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THE HAPPY PLANET INDEX 2.0

Why good lives don't have to cost the Earth

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

We aim to improve quality of life by promoting innovative solutions that challenge mainstream thinking on economic, environmental and social issues. We work in partnership and put people and the planet first.

www.happyplanetindex.org

nef was awarded the International Society for Quality-of-Life Studies' Award for the Betterment of the Human Condition 2007, in recognition of our work on the Happy Planet Index.

nef centres for:



global
interdependence



thriving
communities



well-being



future
economy

nef (the new economics foundation) is a registered charity founded in 1986 by the leaders of The Other Economic Summit (TOES), which forced issues such as international debt onto the agenda of the G8 summit meetings. It has taken a lead in helping establish new coalitions and organisations such as the Jubilee 2000 debt campaign; the Ethical Trading Initiative; the UK Social Investment Forum; and new ways to measure social and economic well-being.



In an age of uncertainty, society globally needs a new compass to set it on a path of real progress. The Happy Planet Index (HPI) provides that compass by measuring what truly matters to us – our well-being in terms of long, happy and meaningful lives – and what matters to the planet – our rate of resource consumption.

It brings them together in a unique form which captures the ecological efficiency with which we are achieving good lives. This report presents results from the second global HPI. It shows that we are still far from achieving sustainable well-being, and puts forward a vision of what we need to do to get there.

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Foreword

Some of us have for a long time been pointing out the anomalies, perversities, and irrelevancies of GDP accounting. Like the citizens in a Chesterton story who petitioned the local magistrate to close down a pub that served poisoned beer, our petition has met the official reply, 'Yes, the evidence supports your case, but before we sacrifice historical continuity by tearing down this admittedly noxious establishment, you must specify exactly what should be put in its place.'

Well, 'no beer' is better than poison beer. But thanks to **nef** (the new economics foundation) we can now serve good beer, brewed with attention to health and sustainable production methods, as well as good taste. What are we trying to do, besides have a beer now and then? Live a long and good life. What must we spend to accomplish this? We must use the Earth's limited resources and ecological carrying capacity in order to yield happy years of living. Economists like the concept of efficiency, and the Happy Planet Index is the ultimate efficiency ratio – the final valuable output divided by the original scarce input. I hope economics faculties in universities will put some of their energy toward refining the measurement and application of this ratio, in the service of living well for a long future on a single planet.

Professor Herman Daly
University of Maryland
May 2009

Executive summary

In an age of uncertainty, society globally needs a new compass to set it on a path of real progress. The Happy Planet Index (HPI) provides that compass by measuring what truly matters to us – our well-being in terms of long, happy and meaningful lives – and what matters to the planet – our rate of resource consumption.

The HPI brings them together in a unique form which captures the ecological efficiency with which we are achieving good lives. This report presents results from the second global HPI. It shows that we are still far from achieving sustainable well-being, and puts forward a vision of what we need to do to get there.

Not since World War II has society globally been faced with so many threats. In the last few years we have driven straight into the wall of the biggest global economic downturn since the Great Depression of 1929, whilst mainstream culture has, at last, been rudely awoken to the ever-growing threats of climate change and the exhaustion of our natural resources. People fear for the future. Meanwhile, the problems that plagued us before, risk becoming even more acute: more than half the world's population lives on less than \$2.50 a day; inequality continues to rise even in richer countries.

And yet, with crisis comes opportunity. The dogmas of the last 30 years have been discredited. The unwavering pursuit of economic growth – embodied in the overwhelming focus on Gross Domestic Product (GDP) – has left over a billion people in dire poverty, and has not notably improved the well-being of those who were already rich, nor even provided us with economic stability. Instead it has brought us straight to the cliff edge of rapidly diminishing natural resources and unpredictable climate change. No wonder that people are desperately seeking an alternative vision to guide our societies. In 2008, Americans voted for 'change' and 'hope' above else.

The HPI was launched in July 2006 as a radical departure from our current obsession with GDP.¹ Working from first principles, the report identified health and a positive experience of life as universal human goals, and the natural resources that our human systems depend upon as fundamental inputs. A successful society is one that can support good lives that don't cost the Earth. The HPI measures progress towards this target – the ecological efficiency with which happy and healthy lives are supported.

Its message resonated with hundreds of thousands of people around the world – within two days of its launch, the report was downloaded and read in 185 countries worldwide. Three years on, it is time to turn interest into action.

HPI 2.0 has been calculated with new improved data sets for 143 countries, covering 99 per cent of the world's population. Scores range from 0 to 100 – with high scores only achievable by meeting all three targets embodied in the index – high life expectancy, high life satisfaction, and a low ecological footprint.

The results turn our idea of progress on its head. Whilst the HPI confirms that the countries where people enjoy the happiest and healthiest lives are mostly richer developed countries, it shows the unsustainable ecological price we pay. It also reveals some notable exceptions – less wealthy countries, with significantly smaller ecological footprints per head, having high levels of life expectancy and life satisfaction. In other words, it shows that a good life is possible without costing the Earth.

The highest HPI score is that of Costa Rica (76.1 out of 100). As well as reporting the highest life satisfaction in the world, Costa Ricans also have the second-highest average life expectancy of the New World (second only to Canada). All this with a footprint of 2.3 global hectares. Whilst this success is indeed impressive, Costa Rica narrowly fails to achieve the goal of 'one-planet living': consuming its fair share of natural resources (indicated by a footprint of 2.1 global hectares or less).

- **Of the following ten countries, all but one is in Latin America.** The highest ranking Group of 20 (G20) country in terms of HPI is Brazil, in 9th place out of 143. Together, Latin American and Caribbean nations have the highest mean HPI score for any region (59 out of 100).
- **The bottom ten HPI scores were all suffered by sub-Saharan African countries,** with Zimbabwe bottom of the table with an HPI score of 16.6 out of 100.
- **Rich developed nations fall somewhere in the middle.** The highest-placed Western nation is the Netherlands – 43rd out of 143. The UK still ranks midway down the table – 74th, behind Germany, Italy and France. It is just pipped by Georgia and Slovakia, but beats Japan and Ireland. The USA comes a long way back in 114th place.
- **It is interesting to note that many of the countries that do well are composed of small islands** (including the Dominican Republic, Jamaica, Cuba and the Philippines).
- **No country successfully achieves the three goals of high life satisfaction, high life expectancy and one-planet living.**

In summary, the countries that are meant to represent successful development are some of the worst-performing in terms of sustainable well-being. But perhaps, even if we are not there now, might we be moving in the right direction? HPI 2.0 tests this by looking at changes in HPI over time for countries where more data is available. The results are not promising:

- **Whilst most of the countries studied have increased their HPI scores marginally between 1990 and 2005, the three largest countries in the world (China, India and the USA) have all seen their HPI scores drop in that time.**
- **Positive trajectories are seen in some countries;** for example, in Germany (an increase of 23 per cent between 1990 and 2005), Russia (up 30 per cent) and Brazil (up 13 per cent).
- **Looking further back, focusing on OECD (Organisation of Economic Co-Operation and Development) nations, the picture is less positive.** Most OECD nations saw a staggering drop in their HPI scores from the 1960s to the late 1970s. Whilst they have made some gains since then, scores were still higher in 1961 than in 2005. Life satisfaction and life expectancy combined have increased 15 per cent over the 45-year period from 1961 to 2005, but ecological footprints per head have increased by a worrying 72 per cent.

Clearly, business as usual will not help us achieve good lives that do not cost the Earth. However, looking at the components of the HPI provides some clues:

- **Different countries do well on different components.** The highest average levels of life expectancy are those of Japan (82.3 years) and Hong Kong (81.9). The highest life satisfaction levels are those of Costa Rica (8.5 on a scale of 0–10), with Ireland, Norway and Denmark just behind. The countries which tread heaviest in terms of ecological footprint are Luxembourg, the United Arab Emirates and the USA – Luxembourg's per capita footprint is equivalent to consuming natural resources as if we had almost five planets to rely on.

- **It is possible to live long, happy lives with a much smaller ecological footprint than found in the highest-consuming nations.** For example, people in the Netherlands live on average over a year longer than people in the USA, and have similar levels of life satisfaction – and yet their per capita ecological footprint is less than half the size (4.4 global hectares compared with 9.4 global hectares). This means that the Netherlands is over twice as ecologically efficient at achieving good lives.
- **More dramatic is the difference between Costa Rica and the USA.** Costa Ricans also live slightly longer than Americans, and report much higher levels of life satisfaction, and yet have a footprint which is less than a *quarter* the size.
- **Countries with the same ecological footprint support lives with differing levels of well-being and health.** For example, Vietnam and Cameroon have identical ecological footprints (1.3 global hectares). However, whilst most people in Cameroon cannot expect to live more than 50 years, and reported life satisfaction is unsurprisingly low (3.9), the Vietnamese have a life expectancy higher than that found in many European countries (73.7 years) and a correspondingly higher level of life satisfaction (6.5).

