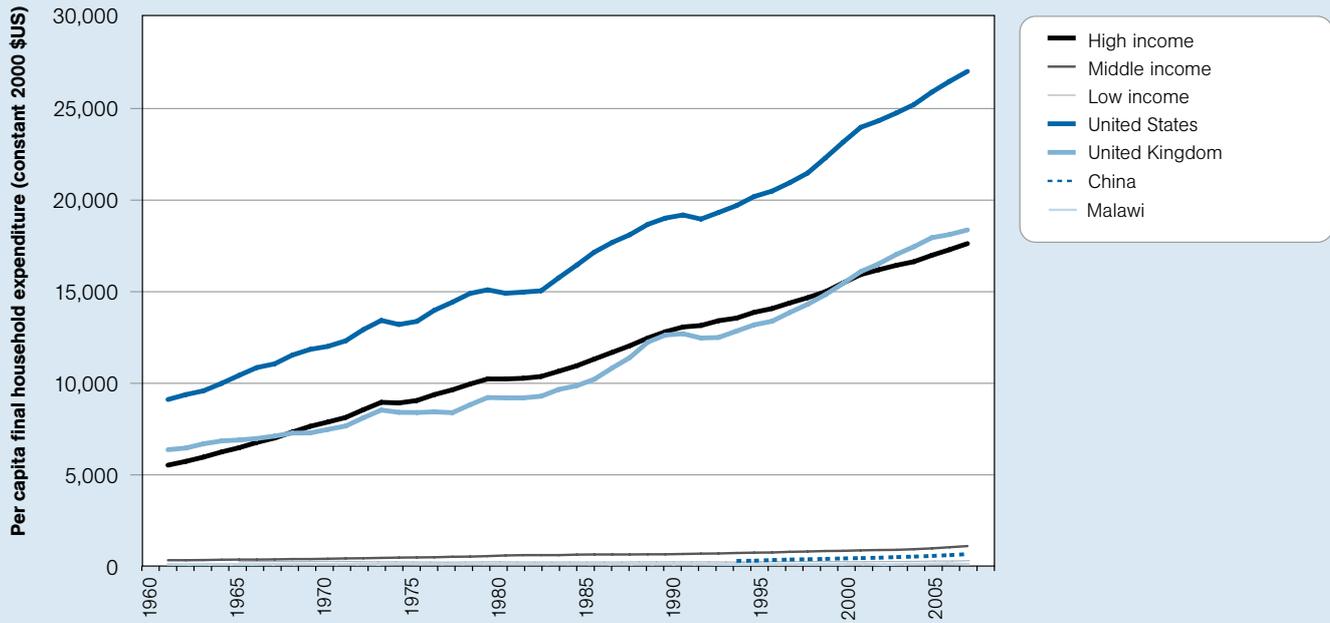
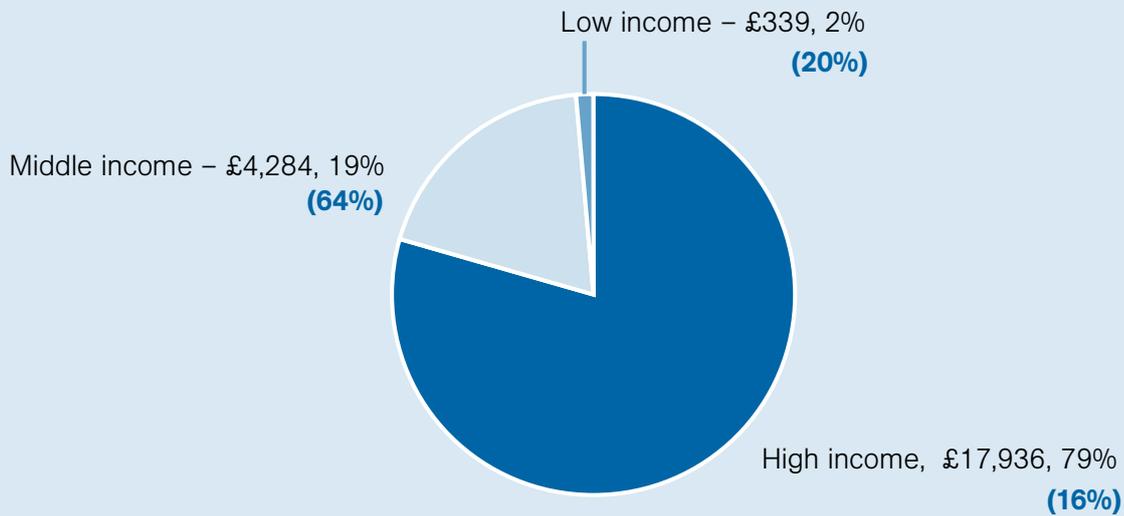


Figure 6. Growth in per capita final household expenditure (private consumption) – 1960-2006 (constant 2000 \$US)



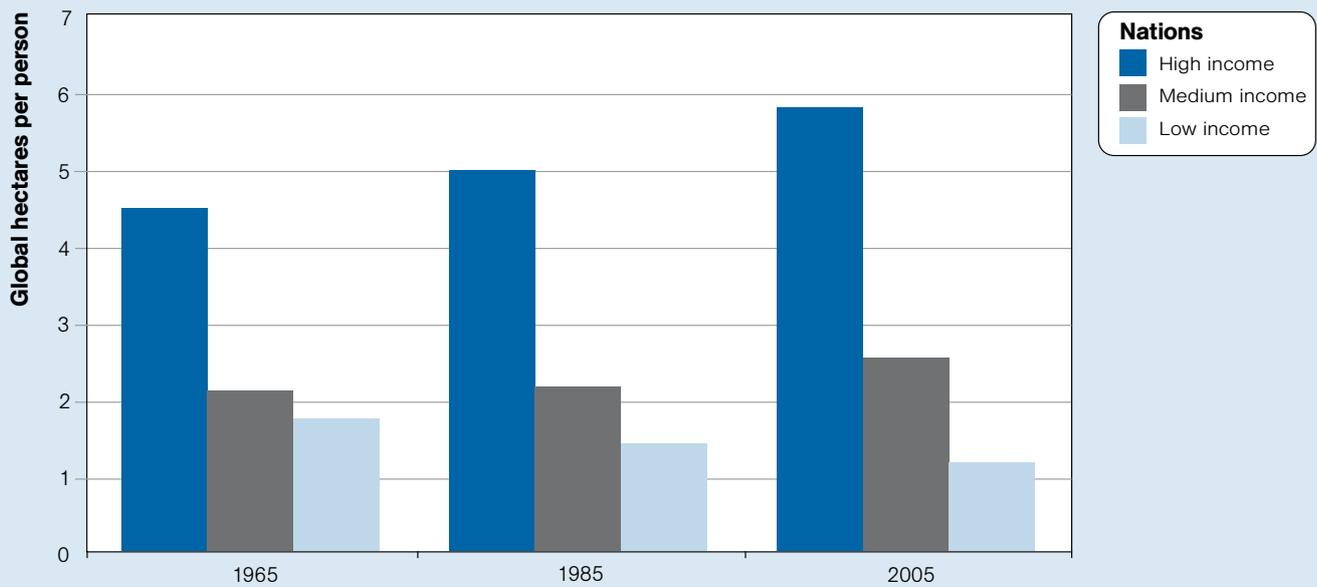
Source: World Bank National Accounts, and OECD National Accounts

Figure 7. Final household expenditure in 2006 in constant 2000 \$US billion (parenthesis shows percentage of global population)



Source: World Development Indicators (2008)

Figure 8. Average ecological footprint per person 1965-2005⁵¹



Source: nef estimates from the Global Footprint Network (2008)

Figure 8 shows that consumption and the ecological burden per person has grown much faster in high-income nations compared to medium- and low-income nations. In high-income nations, the average per capita footprint grew from 4.5 global hectares (gha) per person in 1965 to 4.9 in 1985 and 5.7 in 2005 – an overall increase of almost 30 per cent. In low-income nations the average per capita footprint actually fell from 1.7 gha per person in 1965 to 1.2 gha in 2005; a decrease of just over 40 per cent

The right to consume – lessons from history

So, the rich are overconsuming, while hundreds of millions subsist. Extensive research now shows that lowering consumption among people who already have their basic needs comfortably met need not lower their well-being. Nevertheless, reducing overall consumption, especially in wealthy countries such as the UK, is likely to lead to conflict and clashes with what are considered to be individual freedoms. For example, car ownership and international travel by plane are commonly cherished. But how do you trade the freedom of a UK citizen to fly or drive against the freedoms of people on a low-lying South Pacific island to maintain their homes and livelihoods?

Most decision-makers live far removed from the reality of climate change, but are acutely aware of negative public and media reaction to any perceived curbs on the 'freedom' to consume whatever a personal income allows.

For people in industrialised countries, the threat of global warming still seems too distant to justify significant disturbance of their private lives and consumption habits. But these are not new issues. Similar dilemmas faced society in Britain's Second World War economy, when rationing became commonplace.

The economist J. M. Keynes lobbied the Treasury through a series of articles in *The Times* newspaper and a pamphlet called *How to pay for the war*. According to the official war history Keynes set out to 'bring home the true nature of the war-time problems' and pointed out that even a moderate development of the war effort 'necessitated a very large cut in general consumption'.⁵²

Although it may seem astonishing with the benefit of hindsight about the Second World War, Keynes's view was perceived to be too strong. Opinion was not ready.

This is a lesson for governments too tentative to act affirmatively in the face of climate change.

Keynes faced problems that haunt today's officials tasked with restructuring the economy to be climate-friendly and climate-proof. If taxes, rationing and scarcity proved inadequate to lower consumption, Keynes anticipated the danger of an unmanageable inflationary spiral of wages and prices. In such a scenario the *'spirit and efficiency'* of the nation would be at risk. To avoid it, Keynes proposed a plan of compulsory saving, backed with the promise of a payback at the end of the war.

To manage reductions in consumption, generally speaking, the war-time government deliberately chose rationing over taxation for reasons that were logical and progressive. Taxation alone, it concluded, apart from disproportionately and unfairly placing a burden on the poor, would be too slow to change behaviour. Rationing was considered quicker and more equitable. Tradable rations were rejected through fear of encouraging fraud and inflation and *'undermining the moral basis of rationing'*.⁵³

Historian Mark Roodhouse derives specific lessons for today's policy-making. If introducing rationing now, he argues, the Government would need to *'convince the public that rationing levels are fair; that the system is administered transparently and fairly; and that evaders are few in number, likely to be detected and liable to stiff penalties if found guilty'*.⁵⁴



People-dependence – human movements and global interdependence

‘History in its broadest aspect is a record of man’s migrations from one environment to another.’

Ellsworth Huntington, Geographer and Climatologist, 1876–1947

Migratory movements are as old as humanity itself. In fact in the sense that our species originated in Africa, it can be said that we are all migrants, and the intermingling of genes, skills and cultures is central to human evolution.

All recorded history reveals this pattern. Every continent owes its characteristics to successive waves of migration from other regions of the globe. The ancient world, for instance, saw huge migratory flows, including that of the Indo-European peoples whose language family is now the most widely spoken in the world. Everywhere, the rise and fall of empires and dynasties has produced a changing pattern of population density, upheaval and achievement.

Most people’s family records now include a migrant ancestor within the past two or three generations, and this holds especially true in North and South America, where the population consists almost entirely of migrants and their descendants.

As our world becomes more interconnected, the number of global migrants is growing. Most states are now simultaneously countries of migrant origin, transit and destination, and the numbers of South–South migrants (those who move from developing countries to developing countries) is approximately same as those of South–North migrants (who move from developing countries to the developed world).

Technical advances, especially in communications and transport, have made global mobility a more realistic option. At the same time, disparities in wealth, demography, opportunity, income and employment have become more visible to people all over the planet.

According to the International Organisation for Migration’s (IOM’s) 2008 report, there are more than 200 million international migrants in the world today, about 3 per cent of the global population, and two and a half times the number in 1965.⁵⁵

In short, we now live in a truly interdependent world, reliant on other countries for our food, our culture, our security, and our prosperity. Without a fundamental shift towards greater cooperation on a global scale, demoting the aggressive pursuit of narrow national self-interest, it will not be possible to resolve the big, often life-threatening problems in front of us: climate change, environmental degradation, global poverty, international crime, security issues, energy provision, or the spread of disease. Too often, the opposite happens with fortress mentalities, restrictive border controls, and politicians pandering to xenophobic instincts.

For all of these reasons, it is very unlikely that the trend towards rising migration could, or should be actively reversed by migrant-receiving countries. Indeed, in the industrial world, where falling birth rates and increasing longevity are rapidly increasing the dependency ratio, the maintenance of reasonable levels of immigration is now a social and economic necessity. In the absence of international migration to these nations, the population in the age range 20–64 is expected to decline by 23 per cent (from 741 million to 571 million) by 2050. But, as the IOM report points out, the developing world can easily provide a source of labour to solve this problem over the next four decades. Yet there are often serious consequences to those countries in the developing world that are the sources of

migration, in terms of the impact on family life, community and in the loss of vital skills.⁵⁶

UK migration policies

*'Calls to reduce migration in destination countries tend to be based on the false perception that "migrants take jobs" or "compete for welfare benefits", when in fact the majority of migrants create economic activity and jobs. Human mobility... makes economies more dynamic and more efficient. Migration may also be a positive force in alleviating various aspects of the economic crisis and potentially make an important contribution towards overcoming the economic downturn. Trying to combat the economic crisis by simply cutting immigration may make the situation worse.'*⁵⁷

IOM Policy Brief March 2009

The Impact of the Economic Crisis on Migrants and Migration

In view of all these considerations, it is surprising and disappointing that the EU, and the UK in particular, has been adopting an increasingly illiberal attitude towards immigration.