Steps towards a happier planet can be found in many places. We focus on a few examples, several inspired by the first HPI report. One particularly promising model, is the *Living better, using less* strategy emerging in Caerphilly, a local authority in South Wales. The strategy focuses on the three components of the HPI – health, a positive experience of life, and ecological footprint – and sets out some interventions aimed to improve performance on all three.



Photograph: Andrew Simms

Of course, each thread of work towards a happier planet needs to be woven together to create a full tapestry. The economy, communities, lifestyles and aspirations of a happy planet will be very different to those that lock us into our current ecological inefficiency. The analyses in this report suggest that the current dominant economic framework is, without exception, unable to simultaneously achieve the three goals of high life satisfaction, high life expectancy and one-planet living. This applies across the development spectrum as traditionally viewed, although it appears that middle-income countries, such as those of Latin America and South East Asia tend to be the closest to achieving sustainable well-being. In other words, our current framework achieves its optimum at middle-income levels, but even that optimum does not represent good lives that do not cost the Earth.

We do not, in this report, claim to provide answers to all the questions of what a happy planet would look like. However, at the end of the report, we make some suggestions of the strategies required to achieve sustainable well-being. The solutions suggested all constitute win-win strategies – increased well-being and reduced ecological footprint. In this way, the HPI presents a positive image of futures which countries will actively choose to create for themselves, rather than a necessary burden that must be sustained and endured.

At www.happyplanetindex.org, we launch a new *Charter for a Happy Planet*. Those who sign it believe that:

- A new narrative of progress is required for the twenty-first century.
- It is possible to have a good life without costing the Earth.
- Over-consumption in rich countries represents one of the key barriers to sustainable well-being worldwide and that governments should strive to identify economic models that do not rely on constantly growing consumption to achieve stability and prosperity.

They call for:

- Governments to measure people's well-being and environmental impact in a consistent and regular way, and to develop a framework of national accounts that considers the interaction between the two so as to guide us towards sustainable well-being.
- Developed nations to set an HPI target of 89 by 2050 – this means reducing per capita footprint to 1.7 global hectares, increasing mean life satisfaction to eight (on a scale of 0 to 10) and continuing to increase mean life expectancy to reach 87 years.
- Developed nations and the international community to support developing nations in achieving the same target by 2070.

Times of crisis are times of opportunity. Now is the time for societies around the world to speak out for a happier planet, to identify a new vision of progress, and to demand new tools to help us work towards it. The HPI is one of these tools, but we also hope that it will inspire people to act.

1. Introduction

In the final year of the first decade of the third millennium, humanity stands at a crossroads. Depending on the choices we make now, future generations will either look back at our time with anger or with gratitude. Currently, we are set on the former course. Should we continue our reckless over-consumption of resources and destruction of the environment, driven by an insatiable appetite for economic growth, our descendants will face a world of scarcity, uncertainty and conflict.

However, over the last few years the first signs have emerged that we may be able to find a different path, one which future generations will look back on with gratitude and relief. That path, should we take it, will not only ensure we halt catastrophic environmental damage, but will also support good lives for all. A path where our understanding of progress and prosperity takes account of the needs of humans, and the needs of the planet. In short, it will lead us towards better, more meaningful lives that do not cost the Earth.

The first Happy Planet Index (HPI) was launched by **nef** (the new economics foundation) in July 2006 to help steer us along this path.² It presented a completely new indicator to guide societies, one that measures the ecological efficiency with which happy and healthy lives are supported. Even then, its message resonated with hundreds of thousands of people around the world – the report was soon downloaded and read in over 185 countries worldwide.³ Now, in 2009, with the world facing the triple crises of economic turmoil, impending peak oil and continually bleaker predictions of the impacts of climate change, the message of the HPI is more timely than ever before. We *need* to strive for good lives that do not cost the Earth and we need indicators that can help get us there.

HPI 2.0 takes advantage of new and improved data for 143 countries around the world, to determine which countries are closest to achieving sustainable well-being. It also looks back over time to see how we've been faring over the last 45 years – and looks forward to see where we need to get to.

It reveals that most countries are woefully far from where they need to be. Indeed the largest countries of the world appear to be moving in the wrong direction; as with the first HPI report, the graffiti on the front cover is therefore still appropriate. However, there are exceptions – countries that appear to be supporting good lives for their citizens whilst living close to their fair share of the world's resources. Based on the data at the national level, and at the individual level, it appears that good lives that do not cost the Earth really are possible. So, alongside this report, we are launching a charter (www.happyplanetindex.org) calling for governments, organisations and individuals around the world to work towards making this possibility a reality.

The end of the end of history

2008 marked the end of an era. As the world's major financial institutions collapsed around us, the economic leaders of the time pronounced *mea culpa*. In October, the former chair of the US Federal Bank Alan Greenspan admitted to the US Congress that he had found a 'flaw' in our guiding economic ideology.⁴ In March 2009, the UK Prime Minister Gordon Brown admitted that he should have taken steps to control the UK financial markets during his time as Chancellor.⁵ At the World Economic Forum in Davos in 2009, confident self-satisfaction had been replaced with a far greater degree of humility and uncertainty. Many believe that the economic crisis spells the death of neoliberalism. Some go even further. Professor Anthony Giddens, often regarded as the architect of Tony Blair's *Third Way*, has declared it the 'end of the end of history'.⁶ For him, the crisis highlights that we need to 'think seriously about the nature of economic growth'. Perhaps even more surprising are the words of Thomas Friedman, long-time advocate of growth and globalisation:

Let's today step out of the normal boundaries of analysis of our economic crisis and ask a radical question: What if the crisis of 2008 represents something much more fundamental than a deep recession? What if it's telling us that the whole growth model we created over the last 50 years is simply unsustainable economically and ecologically and that 2008 was when we hit the wall – when Mother Nature and the market both said: 'No more'.⁷

For those versed in ecological economics – a discipline which recognises the dependence of our economic systems on the Earth's resources – it is tempting to adopt a smug 'I told you so' attitude. As far back as 1972, the Club of Rome's *Limits to growth*, highlighted the impossibility of an ever-growing economy on a finite planet.^{8,9} nef's 2003 *Real World Economic Outlook* predicted 'collapse in the credit system of the rich world, led by the United States, leading to soaring personal and corporate bankruptcies'.¹⁰ It was obvious that our economic system was doomed to another cycle of bust. The added element of approaching the Earth's resource limits threatens to make this cycle the worst for over 100 years.

One should not forget that it is people with average incomes whose quality of life will be hit most. In early 2009, the International Labour Organization (ILO) estimated that 18 million people worldwide could be made unemployed as a result of the crisis, whilst 200 million more people in developing countries are expected to be driven into extreme poverty.¹¹ The sad truth is that our current economic system relies on continuous growth – when this comes to a halt, it is those who are already deprived who bear the brunt.^{12,13}

Given the huge attention the crisis has attracted, it is easy to forget that the world was far from a perfect place before the credit crunch hit. Despite 60 years of constant economic growth, in 2005, more than half of the world's population (56.6 per cent) lived on less than the equivalent of \$2.50-a-day.¹⁴ The benefits of growth have been wildly disproportionate. For every \$100 worth of growth, only \$0.60 contributes to reducing poverty for the more than one billion people living below \$1-a-day.¹⁵ Worldwide, one in thirteen children dies before the age of five. For people living in twenty-two of the poorest countries, this rate is over one in seven.¹⁶

Even in rich countries, our system has not been a constant tale of success. Inequality has been rising in OECD countries over the last 20 years – before the recession kicked in, disparities in income in the UK were highest since records began in the 1960s.¹⁷ Real median incomes have actually remained stagnant in many countries, including the USA. People do not report being any happier or more satisfied with life than they did 20 or even 40 years ago.^{18,19} Commentators on both the left and right talk of a 'social recession'.^{20,21} In the UK, child poverty still remains a shameful reality, and the Government has abandoned its ambitions to halve child poverty by 2010. Our model of progress has failed to deliver even what it claims to deliver best: money in people's pockets.