Citizens of the EU already have the right to move and reside freely within the member states. With the exception of the UK and Ireland, all EU countries lie within the Schengen area, which has a border policed by an external border security agency called Frontex. Each state retains the right to impose its own restrictions on non-EU labour migrants, but many of these measures are extremely controversial.

For example, France's 2006 immigration law, imposed additional restrictive migration regulations which were widely condemned by human rights advocates and religious leaders, while Austria, having tightened its immigration policy and called unsuccessfully for a strengthening of the Schengen border, recently announced that it will deploy military forces along its own frontiers.

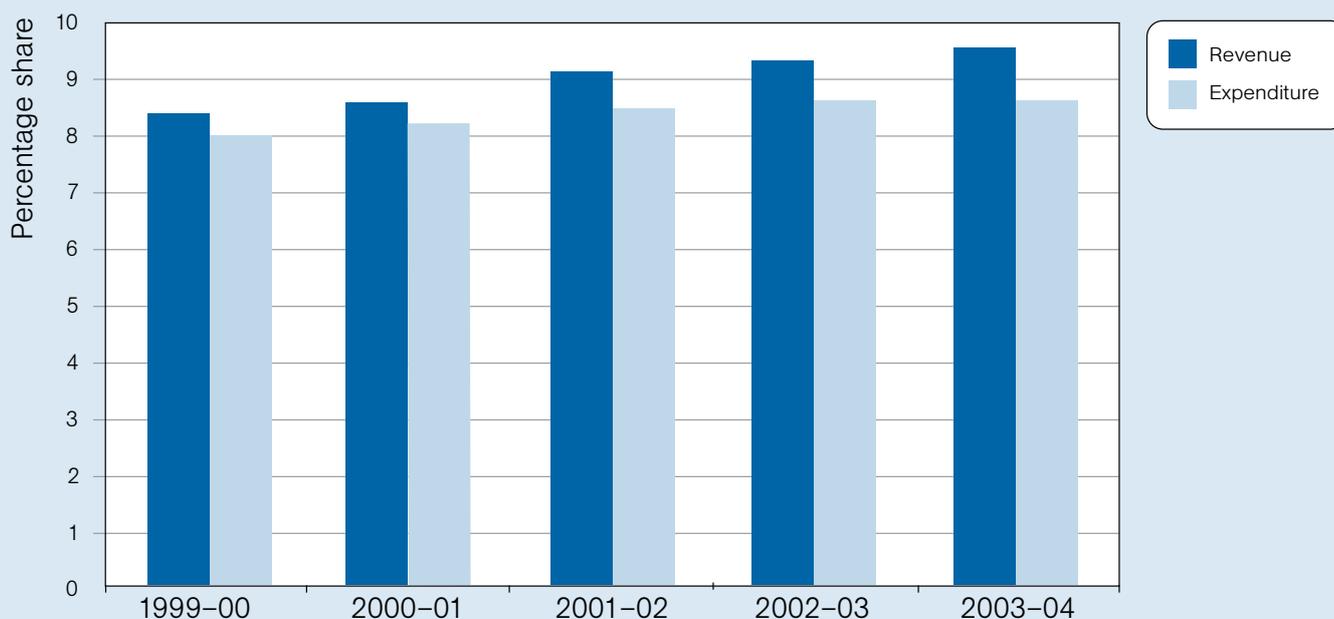
But the UK Government's regulations are exceptionally restrictive.

In 2007, a new UK Borders Act was passed, introducing greater powers for immigration control, among them, compulsory biometric documents for non-EU immigrants. The Government also set up a new organisation, the UK Border Agency, to patrol its territory, and brought in a five-tier points-based immigration system, similar to that used in Australia. In keeping with the promise of the Immigration Minister Phil Woolas, who pledged to engineer a dramatic reduction in the number of migrants coming into Britain, these tiers have now been trimmed to exclude unskilled workers by indefinitely suspending the category that applies to them.

In addition, the academic and financial requirements for migrants applying to enter the UK have been raised, and the resident labour market test for migrants applying for skilled jobs has been strengthened. The UK Government has also flatly refused to contemplate 'regularising' undocumented migrants already resident and working in the country.⁵⁸ This is despite the fact that a study undertaken this year for the Greater London Authority by the London School of Economics (LSE) concluded that doing so could add approximately £3 billion to the economy.⁵⁹ The National Audit Office further estimates that the deportation of all illegal immigrants would cost the UK £4.7 billion. Asylum seekers face similar unrelenting pressure. Migration has repeatedly been shown to have an overall positive impact on the UK economy, with the tax paid by migrant workers outweighing their cost to the community in social benefits, but these data have not been widely publicised, and good recommendations for easing particular 'sectional problems' have been largely ignored.

For example, a report released in June 2007 on the economics of migration by the UK Trade Union Congress noted that while there can be problems associated with social provision at grassroots level, these can be managed by proper distribution of the extra government resources generated by migration as a whole.⁶⁰ It pointed out that since local government expenditure varies in line with the number of people needing its services, it is essential that accurate estimates of migrant movements are provided by the Office of National Statistics, so that central government can

Figure 9. Migrants' share in government tax revenue and expenditure.⁶¹



Source: HM Treasury, Labour Force Survey and ippr calculations

allocate local revenue grants in an appropriate way. Current problems, it added are not necessarily the negative impact of migration, but rather the result of poor planning.

Figure 9 shows that in each of the five years covered, immigrants' contribution to government revenue was considerably higher than their share of government expenditure.

The dynamic equilibrium of human movements

Since the credit crunch, and in common with most developed countries, the unemployment rate in the UK has risen. The unemployment rate was 7.8 per cent for the three months to June 2009, up 0.7 over the previous quarter and up 2.4 over the year. Although it remains below that of the USA and of most of the major economies in the EU, these are the largest quarterly increases in the unemployment level and rate since 1981, and push the number of unemployed up to 2.43 million.⁶²

Unemployment tends to fan anti-immigrant feelings and deepen concerns (regardless of their basis in fact) that host-country workers' jobs are being lost to incomers in ever-growing numbers. There have been a number of industrial walk-outs in protest at the employment of foreign workers, and politicians have responded sympathetically, tightening regulations further. As Phil Woolas put it: *'If people are being made unemployed, the question of immigration becomes extremely thorny... It's been too easy to get into this country in the past and it's going to get harder.'*⁶³

Yet, government ministers may do better to remind people that, in fact, immigration pressure is automatically eased by the employment situation, for an absence of available jobs greatly diminishes the pull factors that affect migratory flows.

In the UK, immigration applications for the first three months of 2009 from the eight EU accession (A8) countries have more than halved compared to the same period in 2008 (down to 23,000 from 48,755), falling to their lowest level since they joined in 2004.⁶⁴ This reduction is particularly interesting in view of the previous 'panic' about the impact of freeing up the internal EU labour market whereby citizens of the member states are entitled to move between each other's territories.

In fact, the UK may soon experience problems arising from having too few immigrants, rather than too many (Box 3).

Historically, immigration to the UK has risen as its domestic birth rate has fallen. In line with this pattern, the present decline in the UK fertility rate would normally increase the immigration flows into the country. Should anything block this flow, either because of lack of economic opportunity, perceived xenophobia, or prohibitive regulation, the UK may lose, both socially and economically.

According to the 2009 Local Authority Association report *The impact of the recession on migrant labour*, anxiety about the effects of a fall in migrant worker numbers is already being expressed within the sectors most dependent upon them.⁶⁵ Industry experts in the social care sector say that the shortfall in skilled workers created by the shortage occupation list could disrupt services, damage ability to care properly for the vulnerable, and increase costs.

In the agriculture sector, farmers warn that they will lose money, and food will be left to rot if migrants begin to return home. In the food industry, a quarter of food and drink manufacturers claim that a fall in the number of migrant workers would hamper productivity.

Many rural businesses will face significant risks, too, if migration declines, with a shortage of workers limiting the chances of economic recovery. As the Chair of the LGA put it: *'If migrant workers begin to return home in large numbers, it could put real strain on some of the key services and industries we all take for granted... councils and businesses across the country need to be alert to any changes in their local workforce.'*⁶⁶

Although clearly there are problems in certain sectors and localities, inflammatory political rhetoric about immigration, lost jobs, and adverse economic effects is grossly inaccurate. Rather, care should be taken to ensure that migration flows do not diminish to a damaging extent.

At the same time, the migration issue does need very careful examination. Because, as with all aspects of the UK's global interdependence, our responsibilities as wealthy global citizens, mean that we must look to ensure that our interdependence is not based on patterns of one-sided exploitation. The question of exactly who benefits, depends (as it has always done) on the cause, size and direction of specific migratory flows.

Forced migration or migration by choice?

*'The long-term manageability of international migration hinges on making the option to remain in one's country a viable one for all people.'*⁶⁷

Cairo Declaration and Programme of Action (1994)

Many 'push' factors drive migration. Curiosity, ambition, and the desire to seek new challenges and opportunities have always motivated human beings. The quest for material self-betterment also commonly forms part of this impulse. This was as true of the second sons of aristocratic British families at the height of empire, as it is of young men travelling from Central Europe, Asia or Africa today.

Such drivers lead to flows of 'free' migration, productive movements of exploration, travel, and resettlement that are undertaken by choice. But the drivers are not always so benign: war, famine, political repression, environmental degradation, lack of opportunity and employment, and severe economic distress have always propelled large numbers of people from one specific area of the globe to another.

These are 'forced' migrants, for whom the alternative of staying at home has effectively ceased to exist. If they are to escape persecution, rising sea levels due to climate change, starvation, or grinding poverty, and attempt to secure a decent standard of living for themselves and their families, no other option may be open to them.

As our environmentally unsustainable consumption increases, and the economic system that supports it continues to determine global policies, this category of

'forced' migrants grows larger. Such people do not decide to migrate in the sense of making a choice between viable alternatives. Instead, they are driven to leave home (often alone, and at great personal sacrifice) by 'push' factors largely resulting from the policies and consumption patterns of others, and over which they have no control. If we are to limit migratory flows to those who really choose to leave their homes in search of a preferred life in other countries, it is these issues that must be addressed.

Obviously, it is often the case that the reasons behind migration are not singular but complex. A vicious cycle of deprivation frequently links them. In Darfur, for instance, desertification has led to disputes about land resources that have ended in terrible internecine strife, resulting in a flood of refugees and IDPs (internally displaced people).

Where aggressive lending policies have left poor countries heavily in debt, their governments are put at the mercy of the 'conditions' imposed by their creditors. These typically include fiscal constraints which impact most heavily on the poor. Inappropriate privatisation policies can also leave an economy increasingly dependent upon foreign investment with all that this implies for loss of sovereign control of the economy. The latter is often secured at the expense of offering tax concessions of various kinds, including the waiving of social and environmental regulations – a 'race to the bottom' that exacerbates environmental degradation, disturbs social cohesion and can contribute to political unrest.

Although the definitions may overlap, broadly speaking forced migrants fall into three categories:

- 1 Forced economic migrants.
- 2 Environmentally displaced people.
- 3 Asylum seekers and refugees.

Forced economic migrants

*'Governments must work to ensure that decent working and living conditions prevail in countries of origin so that workers truly have the option to migrate or not to migrate.'*⁶⁸

Report of the Civil Society Day of the Global Forum Migration and Development, Brussels, 9 July 2007

In a world that is richly endowed with natural resources, but beset with overconsumption, it is the industrialised nations that are consuming far beyond their needs. At the same time, nearly half the global population still lives below the \$2-a-day poverty line, and over half live on under \$3 a day – the level below which life expectancy abruptly plummets.

Although the very poor usually cannot afford to emigrate, for many of those who manage to do so, the decision can be literally one of life or death. In the least developed countries of the world, for instance, women have a 1 in 24 risk of dying as a result of pregnancy during their lifetime, compared to 1 in 8,000 in industrialised nations. Individual countries show even more horrifying disparities; in Afghanistan and Sierra Leone, for example, the lifetime risk of maternal death is 1 in 8 (compared with 1 in 8,200 in the UK).⁶⁹

Under-five child mortality indicators, which are considered to be one of the main indicators of human development, are also indicative of the grotesque inequalities between the regions of the world that partly fuel migration (Table 3). Here we find 142 children out of 1,000 dying before they are five years old in the least developed countries, against 6 out of 1,000 in the industrialised world. Again, individual cases underline these inequalities. In 2006, the under-five mortality rate for Angola was 260 per 1,000 live births – that is, more than a quarter of Angolan children die before their fifth birthday – while in the UK the figure was 6 per 1,000. Over all, approximately 25,000 children die *each day* – one every 3.5 seconds, or around nine million per year, almost entirely from poverty-related causes.