And where it does worst, the current model has done very badly indeed. The UN Millennium Ecosystem Assessment found 60 per cent of the world's ecosystems to be degraded. Concentrations of CO₂ in the atmosphere stood at 387 parts per million (ppm) in 2008. This is the highest they have been for the last 650,000 years. With the annual rate of CO₂ emissions actually *increasing* in recent years, it is no wonder that the Intergovernmental Panel on Climate Change (IPCC) predicts that the 'most likely' global increase in temperature, in a 'business as usual' scenario, would be 4°C above 1990 levels – double the 2°C target that climate scientists and indeed the EU have strived to meet to avoid positive feedback loops leading to the climate spiralling out of control. Indeed, many scientists, including NASA's top climatologist Jim Hansen, now feel that only by returning to a level of 350 ppm can we prevent this happening.²² In other words, to preserve the climatic conditions which human civilisation has enjoyed since it began, not only do we need to stop emitting fast, we also need to physically remove CO₂ from the atmosphere.

A crisis is a terrible thing to waste²³

And yet, as Hazel Henderson, one of the leading figures of the Club of Rome has recently highlighted, with crisis comes opportunity. A remarkable transformation has occurred over the past five or so years, whereby concerns over resource depletion and fear of climate change are no longer the domain of fringe environmentalists, but rather the norm in many developed countries. Tangible impacts from climate change on both development in poorer countries,^{24,25} and the economy of the developed world are fast becoming recognised.²⁶ Where electoral systems allow, green parties are gaining ground; for example, in elections in April 2009, the Green party in Iceland entered the ruling coalition with over 21 per cent of the vote – the highest percentage that any Green party has won in national elections to date. In the same month, US Secretary of State Hilary Clinton publicly accepted the USA's substantial contribution to climate change.²⁷ Earlier in the year, US Director of National Intelligence Dennis Blair stated that climate change is a 'top threat to... national security'.²⁸ In a recent Eurobarometer survey, EU citizens rated climate change as *the* most serious problem currently facing the world as a whole, above poverty and international terrorism. Perhaps not surprising when the evidence suggests climate change will exacerbate both these problems: 62 per cent of those surveyed ranked climate change amongst their top two global concerns. The debate is no longer about whether climate change is an issue, but about how best to deal with it.

And yet, for all this acknowledgement of the problem, we are still moving in precisely the wrong direction. Global CO₂ emissions are rising year-on-year, and our ecological debt, as measured by the ecological footprint, continues to grow.²⁹ What's going wrong? In the words of the recent film on climate change starring Pete Postlethwaite: are we really that stupid?³⁰ Are we to collectively assume the role in global history that was played by the person who chopped down the last tree in Easter Island, as described so eloquently in Jared Diamond's *Collapse*?³¹

Unfortunately, our all-too-human fear of change is currently trumping our scientifically endorsed fear of global warming. A wealth of evidence suggests that we could reduce our resource consumption whilst maintaining or even improving our quality of life, but this cannot overcome the paralysis caused by our desire to maintain exactly the way of life to which we have become accustomed. Less consumption, less growth and fewer emissions is hardly a rabble-rousing mantra for change. Rendered impotent by fear, we need a *positive* vision of what progress could look like. Martin Luther King may well have had nightmares in his life, but it was for his dream that he will be remembered.³²

The HPI plays a part in illuminating the path towards that dream. By stripping the economy down to what it really should be about – providing long and happy lives for all today, without infringing on the chances of future generations to do the same – it goes to the heart of what we should be measuring. If the second half of the twentieth century was about the pursuit of economic growth and material goods, the twenty-first century should be defined by the pursuit of good lives that do not cost the Earth. The former was measured more or less adequately by GDP. To achieve the latter we need the HPI.

2. Defining our goals – the HPI

The first *(un)Happy Planet Index* immediately captured the attention of the media, the public, politicians and experts who work on indicators of progress. It was read in over 185 countries across the world, inspiring media attention from Jakarta to Jamaica,³³ and a steady stream of articles three years on.

It was followed by a second report focused on European countries in 2007.³⁴ In December 2007, **nef** received the *Betterment of the Human Condition Award* from the *International Society for Quality of Life Studies* for its work on the HPI. The reports have influenced the thinking of many organisations, including the Conservative Party in the UK, the European Parliament, Deutsche Bank, and OECD.

The HPI urges us to question what is really valuable in life. It takes as its starting point two axioms. First, that happy and healthy lives are sought-after around the world. Secondly, that this should not be a privilege of the current generation – that future generations should also be able to pursue happy, healthy lives. The HPI combines progress towards these two goals in a single figure. It really is as simple as that.

Readers who are familiar with sustainable development may immediately recognise similarities with the UN definition of sustainable development as:

*...meet[ing] the needs of the present without compromising the ability of future generations to meet their own needs.*³⁵

The HPI adds to this definition, by introducing the concept of human well-being, echoing the IUCN's (The World Conservation Union) call for a metric capable of measuring 'the production of human well-being ... per unit of extraction from or imposition upon nature'.³⁶ In doing so, it also incorporates, for the first time in the policy discourse around sustainability, measures of people's lived *experience* of their lives, rather than just external judgements made by experts.³⁷

Human goals

How does one measure well-being in terms of happy and healthy lives? The health aspect is (relatively) straightforward – the best-known headline indicator being life expectancy at birth. The 'happy' part has been debated since the time of Aristotle. In recent years, the debate has moved from philosophy to the realm of science, with a growing body of research identifying what it means to be happy, what drives it and how to measure it. For us, being 'happy' is more than just having a smile on your face – we use the term *subjective well-being* to capture its complexity. Aside from feeling 'good', it also incorporates a sense of individual vitality, opportunities to undertake meaningful, engaging activities which confer feelings of competence and autonomy, and the possession of a stock of inner resources that helps one cope when things go wrong. Well-being is also about feelings of relatedness to other people – both in terms of close relationships with friends and family, and belonging to a wider community.³⁸

Encapsulating all of these aspects of well-being precisely requires detailed measurement, and **nef** has called for governments to collect thorough and regular National Accounts of Well-being to do so.³⁹ However, extensive data has already been collected in surveys worldwide and over the last forty-five years on one fundamental aspect of well-being – life satisfaction.

Life satisfaction is typically measured with the following question:

*All things considered, how satisfied are you with your life as a whole these days?*⁴⁰

Responses are made on numerical scales, typically from 0 to 10, where 0 is dissatisfied and 10 is satisfied. Years of research have demonstrated that, despite its apparent simplicity, the question produces meaningful results. Individuals' responses correlate with the size and strength of their social networks, relationship status, level of education, presence of disability, as well as with their material conditions, such as income and employment.^{41,42,43} The averages for countries tend to be higher where people within that country enjoy higher levels of social capital, better climate, richer natural resources, higher life expectancy, better standards of living, and more voice within government.^{44,45}

Furthermore, responses to this question correlate well with other attempts to assess well-being. People who say they are satisfied with their life tend also to make other positive assessments, such as reporting more frequent good moods, are described by their loved ones as being satisfied, are observed to smile more often, and are less likely to commit suicide later on in life.^{46,47,48} Importantly, reported life satisfaction also correlates with all the complex aspects of well-being described earlier, such as feeling autonomous and being resilient.⁴⁹

In 2008, two years after the HPI was launched, the UK Department for Environment, Food and Rural Affairs (Defra), built subjective well-being measures including life satisfaction into its set of sustainable development indicators providing official acknowledgement that they may be useful in assessing progress towards human goals.⁵⁰

The Dutch sociologist Ruut Veenhoven has developed an approach to combining life satisfaction with life expectancy in a term we call 'happy life years' (HLY) – which can be seen as happiness-adjusted life expectancy.^{51,52} Doing so ensures both the subjective and objective elements of well-being are captured. It recognises that a satisfying life is not ideal if it is very short, but also that a long life is not ideal if it is miserable.

Respecting ecological limits

The last few paragraphs have focused on what we want societies to enable us to achieve – their human goals. There was no mention of the means with which they do this, or of the inputs required. Yet consideration of these issues is essential, given that how we ensure our well-being now will affect whether others around the world can also secure their own well-being, and whether *any* of us can do so in the future. This is the 'sustainable' aspect of sustainable well-being. No moral framework would accept high well-being if it was at the expense of others living today and/or future generations. Such considerations are particularly relevant where limited resources are required to support well-being. And the most finite limited resources that we currently rely on are natural ones.⁵³

Jared Diamond's *Collapse* takes its reader through a potted history of societies that overtook their ecological limits, and collapsed as a result. The most poignant example is that of Easter Island, famed for its sombre giant stone statues – *moai*. It is not certain, but the *moai* appear to have been built as part of status competition between the various tribes on the island, with bigger *moai* demonstrating greater power. The early seventeenth century was likely the pinnacle of Easter Island culture, the time the biggest *moai* were being built, an echo of the skyscrapers going up across the world from Canary Wharf to Kuala Lumpur. However, *moai* construction consumed a lot of resources, particularly wood for transport and energy. By 1650, the last tree had been felled. By the time Europeans arrived on the island's shores in 1722, the numbers of Easter Islanders had fallen dramatically, and they had been reduced to petty wars and cannibalism.