Table 3. Under-five and infant (under-one) mortality rates per 1,000 births⁷⁰

Region	Under-five mortality rate per 1,000 births		Infant mortality rate per 1,000 births	
	1990	2006	1990	2006
Sub-Saharan Africa	187	160	111	95
Eastern and Southern Africa	165	131	102	83
West and Central Africa	208	186	119	107
Middle East and North Africa	79	46	58	36
South Asia	123	83	87	62
East Asia and Pacific	55	29	41	23
Latin America and Caribbean	55	27	43	22
CEE/CIS	53	27	43	24
Industrialised countries	10	6	9	5
Developing countries	103	79	70	54
Least developed countries	180	142	113	90
World	93	72	64	49

Source: *State of the World's Children*, UNICEF (2008)

Inadequate wages in the developing world also feed into this vicious spiral of hardship. The International Labour Organisation's (ILO's) 2008 World of Work Report *Income inequalities in the age of financial globalisation* shows that financial globalization – caused by deregulation of international capital flows – has been a major driver of the rising income inequality within countries. Its 2008/09 Global Wage Report records that the general trend has been for wages to grow at a substantially slower pace than GDP, leaving an estimated 1.38 billion workers unable to earn enough to lift themselves and their families above the \$2-a-day poverty line.

There are very few empirical studies comparing wages and earnings across countries, mostly because of the limited amount of comparable information and methodological data available. Table 4 gives some indication of the gross global wage disparities between the lower and upper limits for a number of selected occupations between 1990 and 2000.

The table shows there is a greater variation across countries (in absolute terms) for the higher paid technical occupations. This is because wages in less skilled jobs tend to be low in most parts of the world. With a few exceptions, however, the *relative* wage differences within occupations are greater in low-skilled than in high-skilled occupations, with the best paid garment cutter being paid nearly 50 times more than the worst paid, while the best paid computer programmer earned 'only' 10 times more than the worst paid.

If we wish to make migratory flows more 'manageable' we must address the policies that lead to this mal-distribution of the world's resources.

According to IOM, migration flows tend to stop 'naturally' once the disparity in income per person is reduced to about 4:1 or 5:1. If this is accompanied by economic development and job creation, most potential economic migrants opt to stay at home.⁷¹

But our current global economic model prioritises growth over positive redistribution as its avowed strategy of choice for tackling poverty. However, global household income data reveal that this approach has ensured that only a minute and shrinking share of the additional income generated by global

Table 4. Lower and upper wage limits by occupation in US\$ per month (1996 US\$ PPP26) 1990–2000

Occupation	Lower wage limit	Upper wage limit	Absolute difference	Ratio
Garment cutter	37	1816	1779	49.0
Office clerk	55	2273	2218	41.3
Welder	48	1961	1913	10.8
Sewing machine operator	37	1469	1432	39.7
Field crop farm worker	39	1520	1481	38.9
Accountant	155	6010	5855	38.7
Stenographer-typist	57	2138	2081	37.5
Labourer	46	1687	1641	36.6
Hotel receptionist	60	2092	2032	34.8
First-level education teacher	108	3526	3418	32.6
Salesperson (retail)	55	1670	1615	30.3
Room attendant/chambermaid	54	1597	1543	29.5
Motor bus driver	64	1832	1769	29.0
Professional nurse	138	3969	3831	28.7
Urban truck motor driver	70	1843	1773	26.3
Salesperson (wholesale)	134	3119	2985	23.2
Power engineer	267	5823	5556	21.8
Refuse collector	151	1915	1764	12.6
Computer programmer	470	4871	4401	10.3

Source: *Migration and the Remittance Euphoria*, nef (2006)

economic growth since the beginning of the 1980s has gone to the poor.⁷² As a result, high-income countries' gross domestic product (GDP) per person has risen to 66 times that of low-income countries, and 14 times that of middle-income countries, while, as we see from Table 4, wages for the same occupations now differ by a ratio of between 10 and nearly 50 between rich and poor countries.

These neo-liberal policies, expressly designed by the rich industrialised countries with the effect of consolidating and furthering their own wealth, have fuelled and continue to push the high consumption patterns in the industrialised world, together with the environmental and social costs entailed. They include:

- liberalisation measures that have created volatile and destabilising financial markets, and necessitate developing countries to hold large foreign reserves in order to defend their currencies against speculative attack;
- inappropriate pressure to increase commodity exports, leading to global overproduction and price volatility;
- coerced liberalisation, resulting in excessive reliance on foreign capital, failure to develop domestic industry and the privatisation and ownership of public services;
- aggressive, ill-advised and often 'odious' lending (creating debt dependency); and
- the undermining of self-sufficiency and developing government authority inherent in the assumption of developed country control.

These measures have resulted in:

- *An enormous rise in income and asset inequality both within and between countries.* In 2007, the average per capita annual income in high-income countries reached \$37,566 (up from \$25,870 in 1996) with eurozone countries standing at \$36,329, while that of low-income countries stood at \$578.⁷³ Asset inequality has become even more pronounced: in the most comprehensive study of personal wealth ever undertaken, UNU WIDER reports that for the year 2000 the richest 1 per cent of adults alone owned 40 per cent of global assets, and that the richest 10 per cent of adults accounted for 85 per cent of the world total. In contrast, the bottom half of the world adult population owned barely 1 per cent of global wealth.
- *A failure to make substantial advances in the eradication of poverty.* Although World Bank figures suggest that poverty below the '\$1-a-day' line has fallen from 40.1 per cent to 18.1 per cent since 1981, China accounts for the majority of the reduction, less than half of which has occurred since 1987. Poverty below the \$2-a-day line outside China has fallen only from 59.1 per cent to 51.6 per cent over this period, at which rate it would take 118 years to halve poverty by this definition.
- *An inability to address global unemployment.* This problem has become even more acute as the fallout from the current financial crisis has started to impact on the real economies of developing countries. In the May 2009 update of its Global Employment Trends (GET) report, The ILO revised its previous unemployment projections upwards to levels ranging from 210 million to 239 million unemployed worldwide in 2009, with an increase of between 39 and 59 million unemployed people since 2007 as the most likely range.⁷⁴ Should the economic situation continue to deteriorate, the ILO also warns that the working poor and those in vulnerable employment will also suffer, with some 200 million workers, most of them in developing economies, likely to be pushed into extreme poverty.⁷⁵
- *A number of severe financial crises in developing (and developed) countries over the last three decades, culminating in the current global financial crisis with all its long-term, large and unquantifiable social and economic costs*

In the wake of the credit crunch, it has become plainer than ever that new global economic policies designed to achieve environmental and social objectives are urgently needed. These should essentially give developing country governments the space to determine and implement policies suited to the needs of their populations, rather than have them dictated by the requirements of the industrialised nations.

In an interdependent world, such a change of structure would depend on a reform of the international financial architecture, in order to prevent global financial crises, and in particular enable developing countries to safeguard their currencies by resisting inappropriate liberalisation policies. New institutions would help to calm currency market volatility, reduce the likelihood of balance of payments crises, strengthen public sector finances and limit cases of sovereign debt distress.

As such, they would address many of the economic roots of disruptive and damaging forms of migration. Many of the components of this new architecture have already been proposed and developed. They include:

- the replacement of the Bretton Woods Institutions (BWIs) by alternative impartial democratised international organisations;
- the establishment of an international currency transaction tax (CTT) to curb speculation on the foreign currency markets and reduce volatility;
- the setting up of a global intervention fund, to be used in combination with a system of crawling peg exchange rates, which would intervene automatically in support of currencies under speculative attack to smooth exchange rate adjustments;

- the appropriate use of national capital controls in order to regulate both inflows (as in Chile in the early 1990s) and outflows (as in Malaysia in 1998);
- mechanisms for the international coordination of national taxes to limit tax competition and the imposition of strict regulation and supervision of offshore financial centres (OFCs) in order to control tax avoidance;
- adequate measures to limit the accumulation of liabilities and discourage speculative bubbles in asset markets, including the collection of reliable data on the net resource flows arising from equity investments and foreign direct investment (FDI);
- policies to expand and promote domestic and local resources, including the redistribution of land where appropriate;
- measures to promote developing countries' access to appropriate forms of external finance on favourable terms for priority uses (international taxes, such as those on international flights, could be a source of finance designed to reduce global inequalities);
- international regulations to prevent loans, guarantees and insurance by national export credit agencies (ECAs) being used for projects that detract from sustainable development;
- the replacement of the present global payments system by a new institution such as an International Clearing Agency and/or measures to institute a new global currency for international transactions;
- the introduction of a fair international trading system that recognises the need of developing countries to protect their economies, and does not discourage the expansion of their internal domestic markets or promote unsuitable export production;
- recognition of ecological debt and the use of measures to share fairly the use of the global commons, particularly the absorptive capacity of the atmosphere, but including other global resources such as deep-sea fish stocks; and
- measures (such as the realistic pricing of transport to reflect pollution liabilities) to ensure that all users pay for the long-term cost of resources so that truly sustainable development is encouraged in the future.

Environmentally displaced people

Since 2003, when **nef** published *Environmental refugees: the case for recognition*,⁷⁶ the likely impact of global warming on forced migration has become a major issue of international security and the protection of human rights. It wasn't the first description of the problem, but it struck a chord, coinciding with rapidly rising acceptance of the reality and severity of climate change. A recent report by EU Foreign Policy Chief, Javier Solana and the European Commission warned that climate change could amplify or trigger mass migration within and between countries, due to climate and resource stresses.⁷⁷ The report warns that increased migration could spark increased conflicts in transit and destination areas. It states that '*some countries that are extremely vulnerable to climate change are already calling for international recognition of such environmentally induced migration*'.

Climate change is set to make the refugee burden on developing countries far worse. According to the United Nations High Commissioner for Refugees (UNHCR), by the end of 2006, developing regions hosted 7.1 million refugees, 72 per cent of the global refugee population. And, the 50 least developed countries (LDCs) provided asylum to 22 per cent of the world's refugees.⁷⁸

Forced from their homes and lands by flood, storm, drought and other environmentally driven and weather-related disasters, environmental refugees are now one of the fastest-growing (if still not formally recognised) classes of refugee. They are thought to significantly outweigh in number by several million orthodox political refugees. By 2050, between 150 and 700 million people may be displaced

by environmental impacts related to global warming, such as sea-level rise and drought. However, estimates are highly uncertain due to the complex drivers of migration, and the most cited estimate is around 200 million by 2050, or about three times the total population of the UK.⁷⁹

Many of the worst impacts of climate change are expected to occur in parts of the world that are either very or relatively poor, or where states are weaker and more conflict prone. As a result, this is likely to represent another example of deep inequity in terms of the costs, causes and consequences of climate change. Bangladesh, for example, is acutely vulnerable to global warming, yet has very low per capita GHG emissions. In a 1995 climate conference in Berlin, Dr Atiq Rahman of the Bangladesh Centre for Advanced Studies famously warned delegates: *'If climate makes our country inhabitable, we will march with our wet feet into your living rooms.'*⁸⁰

Currently, the Geneva Convention, which defines and serves to protect refugees, does not explicitly include those displaced by environmental degradation. It came into being in Europe as a result of the Second World War and was designed to deal with issues of war, ideology and religion, when climate change was known to only a few in the scientific community.

Steps to expand or reinterpret the Geneva Convention to incorporate a new category of 'environmental persecution' could begin with a global commission, sponsored by the UN, reporting to the UN Security Council and the General Assembly on the implications of the growing number of environmental refugees. This should also examine threats posed to actual nationhood from global warming; for example, to Small Island States.

Where the push factor of forced migration is environmental degradation driven by global dynamics, or when the environment has, in effect, been used as a 'tool to harm' a given community within a country (if, for example, an ethnic minority has its lands flooded), environmental refugees need proper status to provide them with internationally assured protection, independent of and separate from the actions of their own governments. Often these governments do not have the resources or the will to help; sometimes they are themselves directly culpable. An alternative to an amended Geneva Convention would be a new convention specifically focusing on people whose way of life is being destroyed by a lost, ruined or degraded environment.

The growth of environmental migration and the climate refugee is another case in which a problem that appears to be mostly about population has its real roots in the consumption explosion.

Asylum seekers and refugees

Asylum seekers are persons who have left their country of origin because of persecution, but whose formal application for asylum in another country has not yet been decided. Refugees are those whose applications have been successful. IDPs are those who are displaced within their own countries.

The UNHCR estimates that by the end of 2008, there were approximately 42 million people displaced worldwide as a result of armed conflict and persecution. This figure includes over 15 million refugees, and 26 million IDPs. It does not include the estimated 25 million people who have been displaced due to 'natural' disasters. Afghani and Iraqi refugees account for almost half of all the refugees under UNHCR responsibility.

By the end of 2008, developing countries were hosting 80 per cent of the world's refugees. Pakistan is host to the largest number of refugees worldwide (1.8 million), followed by Syria (1.1 million) and Iran (980,000). By contrast, Europe hosted 15 per cent of the world total, while the UK is home to less than 3 per cent. Moreover, claims for asylum in the UK have fallen sharply in recent years and were at a 14-year low in 2007, with 23,430 applications for asylum (4 per cent of all immigration applications) compared with 103,080 in 2002. Provisional figures for 2008 show that this number has risen slightly to 25,670 for the year, which is still a fall of just under 70 per cent of the 2002 total.