Easter Island reminds us of the danger of only measuring what we consider to be human goals to the exclusion of factors affecting sustainability. In the first half of the seventeenth century, given the archaeological evidence, quality of life in Easter Island may well have been at its highest ever. If Easter Islanders had been measuring well-being, they may well have been seeing ever growing life expectancy and reported life satisfaction. Despite that, or rather because of it, disaster was just around the corner. It appears no one in Easter Island was measuring their environmental impact.

Their society was particularly vulnerable, being separated by over 2000km from the next inhabited island. Such dramatic collapses are rare in a world where societies are and have always been interconnected. Resources are traded, people migrate, and empires are conquered. But the Earth itself is also an island. The nearest other island, inhabited or otherwise, is 40,000,000km away. If there is one lesson we must learn above all others, it is to not let the Earth go the way of Easter Island.

In such a complex world, it is not a simple matter to measure our impact on the planet. How can one compare the impact of using a gallon of oil with a gallon of water, or a tonne of potatoes with a tonne of potassium? The best available approach is currently the ecological footprint, developed by ecologists Mathis Wackernagel and William Rees, and championed by a range of organisations including the Global Footprint Network and WWF.⁵⁴ The EU statistical agency Eurostat is considering incorporating the ecological footprint into its sustainable development indicator set,⁵⁵ whilst the Welsh Assembly Government has already adopted it as one of five headline indicators of sustainability.

The ecological footprint of an individual is a measure of the amount of land required to provide for all their resource requirements plus the amount of vegetated land required to sequester (absorb) all their CO₂ emissions and the CO₂ emissions embodied in the products they consume. This figure is expressed in units of 'global hectares'. The advantage of this approach is that it is possible to estimate the total amount of productive hectares available on the planet. Dividing this by the world's total population, we can calculate a global per capita figure on the basis that everyone is entitled to the same amount of the planet's natural resources. Using the latest footprint methodology – and it should be noted that this is a developing methodology – the figure is 2.1 global hectares.⁵⁶ This implies that a person using up to 2.1 global hectares is, in these terms at least, using their fair share of the world's resources – one-planet living.

In 2005, the per capita footprint for the rich OECD nations was 6.0 global hectares. The implication: we are living as if we had almost three planets' worth of resources.

Such large footprints are in part possible by relying on poorer countries to provide us with raw materials – they represent the ecological debt owed by rich countries to poor ones.⁵⁷ This raises the stark reality that it is pointless for poorer countries to aspire to becoming 'more like the West' – it is simply impossible for everyone on the planet to live as Westerners do today. We would indeed need three planets to do so. We still only have one. For this reason, the ecological footprint is also useful for understanding social justice. Improving living standards in poorer countries can only be achieved in parallel with declining resource consumption in richer ones.

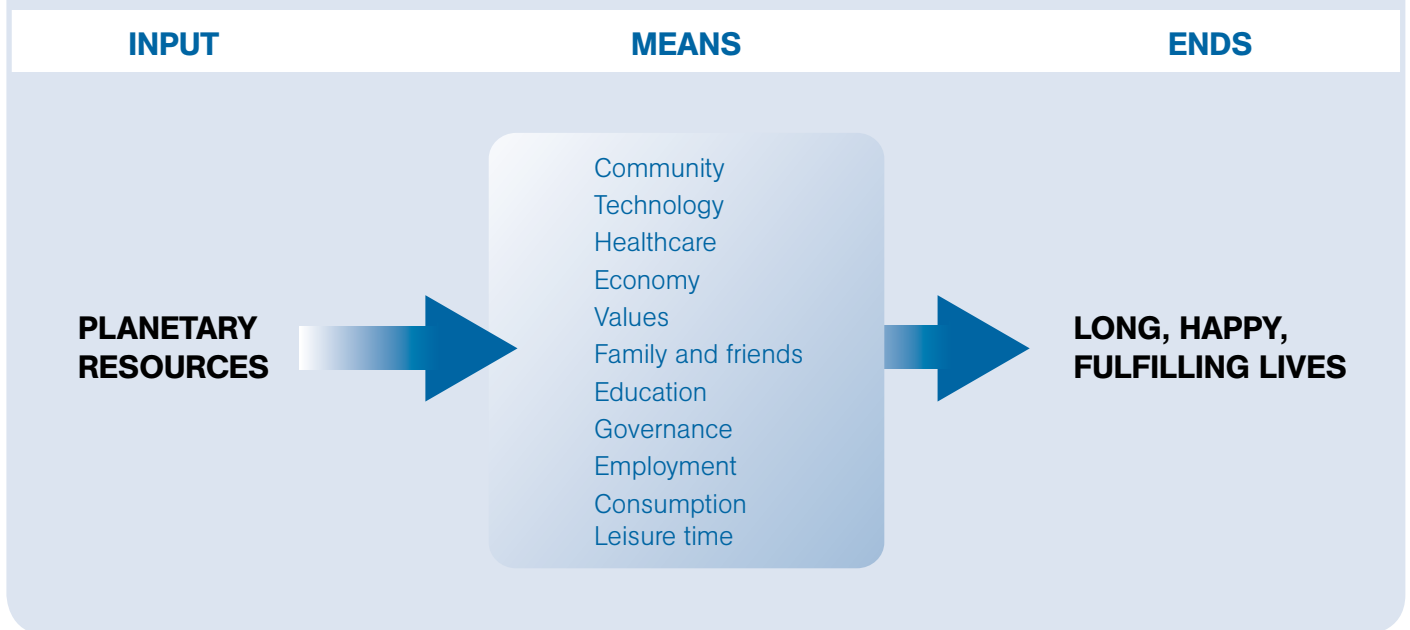
The average per capita footprint worldwide also highlights a serious problem. At 2.3 global hectares it is just above the world's sustainable capacity, and has been since the mid-1980s. This ecological overshoot in part represents the unsustainable emission of CO₂ into the atmosphere at a rate faster than the planet can re-absorb it.

Society as a system

If well-being is our goal, and the planet itself defines our resource limits, we should not lose sight of all that happens in the middle.

Figure 1 portrays human society as a system with inputs, means and ends. The means are vitally important – a field of grass is not converted into happy, healthy, meaningful lives without complex systems of agriculture, trade, culture, education and much more. They are, however, only 'instrumentally' important: they are

Figure 1: Inputs, means and ends of human society



important because they play a role in helping us achieve our ends.⁵⁸ Debates about what makes the best economy, education or governance systems should ultimately be decided in terms of which supports the provision of the highest, fairest and most sustainable well-being.⁵⁹ As such, all means should be considered as *strategies* to achieving our ends, as pathways to sustainable well-being. The success of these strategies *does* need to be assessed and measured. But that is not the role of the HPI. In simple terms, the HPI measures what goes in and what comes out – not what happens in the middle. In doing so, of course, it provides us clues as to what we need to do in the middle to achieve society’s objectives (see Chapter 9).

It is worth reminding ourselves what we have been doing over the last 60-odd years. We have focused on a few strategies, specifically technology, healthcare, employment, and above all the economy – defined very narrowly in terms of GDP – so as to provide for well-being. We have tended to pay less attention to some other strategies such as values, leisure time and social capital. Worse still, we have fully measured neither our inputs nor our ends. As a result, we have not been able to assess whether gains with respect to some strategies may have caused losses with respect to others (as will be discussed in Chapter 3). We have not been able to determine whether we have achieved progress in real terms, which ultimately comes down to people’s experiences of their lives.

HPI in equation form

In essence, the HPI is an efficiency measure: the degree to which long and happy lives (life satisfaction and life expectancy are multiplied together to calculate happy life years) are achieved per unit of environmental impact.

$$\text{Happy Planet Index} \sim \frac{\text{Happy Life Years}}{\text{Ecological Footprint}}$$

In Chapter 5 each of these components will be considered in a little more depth. In Appendix 2, the precise formula will be explained, as certain statistical adjustments are required to ensure that no single component dominates the indicator and to produce an easy-to-interpret figure ranging from 0 to 100.⁶⁰

3. The rise and fall of a foolish myth

*Every society clings to a myth by which it lives. Ours is the myth of economic growth.*⁶¹

The myth of economic growth as progress has held sway for over half a century. But now, stimulated by the ongoing economic crisis and impending environmental and resource crises, alternative visions of progress, such as that represented by the HPI, are gaining popularity. They are still not the dominant view, but the tipping point may not be far off. In this chapter, we sketch out how we got to become obsessed with 'more' – in terms of economic growth and GDP as the indicator of it, the damage it has caused, and how alternate visions are now gaining ground.