Despite this, the Refugee Council's December 2008 report, *Remote controls: how UK border controls are endangering the lives of refugees*, makes clear that the operation of overseas UK border controls may now result in refugees being sent back to countries where they face persecution. They show that border controls are often located in refugees' regions of origin, and are able to identify people who are attempting to leave their country without proper travel documentation (as they have no choice), but they do not identify people fleeing persecution or offer them a route to safety.

Even if they do manage to reach the UK, a very distressing scenario greets most such asylum seekers. In the first place, a combination of the 2002 legislation preventing asylum seekers from working, and the 2004 cuts in legal aid, has left valid asylum seekers destitute and unable to access proper advice, often resulting in them being refused sanctuary and returned to countries where they could be tortured. Worse still, there has been a decrease of 11 per cent for initial asylum decisions (19,420) compared to 2007 (21,775). And of these, only 19 per cent were granted asylum, 11 per cent were granted either humanitarian protection or discretionary leave, and 70 per cent were refused.⁸¹

This outcome has resulted in terrible hardship. Two reports show that many failed asylum seekers are now living in a 'twilight zone', with no housing or financial support, and no right to work.^{82,83}

The study, by refugee charity, Pafras (see note 82) reports that many of these failed asylum seekers, of whom there are an estimated 500,000 in the UK, are living on less than 'a dollar a day', the global yardstick for extreme poverty. It found that, on average, these rejected applicants, of whom two-thirds had experienced torture in their countries, were surviving on £7.65 per week, but that the majority lived on less than £5. Following the refusal of their asylum claims, 72 per cent have spent time sleeping outside; of these, 38 per cent have experienced physical attacks.

More than a third of the women sleeping rough had experienced sexual assault, including rape. Christine Majid, from Pafras, says the number of destitute asylum seekers the charity dealt with has tripled in the past two years and called destitution a 'deliberate' policy to force asylum seekers out of the country.

It is difficult to see how a country that has spent around £14 billion since 2001 out of its Treasury's 'contingency reserve' on pre-emptive military engagement in Afghanistan and Iraq (the two countries who now comprise almost half of the world's refugees) can justify this situation.⁸⁴ In our interdependent world, severe human rights abuses are entailed in the UK position.

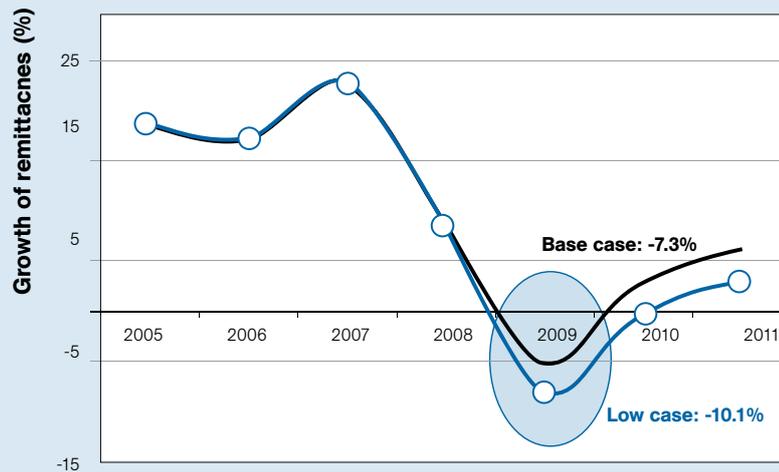
Interdependence and migrant remittances

Remittances – the flow of funds sent back by migrants to their countries of origin – steadily increased in the decades up to the credit crunch. By 2008, an estimated \$305 billion globally was being transmitted to developing countries. This figure is more than double the level of development aid. The size of the transfer has encouraged the general assumption that migrant remittances are highly beneficial to the migrant's country of origin and to the developing world as a whole.

However, although remittances by definition reduce poverty within the families of the recipients, there is scant evidence that substantial wider developmental benefits exist. Remittances are essentially private transfers of wealth, and do not contribute directly to government resources. Rather, research shows that they are frequently spent on consumption items, which are often imported, reducing economic benefits to the home country. Nor do the figures reflect the losses that should be offset against them – the cost of 'brain drain' for example, or the social and psychological side effects on sending families and their communities.

They also create a strong disincentive for domestic savings, leading to a depletion of the domestic resource base for investment, and give rise to an illusion of sustainable prosperity that prevents governments from addressing the issues that originally led – and probably continue to lead – to the forced emigration of their remittance-sending migrants. Nor are remittances evenly spread either between

Figure 10. Remittance flows to developing countries are expected to decline in 2009.



Source: World Bank Migration and Development Brief 10 (2009)

or within developing countries, and because of the costs entailed by the migratory process, they usually do not flow to the poorest families.

Most importantly, however, remittance-dependent countries are vulnerable to economic crises and political decisions in host countries. They are acutely subject to fluctuations in the global labour market that can lay their economies open to serious disruption. This vulnerability is becoming very apparent in the current financial crisis, with the World Bank forecasting increasing falls in remittance flows to developing countries. In its *Migration and Development Brief 10* released on 13 July 2009 (Figure 10),⁸⁵ the world bank has estimated that these will fall by between 7.3 and 10.1 per cent in 2009, depending upon the numbers of migrants who are able to remain in the host countries (a figure revised from 5 per cent and 8 per cent in the March Brief 9).

However, despite this drop, remittances will continue to outstrip private capital flows and official development aid, especially as the former have fallen dramatically since the downturn. As a short-term palliative designed to redress some of the inequalities of the current global system, the current crisis therefore makes them a particularly critical source of poverty reduction.

Consequently, it is very important that rich countries do not react to current circumstances by tightening their immigration controls, thus cutting off an adaptation strategy designed to deal with a situation that their own misguided financial policies have created.

The UK – outward and inward remittances

There is quite a widespread popular impression that remittance payments *per se* represent a transfer of wealth from the UK to other economies, and that this aspect of migration is therefore a drain on the country's resources. But in fact this is not the case. Data from the World Bank for the UK for 2006 (latest figures available) give a figure of just over \$4.5 billion for outward remittances, and one of almost \$7 billion for inward flows to the UK. These figures include a category called 'compensation of employees' which refers to the net wages and salaries of non-resident migrants (that is, payments taking place within transnational firms). More relevant to our subject are the actual migrants' transfers, with outflows of \$1.2 billion and inflows of \$5 billion giving an even greater positive balance of \$3.8 billion (Table 5).

Although remittances to the UK are likely to be transferred by emigrants working in other industrialised countries, while outward remittances will probably have developing country destinations, the UK is nonetheless a gainer from overseas remittances, enjoying strongly positive overall flows.

Table 5. UK Remittances⁸⁶

(US\$ million)	2000	2001	2002	2003	2004	2005	2006	2007e
Inward remittance flows	3,614	4,825	4,485	5,029	6,350	6,302	6,954*	7,000
of which								
Compensation of employees	1,552	1,562	1,695	1,825	2,142	1,772	1,931	...
Migrant's transfer	2,062	3,263	2,790	3,204	4,208	4,530	5,023	...
Outward remittance flows	2,044	3,342	2,439	2,624	2,957	3,877	4,526**	...
of which								
Compensation of employees	1,336	1,472	1,582	1,728	2,015	2,876	3,295	...
Migrant's transfer	708	1,870	858	896	942	1,001	1,231	...

* 0.3% of GDP in 2006. ** 0.2% of GDP in 2006. This table reports officially recorded remittances. The true size of remittances, including unrecorded flows through formal and informal channels, is believed to be larger. Total flows may not always equal the sum of the component as they may have been taken from alternative sources.

Source: *Migration and Remittances Factbook*, World Bank (2008)

Migration and dependence

There is a profound difference between social and economic *interdependence* (an exchange of culture, skills, ideas and technology leading to increased benefits for all) and *dependence* (a relationship that entails an asymmetry of power that robs the 'dependent' individual or nation of autonomy).

As discussed earlier, the industrialised countries of the Northern Hemisphere, building upon a long history of economic expansion and exploitation, have maintained their dominance over the so-called developing world by establishing a global economic system that creates and maintains *dependency*. Through international 'rule setting', and the exertion of economic, policy and political power, the subservient reliance of poor countries upon rich ones is maintained. This situation has led to a self-reinforcing cycle of inequality and injustice. The current pattern of forced migration, and the reliance on remittance payments to relieve developing country poverty, is part of this overall outcome.

As noted earlier, these transfers of wealth have become a lifeline for many families in poor countries, but their connection with 'development', if present at all, remains weak (Box 7).

Migration of healthcare professionals

There is also a human price to be paid by the rest of the world for our lifestyles. We are still highly reliant on overseas workers to staff our schools and hospitals, draining some of the world's poorest counties of vital human resources.

The movement of healthcare professionals, including both temporary and permanent migration, is often a cause for concern for the nations supplying the workers. This is especially true in a world experiencing climate change; where the worst impacts are set to fall on the poorest countries such as those in Africa, and when wealthier nations can afford to pay health professionals more.

In some parts of sub-Saharan Africa, up to half of all doctors who trained there, have left.⁸⁷ Research carried out by the Joint Learning Initiative, a network of world health experts in 2006, estimated that 57 countries have 'critical shortages' of medical workers⁸⁸ – defined by the World Health Organisation as less than 2.5 medical professionals per 1000 population.⁸⁹ In other words, the cost of training such professionals is being borne by poorer countries where low life expectancy is common and who need healthcare workers, to the advantage of richer Northern nations.

The only instrument so far developed to tackle this problem is the Commonwealth Code of Conduct for the recruitment of International Health Workers. It aims to ensure that both origin and destination countries mutually benefit from migration.⁹⁰

Box 7. The case of the Philippines

*'The Philippines' ascent as the primary source of workers for the world has not been equalled by convincing evidence that international migration has contributed to sustainable development.....the hoped-for benefits in terms of easing the unemployment problem and the transfer of resources (knowledge, capital and technology) to support development processes in the Philippines have not been realised, or at the least, evidence thus far is insufficient. Meanwhile, the human and social costs of international migration are persistent concerns'*⁹¹

For more than three decades, the Philippine Government has pursued an official labour export policy. This has led to a steady increase in overseas Filipino workers (OFWs), whose numbers have risen almost 25-fold over 20 years. In 2001, a target was set to consolidate the pattern by deploying a million workers overseas per annum. This brought the number of OFWs to 8.2 million, or 9 per cent of the country's entire population, and almost 25 per cent of its total labour force by the end of 2006.⁹² As a result, remittances have steadily increased, reaching \$12.8 billion (11 per cent of GDP) in 2006, and \$16.4 billion in 2008, and the Philippines has come to rely on these transfers for its economic survival.⁹³

If high levels of migration and remittances play a significant role in development, we might therefore expect to find supporting evidence in the country's development indicators, at least in comparison with other countries in the region. Unfortunately this has been far from the case

- Despite the outflow of workers, unemployment within the country continued to rise, from 5 per cent in 1980, to 8 per cent in 1990, 10 per cent in 2000 and 11 per cent in 2004. This represented the highest incidence of unemployment in the region.
- The investment ratio (gross fixed capital formation as a percentage of GDP) has continued a steady decline, and stood at 15 per cent for 2006, its lowest level for 20 years. This investment is considerably lower than that of other South East Asian economies (Indonesia at 24 per cent, Malaysia at 19 per cent and Thailand at 29 per cent, for example).⁹⁴
- Poverty remains entrenched. The World Bank estimates that 44 per cent of the population (around 35 million people) were living on under \$2 a day in 2003, rising to 45 per cent in 2006, the latest year for which their figures are available.⁹⁵ Using a different definition of poverty of \$1.35 per day, the Asian Development Bank states that 'poverty incidence increased from 30 per cent to 32.9 per cent between 2003 and 2006'. This means that of a population of 84 million in 2006, 27.6 million Filipinos fell below the poverty line – more than ever before – and that poverty reduction is slower in the Philippines than in Indonesia, Thailand, Vietnam, and China.⁹⁶

All these figures reflect a lack of government resources that has not been remedied by three decades of soaring emigration. Although remittances have eased the balance of payments position, and by definition have relieved poverty within the migrants' families, there appears to be no evidence that they have improved the dismal social and economic climate that has made them necessary in the first place.

In the case of the Philippines, this problem has many root causes; in particular, a huge burden of sovereign debt, and a determination by successive governments to service it at the expense of other priorities. (According to the Asian Development Bank, these interest payments consumed close to a third of government revenues,⁹⁷ and accounted for 25.4 per cent of government revenues in the first half of 2007.⁹⁸) But unless flawed economic policies are rectified by other means, there is no reason to suppose that the migration process will resolve them. Rather, it is arguable that it will simply become another factor in the pattern of dependency and exploitation that has bedevilled the country's history and depleted its domestic resources.