Our obsession with 'more'

Writing during an economic crisis, it may seem inopportune to question the centrality of economic growth. Now more than ever, governments around the world are desperate to restart growth by any means possible. GDP is even more omnipresent in public discourse than usual. In the UK alone it was referred to in 3590 articles in national newspapers in the eight months following the escalation of the crisis in September 2008 – more than double the frequency for the same time period in previous years.⁶²

And yet we should not lose sight of the fact that economic growth is just one strategy to achieve well-being and, in terms of natural resources, a demonstrably inefficient one. Rather than pursuing growth at all costs, even if detrimental to well-being or sustainability, leaders should be striving to foster well-being and pursue sustainability, even if detrimental to growth. The horse and the cart need to be returned to their rightful places. As the UK's Sustainable Development Commission, a public body that directly advises the Prime Minister's office on sustainable development issues, eloquently points out in its report *Prosperity Without Growth?*:

*...the state has become caught up in a belief that growth should trump all other policy goals. But this narrow pursuit of growth represents a horrible distortion of the common good*⁶³

Things have not always been like this. For most of the history of humanity, economic growth was a minor phenomenon: a side-effect, where it existed, of the pursuit of other goals.⁶⁴ It only attained its quasi-mystical role when GDP was placed atop the podium of indicators with the development of the United Nations System of National Accounts, in 1947. At that time, focusing on productivity growth made sense. Much of the world needed to be rebuilt following the war, and that required growing economies.⁶⁵ Furthermore, economic growth helped avoid distributional debates. The rising voice of the working classes demanded more of the material cake. The only way elites could respond to that voice without having to give up anything themselves was by growing the cake.

Some time since then, economic growth *per se* became less pressing a need for developed countries.^{66,67} Europe, Japan and other regions ravaged by the war had been rebuilt, and living standards had been raised. Increasing growth has not seemed to reduce inequalities any further, and in some cases may have been contributing to their worsening. But systems carry their own momentum, and even the wealthiest countries still pursue economic growth as if they were still struggling to recover from the war. The European Union's focal strategy – the Lisbon Agreement – is pivoted on growth. From 2005, OECD publishes an annual report entitled *Going for growth* which attempts to untangle how member states can quicken the pace of their GDP growth.

The notion of GDP growth almost seems to have a halo around it. It has reached the status of motherhood and apple pie. Even as early as 1967, the economist E.J. Mishan noted:

Among the faithful ... any doubt that, say, a four per cent growth rate ... is better for the nation than a three per cent growth rate is near-heresy; is tantamount to a doubt that four is greater than three.^{68,69}

Of course, that is not to say that economic growth can be simply 'switched off' without consequence – our economic system will require substantial change for a steady state economy to succeed.⁷⁰ Also for many developing countries, economic growth may indeed be required. The problem is that the dominant economic paradigm of the last 30 years has not always been successful in delivering the benefits of growth to where it is needed – by far the greatest share goes where it isn't needed, i.e. to those who are already wealthy.⁷¹

The consequences of myopia

Biologists talk about physical growth as a process which has an optimum level beyond which further growth is not beneficial, and can indeed turn malignant. Economic growth can be subjected to the same analysis. Aside from the obvious environmental impacts which we have already discussed, there is gathering evidence that an obsession with growth may have led us to ignore other aspects of life critical to our well-being.

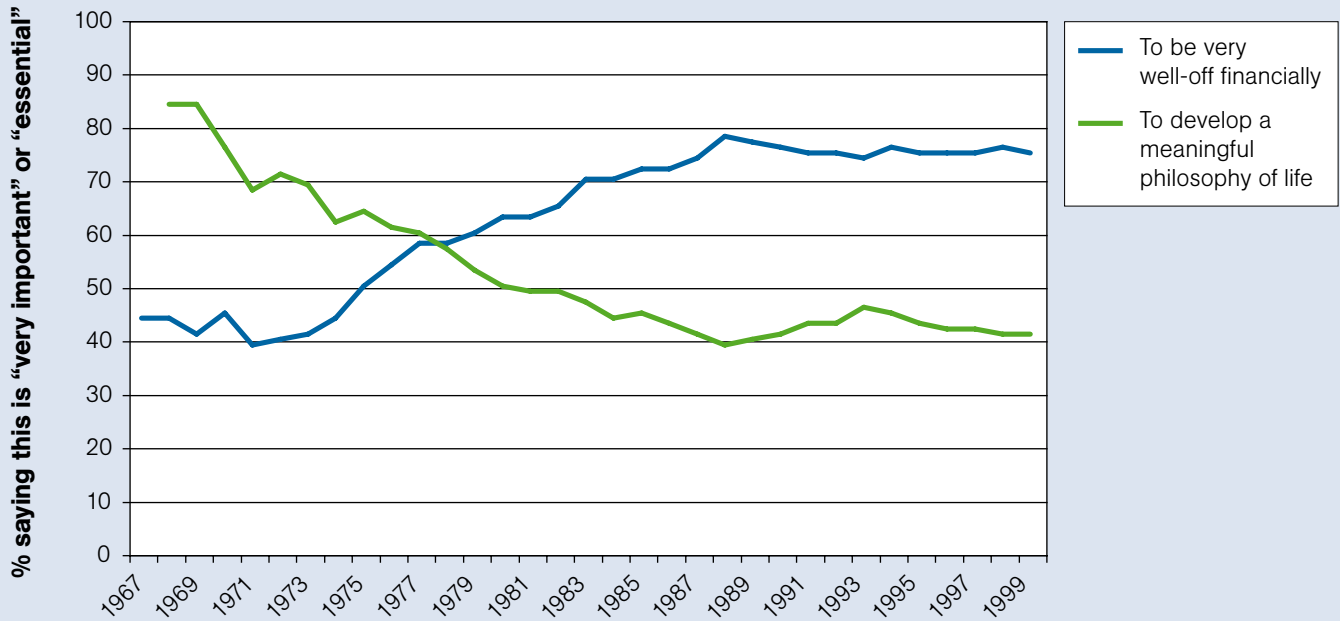
To maintain growth, Western capitalist economies have a structural need to sustain demand for consumption.^{72,73,74} But this feature of the system sets it at odds with a widely noted fact about human nature – that once our basic material needs are comfortably met, more consumption tends to make little difference to our well-being. This is not just folk wisdom, although it is certainly the case that throughout history, and across all cultures and religions, people have cautioned against an excessive focus on wealth and material possessions. Research suggests that in most reasonably developed countries, material circumstances such as wealth and possessions play only a small role in determining levels of happiness – some psychologists estimate that they explain only around 10 per cent of variation in happiness at the aggregate level.⁷⁵ Beyond a certain level of income, increasing wealth makes little difference.⁷⁶ Much more significant are factors relating to individual differences in outlook and to the kinds of activities that people engage in: socialising, participating in cultural life, having meaningful and challenging work and so on.

But the requirement to maintain consumption growth at all costs has led to a situation in which, for decades, we have been presented with a poisonous combination of messages. First, we are constantly bombarded with messages from advertisers and marketers, all pushing the idea that buying this or that new product will make us happier. Added to this, in many countries we have been offered staggeringly easy access to credit with which to keep up our level of consumption. Quite apart from the environmental impacts, this has served us very poorly in a number of ways.

For one thing, levels of debt have soared in recent years; in 2007 and 2008, for the first time on record, UK personal debt exceeded total GDP.⁷⁷ As recent research from the Institute of Psychiatry in London shows, debt is a large contributing factor to a person's chances of developing clinically significant anxiety and depression, largely irrespective of their income.⁷⁸ It is not hard to imagine why this might be. The stress of working just to keep up repayments is exhausting, the fear of defaulting constant and gnawing, and that's without having to deal with the feelings of despair and inadequacy for having failed.

But there is also a more subtle and no less damaging aspect to all this focus on personal consumption. People who are strongly motivated by the idea of getting rich and famous are what psychologists refer to as *materialistic*. Using an engaging metaphor, psychologist and author Oliver James describes them as having caught the 'affluenza' virus.⁷⁹ The scientific evidence for the negative impacts of materialism is overwhelming; they range from poorer personal relationships through fewer good moods and lower self-esteem, to

Figure 2: Aspirations of college students in the USA⁸²



increased prevalence of psychological symptoms.⁸⁰ In short, people whose main aspiration is to be wealthy are inclined to be less satisfied with their lives in general than those who focus their energies elsewhere.⁸¹ What is worrying, but perhaps unsurprising, is the extent to which materialism is on the rise. Figure 2 shows data from an annual survey of college students in the USA. The proportion of respondents feeling that being very wealthy is important has doubled since the early 1970s, with a concomitant decrease in the number considering a meaningful philosophy in life to be important.