However, most of the destination countries are not yet signatories to the Code. Although the UK has attempted to take into account global equity issues by adopting a formal 'code of practice' – this prohibits the NHS from recruiting healthcare professionals from a specified list of developing nations including in particular many African nations – a report in 2004 suggested that the code has not resulted in a reduction in nurse recruitment.⁹⁹ Significant numbers of African nurses were still coming to the UK, entering the health system through private-sector recruitment and often going on to get jobs in the NHS.¹⁰⁰

The migration of health-workers to the UK has become a prominent feature of the UK health sector in recent years. At the turn of the century, there was a shortage of healthcare professionals due to a number of factors. These included the historical under-supply of medical training in the UK, coupled to an increase resource

Table 6. Work permits and first permissions approved by industry for 1995, 2000-2005 and 2007.

Industry	1995	2000	2001	2002	2003	2004	2005	2007
Education	1,901	3,832	8,003	8,142	6,603	6,187	6,404	7,100
Health and medical services	1,774	14,516	20,592	22,271	24,621	26,568	22,477	7,500

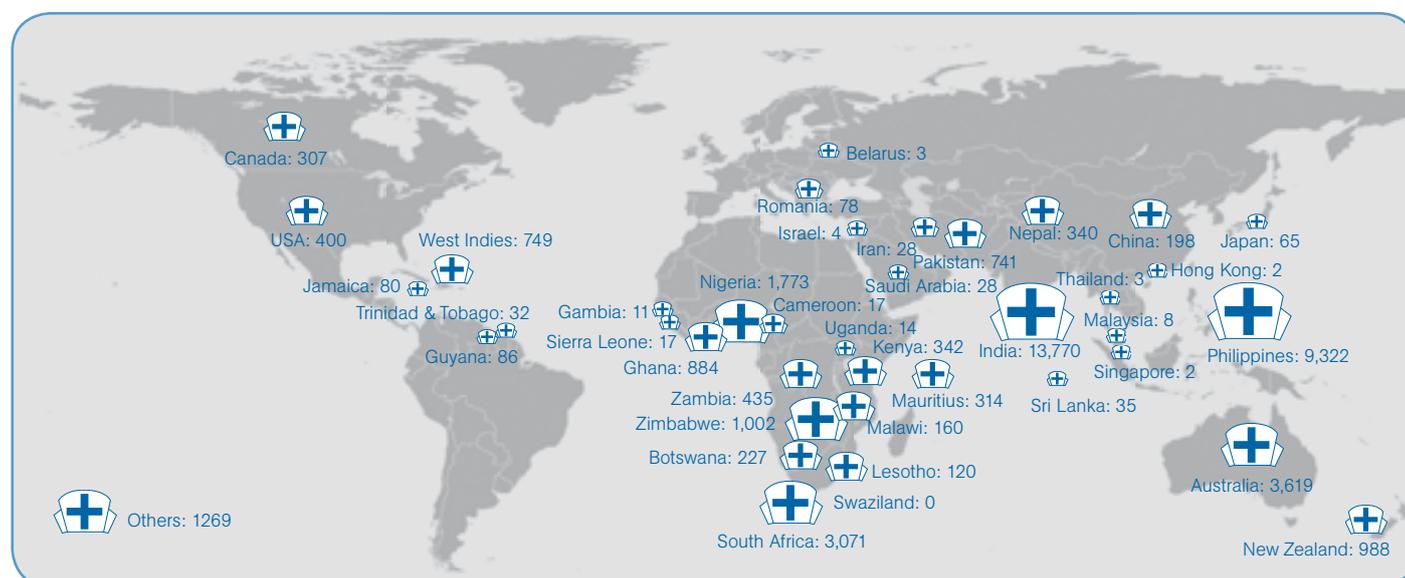
Source: Office for Nationals Statistics (2006), Migration Advisory Committee (2008)

investment into the NHS, the EU Working Time Directive which restricted the working hours of doctors, an aging population, increase in chronic cases requiring longer treatment and care, unattractive working conditions in the sector (long working hours, shift work, workplace violence), and low wages. Up until 2006, this shortage was increasingly filled by overseas workers from within the European Economic Area and non-European nations. The General Medical Council even had to create a special centre to deal with the volume of international doctors taking the English language test required for their registration. Currently about 30 per cent of all doctors practising in England were trained outside the UK, and since 1997 almost 80,000 international nurses have registered in the UK, making up approximately 45 per cent of new registrants.

The latest Government figures on work permits and first permissions for healthcare workers shown in Table 6, however, shows a dramatic fall by two-thirds from 22,477 in 2005 to 7,500 in 2007. The fall is partly due to an increase in availability of qualified healthcare professionals in the UK resident labour market, but also due to changes to immigration rules in 2006, discussed earlier.¹⁰¹ New policies favour European healthcare workers (e.g., doctors, nurses, midwives, dentists) over non-European ones. Employers now have to prove that there are no suitable national or European applicants (training and other posts). However, both nurses and doctors more often than not report professional motives rather than improvements in pay as reasons for migrating to developed nations. For example, the lack of local training opportunities or inadequate training programmes, are often important reasons for emigrating, creating a 'brain circulation'.

Recent data from the Nursing and Midwifery Council (NMC) also shows a drop in non-European registrations between 2006-2007, due to the removal of bands 5 and 6 from the Home Office 'shortage occupation list'. New registration procedures by the NMC has also created 'backlog' of application, and the increase in pass mark for language tests are also thought to have amplified the fall in new registrations.

Figure 11: Admissions to the UK nursing register in the last five years



Source: The Nursing and Midwifery Council (2007)

Trends in UK interdependence

The past two UK Interdependence Reports published by nef in 2006 and 2007 presented a picture of the two-directional flow of culture, skills and natural resources, between the UK and the rest of the world. They showed how the UK has grown increasingly reliant on trade. As a share of our national income, and allowing for some fluctuations, trade has broadly increased over several decades. It reveals that, if left to survive purely on our own domestic assets, life would look very different.

The second interdependence report *Chinadependence* revealed in particular the dramatic rise in imports from China. And, because the greenhouse gas pollution that results from their manufacture is blamed on China, not the consumers in the UK, we are turning China into our 'environmental laundry' with devastating consequences for the planet.

The UK's growing ecological footprint is shown in Figure 12, as the number of planets needed to support the whole world at UK levels of consumption. The nation's high-consuming lifestyles are only possible because the rest of the world

Table 7a. Top trade partners – aggregate flow in both directions (import plus export)

Rank	Nation	Aggregate trade flow in both directions (import + export) £million
1	Germany	72,840
2	USA	63,353
3	The Netherlands	44,570
4	France	41,638
5	Irish Republic	30,626

Table 7b. Top trade partners – import only.

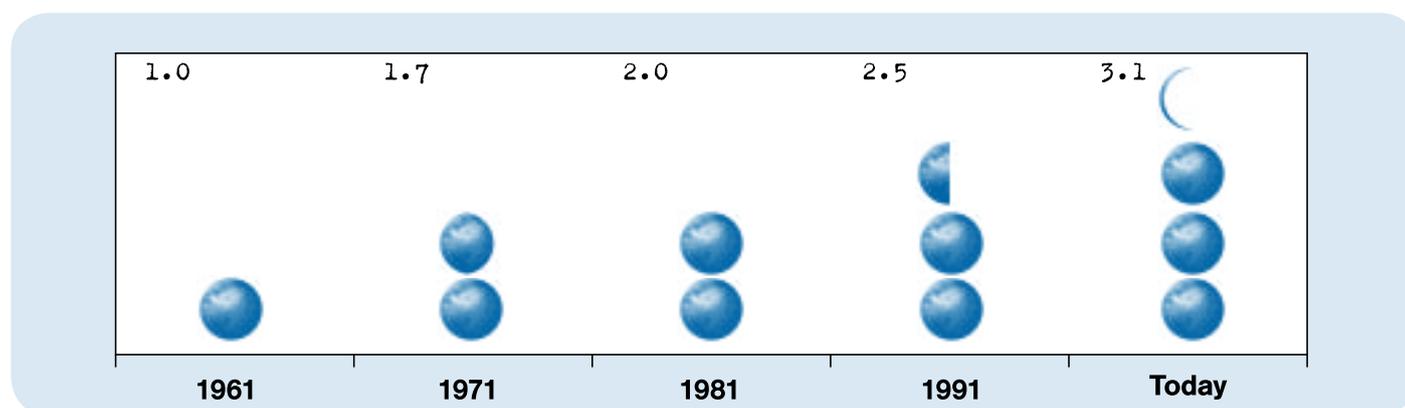
Rank	Nation	£million
1	Germany	44,438
2	USA	28,653
3	The Netherlands	25,211
4	France	23,064
5	China	21,968

Table 7c. Top trade partners – export only.

Rank	Nation	£million
1	USA	34,701
2	Germany	28,403
3	The Netherlands	19,359
4	France	18,574
5	Irish Republic	18,569

Note: a high level of goods appearing to come from our European trading partners often, in fact, originate elsewhere and are merely re-exported through the EU before arriving in the UK. This tends to artificially exaggerate our dependence on EU trading partners and underestimate our actual dependence on the rest of the world.

Figure 12: The UK's growing ecological footprint: number of planets needed to support the whole world at UK levels of consumption



The nation's high-consuming lifestyles are only possible because the rest of the world supports us with large supplies of their natural resources. The way we live also sets a model of materialism that many people in much poorer countries understandably seek to emulate. Forty years ago, if the whole world wanted to copy the UK, the Earth could just have supported the demand on its ecosystems. But the UK's consumption levels have risen steadily. Today, if everyone consumed as much as the average UK citizen, we would need more than three planets like Earth to support them. To live within our overall environmental means, and give people around the world a chance to meet their needs, means the UK will have to reduce the burden its lifestyles create.

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Trade/GDP ratios

Britain's dependence on international trade is increasing despite rising fuel prices and fears about climate change. International trade makes up a growing share of the UK's income. Trade as a share of GDP is now at its highest point for over four decades and on an upward trend. This trend is in line with the rest of the world (Figure 13). Table 7a-c shows the UK's top trade partners.

Yet, just as the rise and rise of trade illustrates our growing global interdependence, so it reveals creeping insecurities. The picture of UK food supplies (Figure 14) mirrors the situation with energy (Figure 5) and in it our rising dependence on the rest of the world. The UK's relative self reliance is in decline. Table 8 a-c shows the UK's top trading partners in 2008.

Much trade is also ecologically wasteful, and sometimes to a bizarre degree. Against a background of rising oil prices and pressure to reduce GHG emissions, numerous examples of trade appear highly inefficient, as the randomly selected examples in Table 8 show.

Who ordered the fish? Our insatiable appetite for seafood

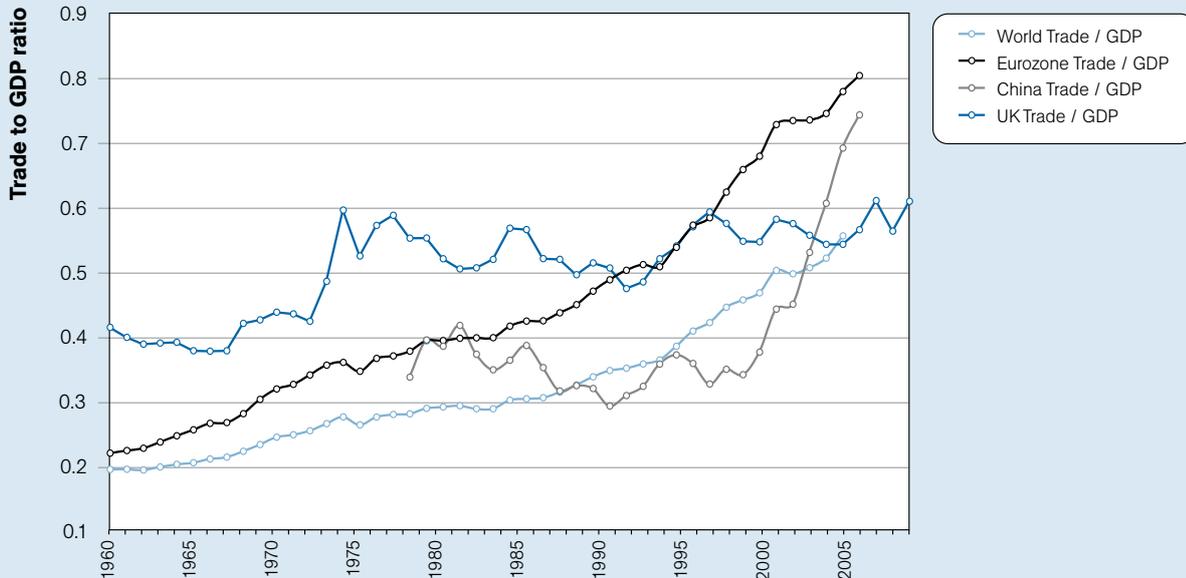
The UK is the second-largest importer of fish in the EU. As fishing efforts expand globally, major fisheries are either beginning to, or have already collapsed. A business-as-usual scenario could mean the collapse of all global fisheries by 2048.¹⁰² Apart from the devastating repercussions for marine biodiversity, there are also potential knock-on effects for both natural cycles and livelihoods. Fish also make up approximately one-fifth of the animal protein in human diets, and the industry provides employment to 200 million people.

The EU is the world's most significant fish market with nearly 500 million seafood consumers. The UN's Food and Agricultural Organisation estimates that by 2030, per capita consumption of seafood will increase to 24 kg per capita. This equates to an additional 1.6 million tonnes of seafood compared to 1998. It is unlikely that growth in aquaculture will be able to meet this demand.