However, it is not just individuals who are harmed by this myopia. Various scholars have argued that the ‘social recession’ that burdens modern capitalist societies can be attributed to a shift towards individualism.⁸³ A striking statement of this thesis can be found in no less a journal than the unrepentantly free-market *The Economist*. Attempting to explain why well-being does not keep rising in line with consumption, it suggests that ‘there are factors associated with modernisation that, in part, offset its positive impact.’⁸⁴ Specifically, it argues that alongside consumption growth

[a] concomitant breakdown of traditional institutions is manifested in the decline of religiosity and of trade unions; a marked rise in various social pathologies (crime, and drug and alcohol addiction); a decline in political participation and of trust in public authority; and the erosion of the institutions of family and marriage.

Two things are significant about the cultural changes highlighted here. The first is that they involve factors known to determine well-being – in particular, feelings of social and community relatedness and trust. The second is the suggestion that these changes have occurred *as a result of* the modernisation process. In other words, the pursuit of consumption has systematically undermined not only the environmental conditions on which future well-being depends, but also certain social conditions (e.g., family, friendship, community, trust) that are critically important for well-being *now*.

Gaining ground

The need for a new vision of progress is being felt in many places. A UK poll found 81 per cent of people supported the idea that the Government’s prime objective should be the ‘greatest happiness’ rather than the ‘greatest wealth’.⁸⁵ An international survey found that three-quarters of respondents believed health, social, and environmental indicators were just as important as economic ones and should be used to measure national progress.⁸⁶

The French Commission on the Measurement of Economic Performance and Social Progress was set up in January 2008 by President Nicholas Sarkozy to respond to these opinions, by reassessing GDP's role. It includes amongst its number three Nobel Prize winners – Joseph Stiglitz, Amartya Sen and Daniel Kahneman.

It comes at a good time. Even during the peak of the economic boom in 2006, 61 per cent of people in 20 European nations felt that 'for most people in their country, life was getting worse'.⁸⁷ Recognising this brewing dissatisfaction, the Commission notes:

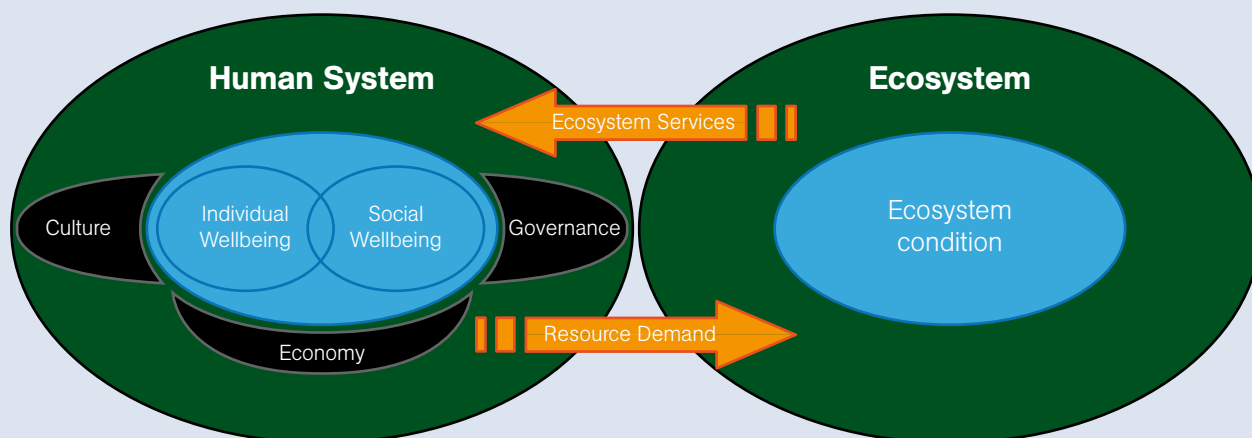
*There is a huge distance between standard measures of important socio economic variables like growth, inflation, inequalities etc...and widespread perceptions...Our statistical apparatus, which may have served us well in a not too distant past, is in need of serious revisions.*⁸⁸

In a fundamental sense, it should not be surprising that economic growth does not epitomise all that people want from life. Paraphrasing Michaela Moser of the European Anti-Poverty Network, 'no one wakes up dreaming they lived in the country with the highest economic growth.' In a cross-cultural study across 26 countries, health and happiness were consistently rated above affluence as most important to people.^{89,90} In that sense, there is nothing radical about defining progress in terms of the HPI – once sustainability is considered, it is more or less how people define what they want from life anyway.

But the public's implicit recognition of the importance of well-being is only half the story. Politicians and governments still labour under the illusion that economic growth defines success. There are signs that this could change. Well-being was first given legislative muscle in 2000, when the UK Local Government Act gave local authorities the power to promote social, economic and environmental well-being. However, it is only in the last three years, after the publication of the first HPI report, that the first glimmers of its growing international recognition are emerging.

In 2007, the Conservative Party published a *Blueprint for a green economy*, highlighting quality of life, and not economic growth, as a priority. Conservative Leader David Cameron has explicitly mentioned the HPI as a better measure of progress.⁹¹ The Austrian *Lebensministerium* is calling for the strategy that will replace the Lisbon Treaty from 2010 to focus on quality of life, rather than growth.⁹² Most exciting is the UK Sustainable Development Commission's ground-breaking new report *Prosperity without growth?* The report advocates a new vision of prosperity around the themes of sustainability and well-being, and questions the relevance of economic growth to these goals. It may have been a long time coming, but credit is certainly due to the UK government for allowing debate on what has, until now, been an entirely taboo subject.

Figure 3: OECD framework for the progress of societies⁹³



Emerging amongst these new visions are a burgeoning number of initiatives aimed at developing indicators to measure progress towards them. In June 2007, OECD hosted an international conference in Istanbul on *Measuring the progress of societies*, leading to the Istanbul Declaration, signed by many inter-governmental organisations including the UN and the EU. The OECD is continuing to engage with experts, national governments, and statistical agencies to try to support the development of new initiatives for measuring progress. Their draft proposal for a framework, based on work by Robert Prescott-Allen,⁹⁴ has at its heart human well-being (Figure 3). The OECD is organising another conference on in October 2009 in South Korea, entitled *Charting progress, building visions, improving life*.

The European Commission also has its own process, entitled *Beyond GDP*, which was launched with a conference in Brussels in November 2007, where the President of the European Commission, José Manuel Barroso called for 'a breakthrough that adapts GDP, or complements it with indicators that are better suited to our needs today, and the challenges we face today'. In the same year, Eurostat, the European statistical agency commissioned a consortium of experts, including **nef**, to consider the feasibility of a well-being indicator for Europe. As has already been mentioned in Chapter 2, the UK has already incorporated pilot well-being measures into its assessment of sustainable development.

Most recently, in March 2009, the UK's *All Party Parliamentary Group on Wellbeing Economics* had its first meeting. The group's aims are to promote the enhancement of well-being as an important government goal, encourage the adoption of well-being indicators as complementary measures of progress to GDP, and promote policies designed to enhance well-being.

This list of initiatives is by no means exhaustive. In the UK, the Office of National Statistics has followed Defra's lead and started exploring how well-being could be measured. Other projects setting out to develop better measures of well-being and progress include WellBeBe in Belgium, QUARS in Italy, the Canadian Index of Well-Being, Measures of Australia's Progress, and of course the Bhutanese measure of Gross National Happiness.⁹⁵

This growing momentum makes it quite clear that GDP's days as our sole indicator of progress are numbered. The stage is set for the HPI.



4. Measurement matters

To understand the significance of the HPI, we need to consider why choices of indicators are so important. Aren't statistics just numbers, after all? Surely it is the hard realities of the world that create the problems of unsustainable and unfair resource consumption?