Figure 13. UK trade as a share of economic activity.



Figure 14. UK dependence on trade in global comparison

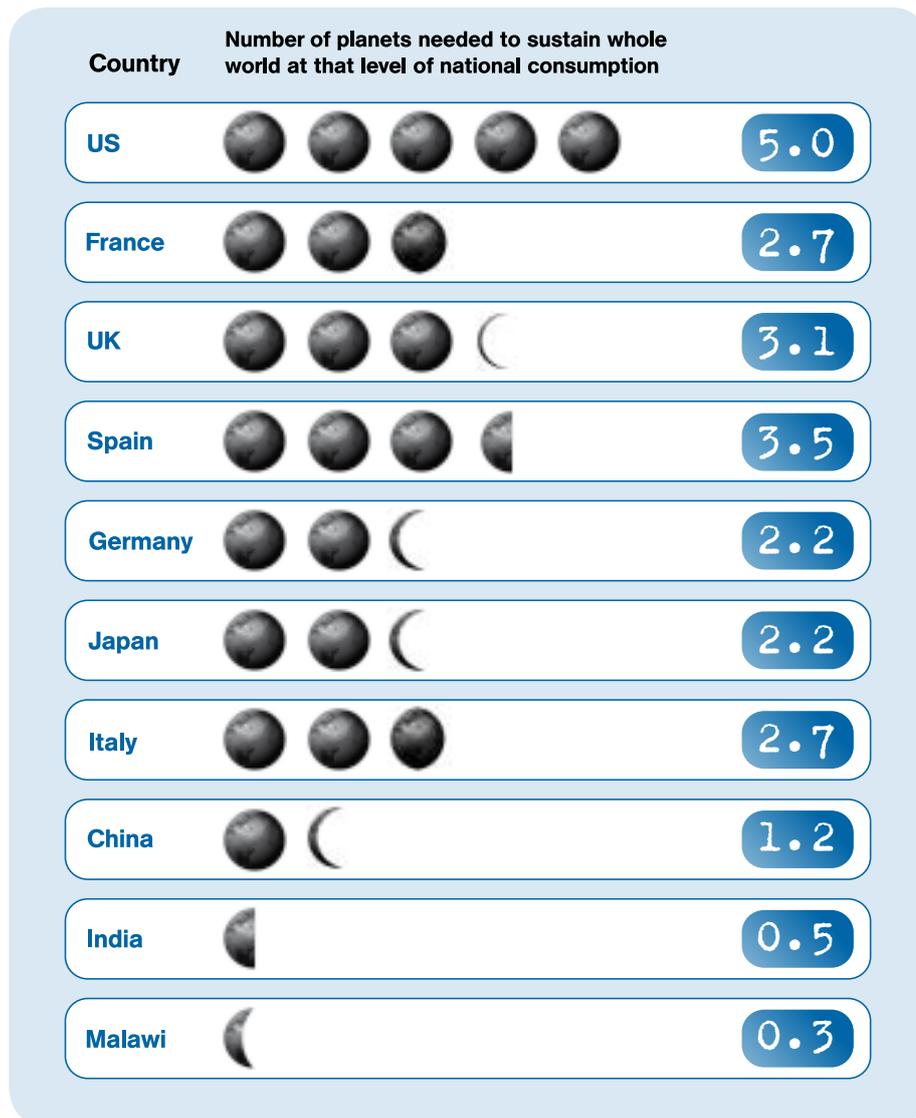


Source: nef estimates based on Global Footprint Network ecological footprint data

Over 88 per cent of EU fish stocks are overfished, and 30 per cent are outside safe biological limits.¹⁰³ Despite the conspicuous overfishing of domestic EU fish stocks, the EU maintains and increases levels of fish consumption through multilateral agreements with other nations (i.e., ‘cash for access’ agreements between the EU and several African coastal nations), as well as using deeper and more indiscriminate fishing methods and an increasing dependency on imports – usually from developing nations, who now account for 60 per cent of global fish production.¹⁰⁴

The EU now has a fish trade deficit of €11.5 billion. In 2005 alone, the EU25 nations imported in excess of €14 billion worth of fish and fishery products¹⁰⁵ with exports valued at €2.5 billion. Most imported goods go to Spain (20 per cent), while the UK is the second-largest importer (13 per cent) and Denmark a close third (11 per cent). The most significant imported products were fish fillets (€3.3 billion), crustaceans (€2.4 billion) and fresh or chilled fish, excluding fillets (€2 billion).¹⁰⁶

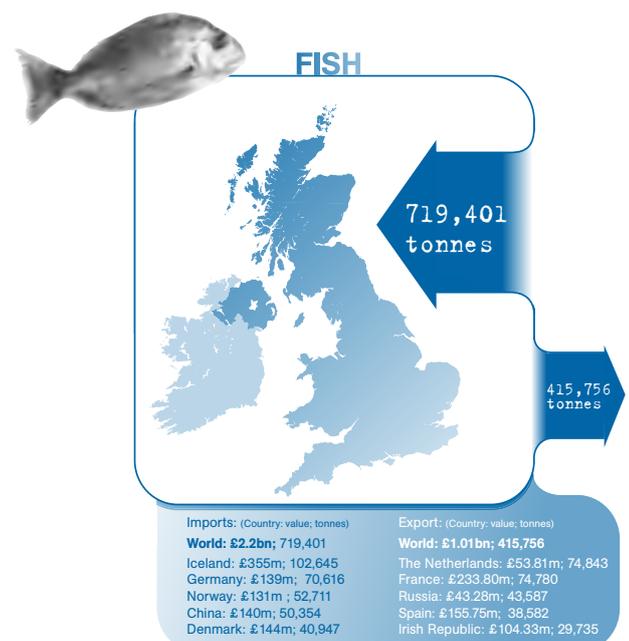
Table 8. Number of planets needed to sustain whole world at that level of national consumption (2009)



Payments for fishing access provided by the EU, USA, Japan, China, South Korea and Taiwan amount to \$1 billion per year.¹⁰⁷ The EU invests about one-third of its European Fisheries Fund to guarantee access in Africa, Caribbean and Pacific countries mostly for Spanish, French and Portuguese vessels, which account for 60 per cent of the EU catch in this region.

While these payments could be of mutual benefit, in practice access agreements lead to excessive fishing, undermining the sustainability of resources and the food security of locals.¹⁰⁸

Furthermore, subsidies to target new species in high and deep seas have quickly depleted populations of slow-growth species such as sharks and orange roughy. And, such subsidies create an uncompetitive market through the distortion of prices and costs, biased towards countries whose governments can afford more. Overall, current fisheries agreements support a net transfer from poor to richer countries.



UK food self-sufficiency

'We are facing a mounting crisis in securing global food supplies, with climate change, rocketing oil prices and growing demand all placing a strain on traditional supply chains. On top of this, there is an urgent need to address growing national and international concerns about the societal, environmental and health impacts of food and farming.'

Professor Tim Lang¹⁰⁹

Of all the issues from the earlier UK Interdependence Reports, it is the UK's ability to feed itself that has become the most recent focus of urgent political activity. Climate change, changing human diets that put more pressure on land and energy, energy prices and shortages, and competition globally between land for food and land for biofuels, have all increased awareness of the vulnerability of the international food chain on which we depend. But we are increasingly dependent on imports at precisely the time when the guarantee of the rest of the world's ability to provide is weakening.

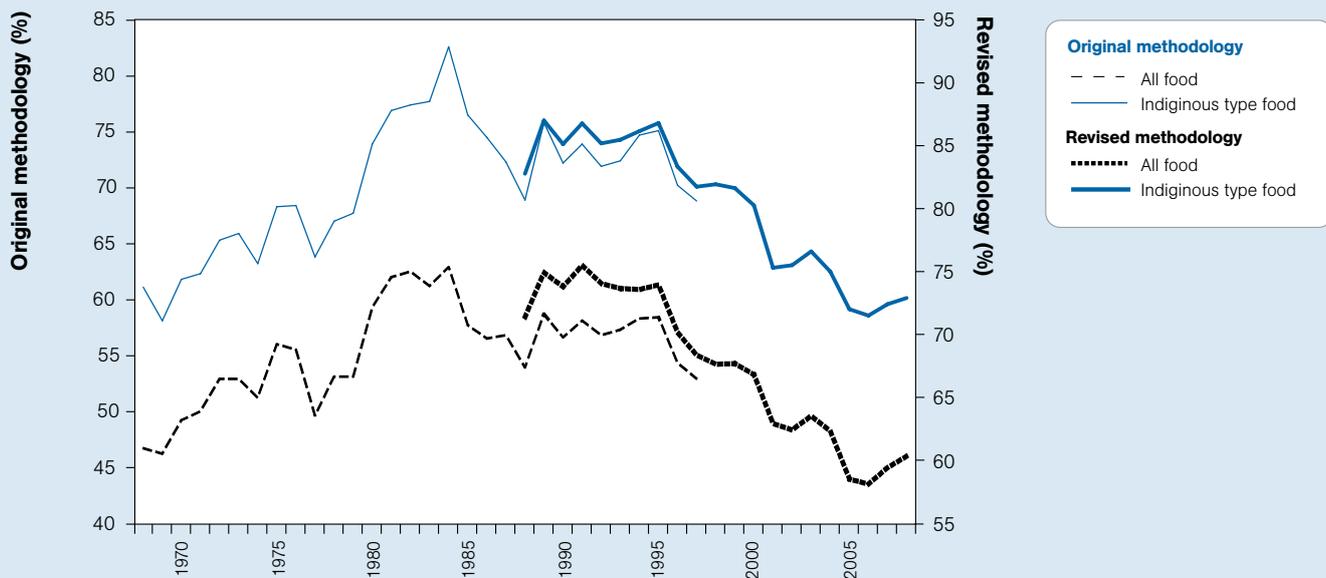
There is now growing evidence suggesting that recent volatility of oil prices has resulted in rising food prices.¹¹⁰ Extreme weather events are also putting pressure on regional food systems. For example, following the European heatwave in 2003, it was reported that crop yields in southern Europe fell by 30 per cent.¹¹¹ Moreover, the recent rise in demand for biofuels (energy crops) has put pressure on land that was previously used for food crops.¹¹²

In a review of the UK's food security a number of reasons for the recent rise in food prices were identified.¹¹³

- The rise in demand for feed for meat production to supply the rapidly expanding affluent populations in China and other developing nations – the so-called 'China effect'.
- Rising competition for the use of food and feed commodities, such as maize in the USA for use as biofuels.
- Poor harvests among key food exporters (e.g., poor Australian wheat harvest in 2007).
- Increased speculation of commodity prices and a fall in the value of the dollar upon which commodities are traded.
- Historically low levels of world food reserve stocks increased a sense of vulnerability.
- Input costs, namely fertilisers, rising due to the rapid increase in the cost of a barrel of oil.
- Individual producer nations increasing prices by restricting exports.

Internationally, the UN reports that rising food prices, driven by fuel prices, climate impacts and speculation, have added 75 million people to the roll-call of the hungry in the world, bringing the total to nearly 1 billion.¹¹⁴ In April 2008, 37 countries were facing a food crisis due to a mix of climate-related, conflict and economic problems.¹¹⁵ From Haiti to Egypt, India and Burkina Faso, many saw rioting in the streets.

Figure 15. UK self-sufficiency in food.



Source: Defra (2008)

In 2008, stocks of rice, a staple food for approximately half the world's population, were at their lowest level since the 1970s.¹¹⁶ Around the same time, US wheat stocks were forecast to drop to their lowest levels since 1948, when the country was helping to rebuild a shattered and hungry Europe after the war.

Down from over nearly 800 million bushels of wheat in 2001 to fewer than 300 million, the United States Department of Agriculture reported in 2008 that supplies were enough to last just 35 days.¹¹⁷ The American Bakers Association stated that this left with them a supply-cushion of just 24 days, compared with a more typical 3 months. In response to this, the National Family Farm Coalition and other groups called for a strategic grain reserve to be set up, emulating what is the oil reserve policy established on the grounds of national security.^{118,119}

In the UK, Hilary Benn, Secretary of State for the Environment recently appointed a Council of Food Policy Advisors. The council's *modus operandi* is to examine the practical solutions needed to maintain UK and global food security and the long-term sustainability of the food chain. Its role will be to provide rapid advice and recommendations on key policy issues over the next two years.

But while a new rhetorical emphasis has emerged from government on the need to increase national food self-sufficiency, our current self-sufficiency shown in Figure 15 would still appear to be below what it was 40 years ago.

Conclusion

Current levels of resource exploitation and waste production are unsustainable. The United Nation's *Millennium Ecosystem Assessment*, warned that if current levels of resource exploitation and waste production continue unabated, the world's ecosystems would not sustain future generations of humans or other species.¹²⁰

A positive future will only be guaranteed through a paradigm shift in government policy away from 'beggar-thy-neighbour' economic competitiveness, towards the cooperation demanded by interdependence. As a minimum commitment, the UK Government needs to:

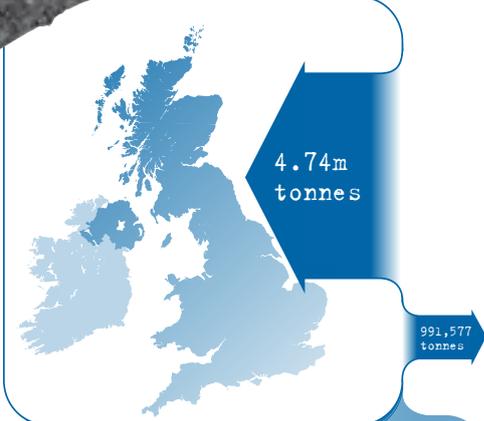
- adopt the ecological footprint as an official measure, with a timetable, policies and resources to move the UK to live within its fair, per capita share of available global biocapacity – so-called 'one planet living' bringing the consumption explosion to the global North to a close;
- commit to reversing the decline in the UK's food self-sufficiency alongside a published timetable;
- commit to year-on-year GHG emissions reductions in line with the latest science which calls for stabilisation of atmospheric concentrations at 350ppm CO₂, and ensure that a fair and equitable agreement is achieved at the climate talks in Copenhagen, where the second phase of the Kyoto Protocol will be negotiated in December, 2009;
- commit to greater energy security and independence by introducing significant measures for demand reduction, increased efficiency, deployment of renewable energy technologies and the introduction of more efficient, mini and medium scale grids for distribution;
- compensate developing countries where a brain-and-skills drain of publicly trained professionals – such as from health services across Africa – benefits the UK;
- celebrate the public enrichment that comes from living in a society comprised of many cultures that is part of an interdependent world. And, as part of that, to publicly acknowledge the day in the year when, in effect, the UK stops depending on its own means, and begins to live off the rest of the world.

We are convinced that such policies will address the negative and hazardous consequences of our global interdependence. But they will also represent investments that will nurture those elements of an interdependent world that allow individual and collective fulfilment: opportunity, hopefulness, creativity and confidence in a secure future.

The unbearable heaviness of trade



LUMBER



Imports: (Country; value, tonnes)

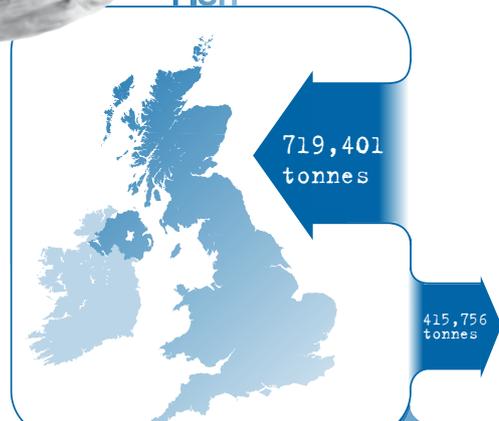
World: £1.8bn; 4.74m
 Sweden: £461m; 966m
 Irish Republic: £67m; 510m
 Russia: £120; 492m
 Latvia: £175m; 480m
 Finland: £217m; 471m

Export: (Country; value, tonnes)

World: £137m; 991m
 Irish Republic: £105m; 426m
 Finland: £6.14m; 254m
 Sweden: £5.36m; 145m
 Norway: £3.14m; 77m
 Belgium: £1.05m; 36m



FISH



Imports: (Country; value, tonnes)

World: £2.2bn; 719,401
 Iceland: £355m; 102,645
 Germany: £139m; 70,616
 Norway: £131m; 52,711
 China: £140m; 50,354
 Denmark: £144m; 40,947

Export: (Country; value, tonnes)

World: £1.01bn; 415,756
 The Netherlands: £53.81m; 74,843
 France: £233.80m; 74,780
 Russia: £43.28m; 43,587
 Spain: £155.75m; 38,582
 Irish Republic: £104.33m; 29,735



SUGAR



Imports: (Country; value, tonnes)

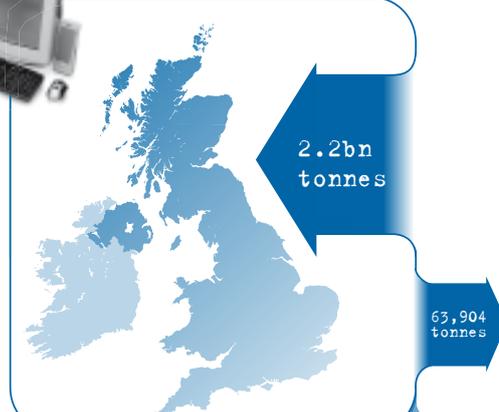
World: £634m; 1.74m
 Mauritius: £141m; 401,724
 France: £112m; 298,568
 Fiji: £59m; 174,597
 Jamaica: £43m; 127,026
 Brazil: £17m; 105,536

Export: (Country; value, tonnes)

World: £260.84m; 684,991m
 Irish Republic: £66.27m; 152,101
 Italy: £56.31m; 129,715
 France: £30.76m; 78,127
 Israel: £12.43m; 68,990
 Greece: £19.04m; 41,538



OFFICE MACHINES



Imports: (Country; value, tonnes)

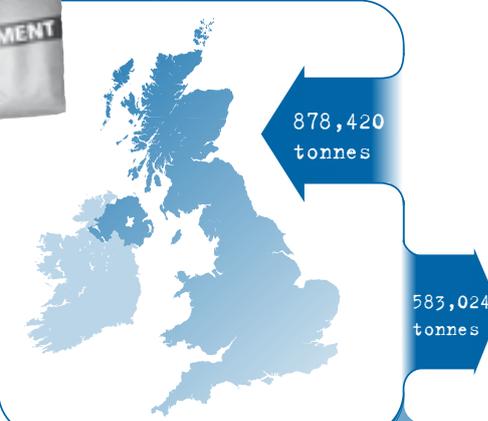
World: £??; 2.2bn
 The Netherlands: £884m; 103,745
 China: £165m; 26,637
 Irish Republic: £103m; 24,964
 Germany: £312m; 17,444
 France: £151m; 16,622

Export: (Country; value, tonnes)

World: £859.62m; 63,904m
 The Netherlands: £288.92m; 33,355
 Irish Republic: £65.84m; 3,892
 Spain: £47.48m; 2,964
 Germany: £62.01m; 2,895
 USA: £57.39m; 2,446



CEMENT



Imports: (Country; value, tonnes)

World: £67m; 878,420
 Irish Republic: £27m; 222,733
 The Netherlands: £8.4m; 161,448
 Germany: £4.2m; 108,041
 France: £11.5m; 95,074
 Spain: £2.9m; 82,330

Export: (Country; value, tonnes)

World: £59.8m; 583,024
 Irish Republic: £34.4m; 503,625
 Germany: £6.2m; 14,182
 Finland: £2.0m; 9,413
 France: £3.1m; 6,787
 Norway: £0.8m; 6,652



CUT FLOWERS



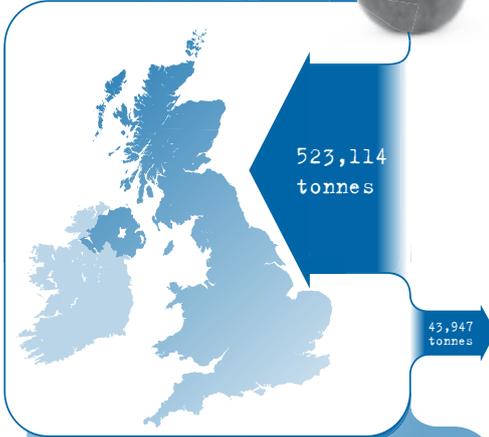
Imports: (Country; value, tonnes)

World: £594.3m; 154,403
 The Netherlands: £454.0m; 103,867
 Kenya: £52.3m; 16,725
 Colombia: £34.5m; 10,602
 Irish Republic: £3.1m; 4,548
 Spain: £7.7m; 3,318

Export: (Country; value, tonnes)

World: £20.1m; 14,082
 Irish Republic: £10.5m; 7,970
 The Netherlands: £6.8m; 4,815
 Denmark: £1.1m; 782
 France: £0.2m; 133
 Germany: £0.3m; 111

APPLES



Imports: (Country; value; tonnes)

World: £319.6m; 523,114

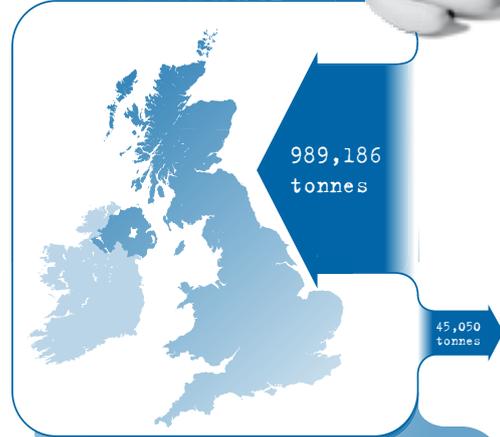
France: £83.0m; 136,911
 South Africa: £60.6m; 103,557
 New Zealand: £44.7m; 61,365
 Chile: £23.3m; 39,708
 Italy: £24.8m; 35,181

Export: (Country; value; tonnes)

World: £13.2m; 43,947

Irish Republic: £10.9m; 27,986
 Belgium: £0.9m; 8,721
 The Netherlands: £0.8m; 6,214
 Egypt: £0.1m; 245
 USA: £0.1m; 216

BANANAS*



Imports: (Country; value; tonnes)

World: £393.0m; 989,186

Colombia: £90.6m; 238,886
 Costa Rica: £71.8m; 199,519
 Dominican Rep: £61.8m; 130,181
 Cameroon: £28.2m; 80,318
 Ecuador: £20.6m; 61,665

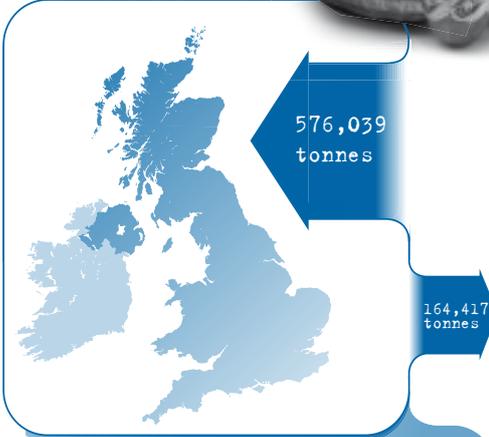
Export: (Country; value; tonnes)

World: £21.3m; 45,050

Irish Republic: £16.0m; 27,944
 France: £4.1m; 8,170
 The Netherlands: £2.5m; 4,746
 Spain: £1.6m; 3,035
 Spain: £0.3m; 757

*Including Plantains, fresh or dried

CHOCOLATE



Imports: (Country; value; tonnes)

World: £1.0bn; 576,039

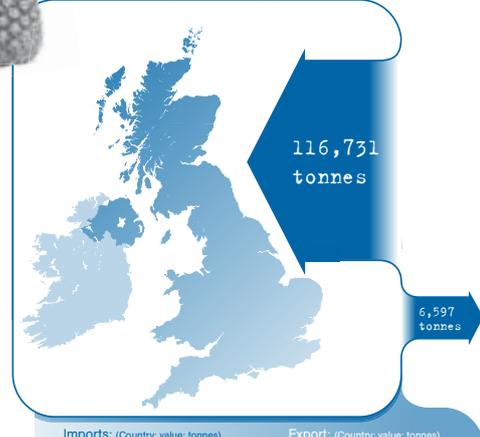
The Netherlands: £177.0m; 96,948
 Belgium: £103.8m; 95,286
 Ghana: £77.2m; 67,945
 Germany: £135.2m; 63,281
 France: £110.8m; 56,973

Export: (Country; value; tonnes)

World: £375.7m; 164,417

Irish Republic: £108.8m; 39,163
 France: £43.1m; 23,352
 USA: £28.1m; 15,866
 The Netherlands: £40.9m; 14,965
 Belgium: £16.5m; 9,988

PINEAPPLES



Imports: (Country; value; tonnes)

World: £68.5m; 116,731

Costa Rica: £38.6m; 80,648
 Ivory Coast: £2.6m; 5,173
 The Netherlands: £4.1m; 4,562
 Ghana: £9.8m; 4,360
 Panama: £1.9m; 3,853

Export: (Country; value; tonnes)

World: £3.6m; 6,597

Irish Republic: £2.2m; 3,698
 The Netherlands: £0.8m; 1,876
 Belgium: £0.1m; 239
 Denmark: £0.1m; 168
 Portugal: £0.1m; 164

PALM OIL



Imports: (Country; value; tonnes)

World: £250.0m; 1.2m

Indonesia: £66.7m; 406,802
 Malaysia: £57.5m; 401,530
 Colombia: £28.7m; 85,316
 The Netherlands: £34.4m; 84,830
 Papua New Guinea: £27.6m; 81,743

Export: (Country; value; tonnes)

World: £13.5m; 46,249

Irish Republic: £7.1m; 35,323
 Germany: £2.3m; 4,745
 France: £1.4m; 2,327
 Belgium: £0.8m; 1,001
 Poland: £0.5m; 829

CORK AND WOOD



Imports: (Country; value; tonnes)

World: £1.8bn; 2.99m

China: £250.2m; 364,889
 Germany: £177.3m; 348,495
 Belgium: £110.7m; 322,106
 Irish Republic: £124.1m; 281,477
 Brazil: £96.8m; 227,125

Export: (Country; value; tonnes)

World: £267.0m; 991,213

Irish Republic: £142.3m; 697,969
 The Netherlands: £14.8m; 52,904
 Belgium: £12.0m; 43,844
 France: £20.0m; 33,568
 Spain: £6.9m; 31,998

Appendix 1: The Interdependence Project

Interdependence Day: *New maps for an island planet*

What?