The power of indicators

Three reasons for getting indicators right are worth mentioning here:

- 1. Validity. If an indicator is not measuring what it claims to measure, societies may be fooled into thinking they are faring better (or worse) than they really are.** A simple example is that of CO₂ emissions. The UK and other developed nations have been able to point at declining annual CO₂ emissions as a demonstration of progress towards mitigating climate change. It is clear, however, that these declines are due partly to a diminishing manufacturing base, in favour of the import of more goods from developing countries such as China.⁹⁶ A recent report compiled by the Stockholm Environment Institute and the University of Sydney on behalf of Defra, found that the UK's balance of trade resulted in a net import of 131.8 Mt of CO₂ in 2004, embedded in imported goods.^{97,98} This means that the CO₂ emissions associated with UK lifestyles have not decreased – they have simply been exported. The indicator we use to assess our progress in this case is misleading us.
- 2. Perverse incentives. When the success of an organisation or society is judged on the basis of a particular indicator, it can skew the pursuit of improvement towards enhancing that indicator above all other considerations.** A notorious example concerns hospital waiting times. UK hospitals were set targets to reduce waiting room times to demonstrate that they were increasing efficiency. Instead of achieving the desired result, this sometimes led to perverse outcomes. There were cases of ambulance drivers being told to drive around in circles in the hospital car park so that patients were not registered in the waiting room until it had emptied out and their official waiting time could be kept down.^{99,100} Might a similar phenomenon be occurring at the societal scale with GDP? A government that took GDP too seriously would be pleased to see people paying for things that are normally done for free, such as domestic labour – as this would increase GDP growth. It would measure, as a positive, wars that required the manufacture and sale of military equipment, the building and maintenance of prisons, or the increased rate of divorces requiring expensive legal services.
- 3. Defining progress. Perhaps most subtly, major indicators such as GDP define our very sense of what constitutes progress.** Putting a number on something somehow endows it with greater reality. It can transform a short-term objective into the very definition of success. This explains the disjunction between the words of one of the originators of GDP, Simon Kuznets – 'The welfare of a nation can hardly be inferred from a measurement of national income'¹⁰¹ – and the attitudes towards GDP we see today (Chapter 3). As economist Jeroen van den Bergh puts it, there has been a case of 'conceptual lock-in'.¹⁰² In effect, what gets counted, counts. And we should always be aware that this is a systematic bias. We have always found it easier to count quantities – be it bales of hay or billions of dollars – than to count quality – of education, lives or indeed hay. To avoid being led astray by this bias, we therefore need to make a conscious effort to measure those fundamental things which are challenging to measure, such as well-being, and not just what comes relatively easily, such as the size of the economy.¹⁰³

The simplicity beyond the complexity

Buddhists say that wise people are able to understand the complexity of an issue, but only the wisest are able to go beyond that complexity and find the simplicity at the other side.

Indicators must always face this challenge. Consider, for instance, a concept like 'development'. What is an appropriate indicator of a country's development? In other words, what would we have to know – or to have measured – in order to establish the level of development in a given nation? Feasibly, you could consult widely amongst the population with a view to drawing up a list of things to measure – access to water, literacy, number of phone lines, etc. Very quickly you would end up with an enormous number of indicators that would be extremely difficult to interpret.

But according to the UN, a nation's overall level of development can be well characterised by looking at just three indicators: GDP per capita, life expectancy at birth, and educational attainment. It is these three that make up the Human Development Index, the most widely used metric of international development.

Of course, in compiling the Human Development Index, the UN is not suggesting that the national income, life expectancy and education are the *only* things that constitute 'development'. Rather, it argues that these three measures provide a reasonable approximation. If all these things are increasing, it can be reasonably assumed that the country is 'developing', at least in the sense most people in the West have come to understand.

The HPI also uses three distinct measures in an attempt to understand a complex concept – sustainable well-being. In doing so, it inevitably does not answer every question. There is more to health than just life expectancy – one can live a long time, but bed-ridden. There is more to a country's resource consumption than its ecological footprint – the footprint does not directly count the use of non-renewable resources, or the degradation of soil.¹⁰⁴ And there is more to an individual's well-being than their response to a single question on whether they are satisfied with their life – some parts of their life may be going well, others less so.

Lastly, there is more to a nation's health, well-being and environmental impact than its *average* life expectancy, *average* life satisfaction and *average* ecological footprint – alongside averages one also needs to look at distributions. The HPI leaves this to other indicators.

What the HPI does do is to serve as a guiding principle, a compass pointing in the overall direction in which societies should be travelling – towards lower carbon and higher well-being lifestyles. It attempts to do this in as simple a way as possible, without being simplistic. Baskets of dozens and indeed hundreds of indicators covering social and ecological issues exist, and are vital for a more detailed understanding of how countries are faring. But, they do not lend themselves to easy interpretation. They do not provide, at a glance, the sense of direction that the HPI does which we now so urgently require. Nor do they capture one's imagination in the way the HPI has captured imaginations across the globe.

5. Components of the HPI

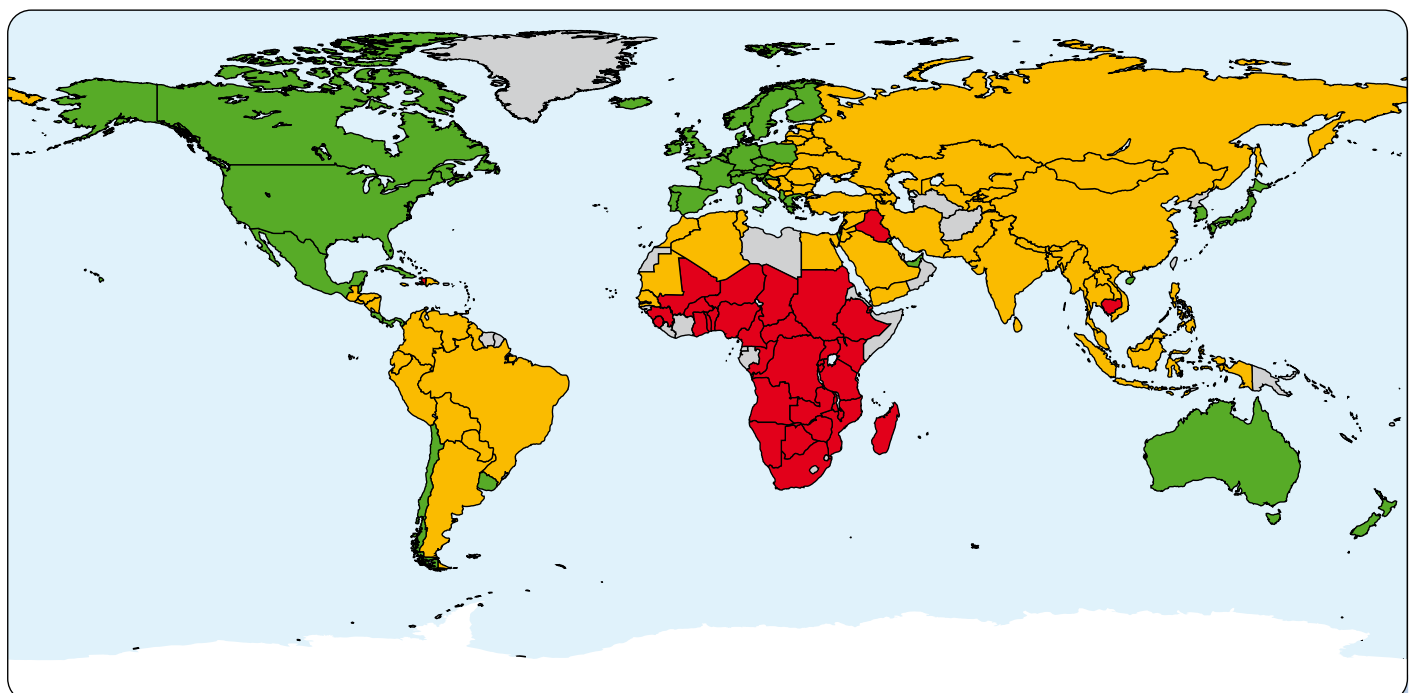
Before introducing combined HPI scores, this chapter will draw out the stories from its three components, telling each story in turn. For HPI 2.0, we calculated scores for 143 countries for the year 2005, together representing 99 per cent of the world's population.

By drawing on newly available sources, we have eliminated the need to model data for life satisfaction as in the first HPI report. However, this has had the effect that some smaller countries (including Vanuatu, which came top in the first report) are no longer included in the index.¹⁰⁵ We also calculated HPI scores for 36 countries for 1990 and 2000, and estimated scores for 25 current OECD members back to 1961, in order to see how we have been faring over time. Details on data sources and how the HPI is calculated can be found in Appendix 2.

Life expectancy

Unsurprisingly, the highest life expectancies are typically found in rich developed countries. Wealthy East Asian cultures do best. Japan and Hong Kong¹⁰⁶ top the table with life expectancies of 82.3 years and 81.9 years respectively, followed by various European and Anglo-Saxon countries. Indeed, of the 35 countries with life expectancies over 77 years, only four have a GDP per capita below \$20,000. One (Malta) just falls below this mark at \$19,189 (and a life expectancy of 79.1 years). The other three are all Latin American nations – Costa Rica (78.5 years, \$10,180 per capita), Chile (78.3 years, \$12,027 per capita) and Cuba (77.7 years, only \$6,000 per capita). These exceptions are important – they

Figure 4: Life expectancy worldwide



Colour key:

	> 75 years
	60 - 75 years
	< 60 years

show that it is possible to support long lives on lower levels of GDP. Average life expectancy in Cuba is only two months shorter than in the nearby USA, but with *one-seventh* the level of GDP per capita.