This report forms part of the Interdependence Day project. The project aims to make space to consider new responses to issues of the environment, development and globalisation. Although they demand an integrated approach – the scale and complexity of issues can seem beyond the reach of everyday life.

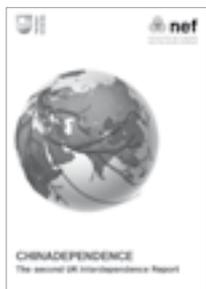
Who?

The Interdependence Day project brings together organisations and individuals who are committed to better public understanding of the fate of the planet and the people whom we share it. Initiated by Dr Joe Smith, current partners include: The Open University Geography Discipline, **nef** (the new economics foundation), and The University of Sheffield Architecture Department.

Publications



The UK interdependence report: How the world sustains the nation's lifestyles and the price it pays, **nef** (the new economics foundation) 2006.



Chinadependence: The second UK interdependence report **nef** (the new economics foundation) 2007

More?

For more information about the project contact the coordinator, Dr Joe Smith, The Geography Discipline, The Open University, Milton Keynes MK7 6AA, e: j.h.smith@open.ac.uk, or **nef**, e: info@neweconomics.org, t. 020 7820 6300.

Appendix 2: The ecological footprint

Measuring human demand on the biosphere – the ecological footprint

Nature can keep up with the demands of the human economic activity it supports, with all its associated consumption of resources and dumping of waste, but only as long as it stays within the regenerative capacity of the biosphere – the living part of the planet.

Ecological-footprint accounting measures the extent to which the ecological demand of human economies stays within or exceeds the capacity of the biosphere to supply goods and services. These accounts help individuals, organisations, and governments to frame policies, to set targets, and to track progress towards sustainability.

Such accounting is possible because resource and waste flows can be tracked, and most of these flows can be associated with the amount and the type of biologically productive areas required to maintain them. The footprint of a population is the total amount of biologically productive land and water area that it requires to produce the resources it consumes and to absorb the waste it generates, using current technology. Since people consume resources and ecological services from all over the world, their footprint is the sum of these areas, regardless of where they are located on the planet.

The ecological footprint can be applied at scales ranging from single products to households, organisations, cities, regions, nations, and humanity as a whole. The footprint is used by governments, businesses, and organisations to measure and manage sustainability efforts, from communicating and planning to implementing and evaluating results.

Calculations in this report are based on the latest ecological footprint accounts published in 2008. These new accounts have generated the most accurate ecological footprint results to date. Due to the time lags between different data sources used for the calculation of the ecological footprint the 2006 accounts represent a snapshot of the state of the planet in 2006. However, taking the trend indicated from the most recently available five years worth of data, we have projected forward up to 2009 on the basis of that established trend, and taking account of the current global economic recession.

The ecological footprint accounts are a continually evolving scientific process. With growing international concern on global environmental change, more and more useful datasets are becoming available.

The current global footprint

Earth's biologically productive area was approximately 11.2 billion hectares or 1.8 global hectares per person in 2002 (assuming that no capacity is set aside for wild species). Global hectares are hectares of biologically productive area with world-average productivity. This standardised measurement unit, or 'ecological currency', makes comparisons of demand and supply possible across the world.¹²¹

The footprint measures the amount of area required to sustainably produce a flow of products. This may be larger than the area actually used to produce the product. For example, products from a forest being harvested at twice the replenishment rate would be calculated as having a footprint twice the area actually used. Carbon dioxide emitted in the production of goods for export is added to the energy footprint of the importing nation.

In 2002, humanity's demand on the biosphere – its global ecological footprint – was 13.7 billion global hectares, or 2.2 global hectares per person. Thus in 2002, humanity's ecological footprint exceeded global biocapacity by 0.4 global hectares

per person, or 23 per cent. This finding indicates that the human economy is in ecological overshoot: the planet's ecological stocks are being depleted faster than nature can regenerate them. It is eroding the future supply of ecological resources and operating at the risk of environmental collapse.

The evolving methodology

Created by William E Rees and Mathis Wackernagel in the early 1990s, the ecological footprint methodology has matured considerably over the past 20 years. The methodology for calculating the ecological footprint has recently undergone further revision by the Global Footprint Network. A detailed explanation of the evolving science and methodology for calculating the ecological footprint is given in the paper: *The ecological footprint atlas 2008*.¹²²

Ecological Debt Day

Ecological Debt Day was devised **nef** as an innovative way to present the global ecological overshoot. It was first applied in the *UK Interdependence Report, 2006*.¹²³

Partners

nef (new economics foundation)

nef is an independent think-and-do tank that inspires and demonstrates real economic well-being.

nef aims to improve quality of life by promoting innovative solutions that challenge mainstream thinking on economic, environmental and social issues. nef works in partnership and puts people and the planet first.

Global Footprint Network

Development and standardisation of this accounting method are currently coordinated by the Global Footprint Network which nef is part of. The Global Footprint Network supports the shift towards a sustainable economy by advancing the ecological footprint, a measurement and management tool that makes the reality of planetary limits central to decision-making everywhere. It was founded in 2003, and has 50 partner organisations.

More on the science and methodology used to create ecological footprint accounts can be found on Global Footprint Network's website at www.footprintnetwork.org

The Open University

The Open University (OU) is the United Kingdom's only university dedicated to distance learning. We have around 150,000 undergraduate and more than 30,000 postgraduate students. 10,000 of our students have disabilities.

The OU's Open Space Research Centre is a focus for geographical and environmental social science in the University. Its membership includes leading international scholars and all are committed to research that makes a difference in the world.

The Geographical Association

The Geographical Association (GA) is a registered Charity established in 1893 to 'further the learning and teaching of geography.' For the virtually the whole of twentieth century it grew and developed as a highly regarded independent membership association mainly of teachers, with (today) three professional journals, a magazine and substantial publications programme. It has become one of the largest and most active 'subject associations' in the UK with more than 6000 members and a national office with over 20 staff.

This century it has greatly expanded its funded project work: in 2008-9 the GA turned over £1.2m project income with funders ranging from the government and its education agencies, to education foundations and industry. The GA is an 'open' organisation rather than a closed association with a narrow agenda. This applies to how we talk about the subject and its educational role and our attitude to our primary client base which we wish to expand from teachers and school students to wider notions of publics in the wider community.

One Hundred Months

Time is running out to stop irreversible climate change. Climate change experts have calculated that from 1 August 2008, there were only 100 months before we pass a point beyond which runaway climate change becomes much more likely (see note 8).

Onehundredmonths.org is a growing global movement of people and organisations who have pledged to make sure that from now on, we step up the action and make sure that each month counts.



economics as if people
and the planet mattered



www.footprintnetwork.org



Further reading



Do Good Lives Have to Cost the Earth?

Edited by: Andrew Simms and Joe Smith

Published by: Constable & Robinson, January 2008

Climate change is currently presented by campaign groups and scientists as an impossibly daunting threat. On the face of it, it would seem we must make impossible sacrifices if we want to do our bit for the environment. This book shows that isn't the case at all. It brings together household names who share a conviction that, on the contrary, living well needn't cost the earth – and will tell you why and how.

Their collective vision, covering areas from architecture and politics to food and happiness, will completely reframe the way you think about climate change and what you're willing to do about it. Far from doom and gloom, many here argue that climate change presents a once-in-a-century opportunity to do things differently. If we get things right, instead of an environmental apocalypse we could end up in a win-win situation – with both more satisfying lives and robust answers to these pressing, seemingly unsurmountable, problems.

Including: Hugh Fearnely-Whittingstall and Rosie Boycott on sustainable food; Kevin McCloud and Wayne Hemingway on design; David Cameron on good politics; Tom Hodgkinson on having a good time; Anita Roddick and Larry Elliott on good business and work; and, John Bird, Oliver James and Philip Pullman on love, pleasure, happiness.



Ecological Debt: Global Warming and the Wealth of Nations

Written by: Andrew Simms

Published by: Pluto Books, April 2009

Ecological Debt explores how millions of us in the West are running up huge ecological debts: from the amount of oil and coal that we burn to run our industries, heat our houses and run our cars, to what we consume and the waste that we create. It shows how the impact of our lifestyles is felt worldwide, and that international solutions to problems like

climate change will be unlikely until greater changes are made here in the UK. The book describes a great paradox of our age: how the global wealth gap was built on ecological debts, which the world's poorest are now having to pay.

The book shows that relying on global economic growth to meet all our needs is both inefficient and, in the face of problems like climate change, ultimately impossible. In it, Andrew Simms calls for an economy that is in 'dynamic equilibrium' with the biosphere, and not threatening to outgrow and bankrupt it.

In the wake of the largely unexpected failure of the international banking system, the book also asks, 'what else, that we currently take for granted, might be more vulnerable than we realise and prone to sudden collapse?'

The Interdependence Day Project: Mediating Environmental Change

Written by: Renata Tyszczyk and Joe Smith

Published in: *The International Journal of the Arts in Society*, Common Ground Publishing (volume 3, issue 6): 37–42; ISSN 1833–1866

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- Middle-income countries:** Albania, Algeria, Angola, Argentina, Armenia, Azerbaijan, Belarus, Bolivia, Bosnia Herzegovina, Botswana, Brazil, Bulgaria, Cameroon, Chile, China, Colombia, Congo, Costa Rica, Croatia, Cuba, Czech Rep., Dominican Rep., Ecuador, Egypt, El Salvador, Estonia, Gabon, Georgia, Guatemala, Honduras, Hungary, Indonesia, Iran, Iraq, Jamaica, Jordan, Kazakhstan, Latvia, Lebanon, Lesotho, Libya, Lithuania, Macedonia, FYR, Malaysia, Mauritius, Mexico, Moldova, Rep., Morocco, Namibia, Nicaragua, Panama, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, Serbia and Montenegro, Slovakia, South Africa, Rep., Sri Lanka, Swaziland, Syria, Thailand, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Ukraine, Uruguay, and Venezuela.
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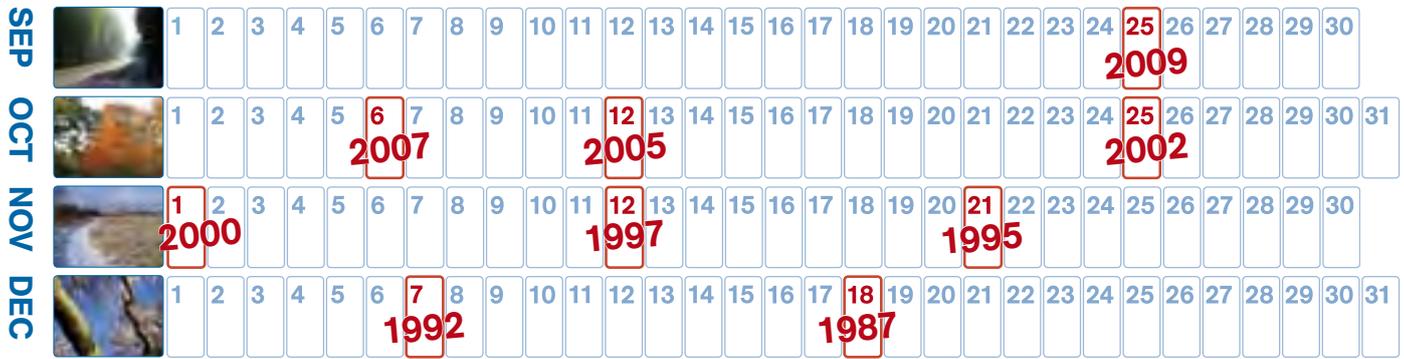
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World ecological debt day calendar



One way of illustrating our impact on the environment that brings a sense of perspective, comes from looking at the day in a typical calendar year when the world, in effect, starts overshooting its biocapacity and begins eating into its stock of natural resources. The planet can tolerate a little give and take without environmental collapse as long as, in total, humanity lives within its overall ecological budget. The last year that humanity's levels of resource use fell within the means of our life-supporting natural assets was 1987. As global consumption grows, the day each year when the world as a whole goes into ecological debt creeps ever earlier in the calendar year. In 1995 it was 21 November. By the turn of the millennium world ecological debt day had advanced to 1 November. In 2007, the world's human population as a whole went into ecological debt on 6 October – two years on this has lurched forward 11 days to the 25 of September.

This report was written and researched by: Andrew Simms (**nef** policy director), Victoria Johnson (**nef** climate change and energy programme), Joe Smith (Open University, Geography Discipline) and Susanna Mitchell (**nef** Fellow)

With additional contributions from: Fred Pearce, Lindy Sharpe (**nef** food and social justice programme), and Aniol Esteban (**nef** environment programme)

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new economics foundation

3 Jonathan Street
 London SE11 5NH
 United Kingdom
 Telephone: +44 (0)20 7820 6300
 Facsimile: +44 (0)20 7820 6301
 E-mail: info@neweconomics.org
 Website: www.neweconomics.org

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