The other end of the table tells a sad tale: the failed promise of development for sub-Saharan Africa, with life expectancies below 42 years for Zambia, Zimbabwe, Angola and Sierra Leone. For some countries, particularly in Southern Africa, these low life expectancies represent *regress* from earlier higher levels – a key factor being the AIDS epidemic that swept across the region during the late 1980s and early 1990s.¹⁰⁷ For example, life expectancy was 62 years in Zimbabwe in 1987 – only one year shorter than in Turkey. Nowadays, people in Turkey can expect to live more than 30 years longer than people living in Zimbabwe.

Life satisfaction

HPI 2.0 benefits from new more robust and extensive data collected in the Gallup World Poll (see Appendix Two for more details). As such, we have figures for reported life satisfaction for 143 countries.

As with life expectancy, rich Western countries tend to dominate the top of the life satisfaction rankings. However, the pattern is not so clear cut – here almost a third of the top 35 countries have a GDP per capita of less than \$20,000. Again, the poorer countries that are amongst the world-leaders for life satisfaction are all in Latin America. Indeed the country with the highest reported life satisfaction – and by some margin – is Costa Rica (8.5 on a scale of 0–10, compared with 8.1 for Ireland, Norway and Denmark).

At the other end of the scale, the lowest levels of life satisfaction are recorded, unsurprisingly, in Africa – with Tanzania, Togo, Zimbabwe and Burundi all reporting average levels of life satisfaction of less than 3.

As noted in Chapter 2, life satisfaction and life expectancy can be combined to calculate happy life years (HLY). The countries with the highest scores on this measure are Costa Rica (66.7 HLY), Norway (64.6 HLY) and Canada (64.0 HLY).

Figure 5: Life satisfaction worldwide

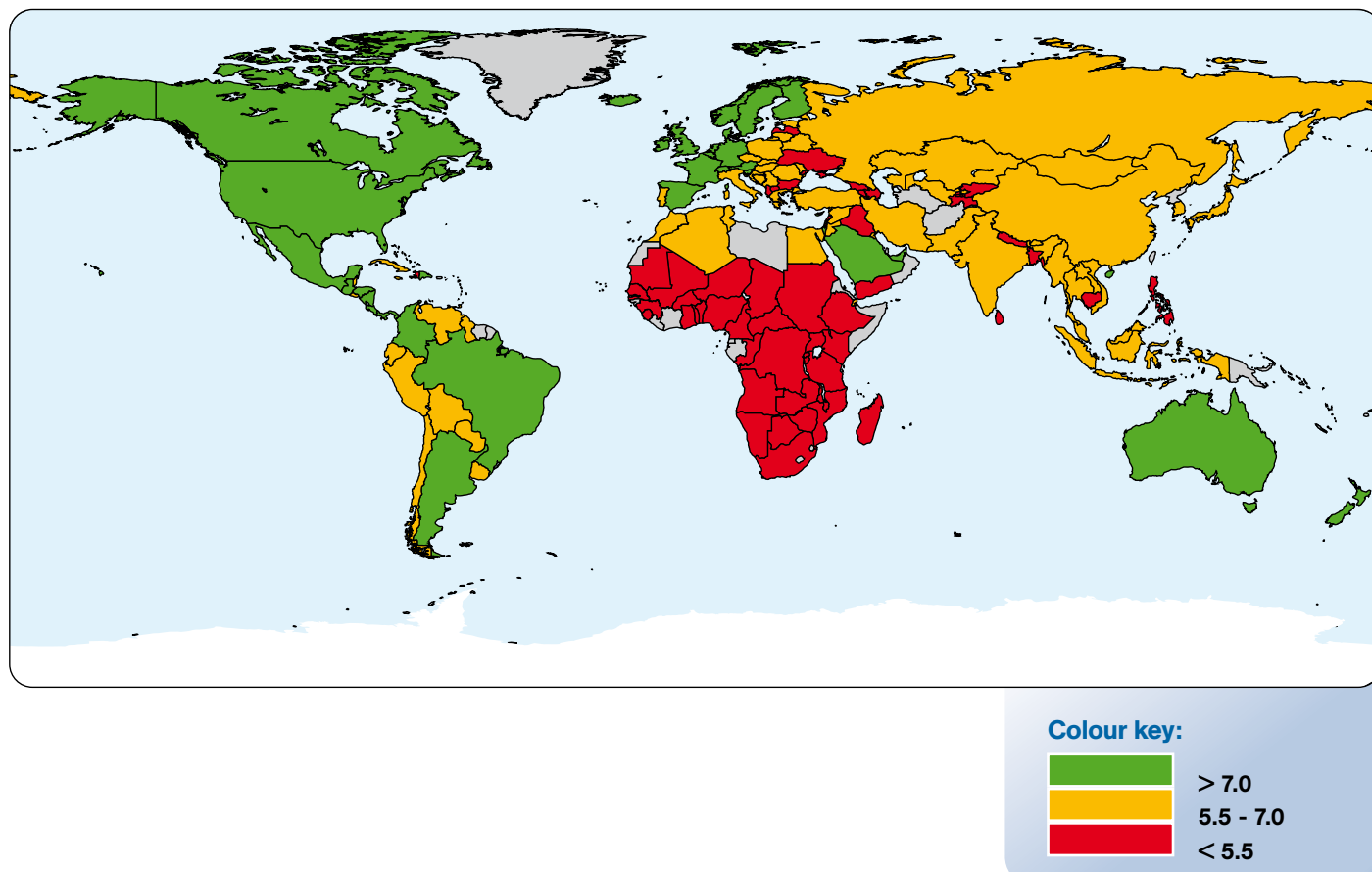
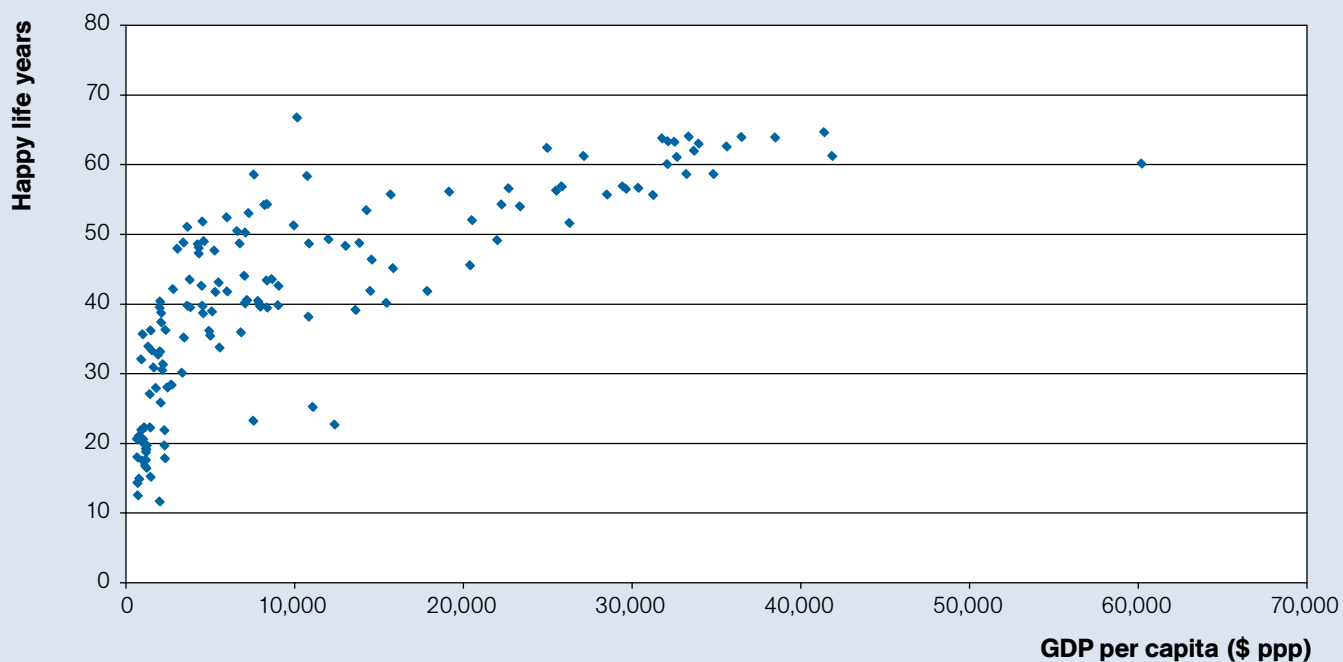


Figure 6: Scatter plot of happy life years vs. GDP per capita, by country



So, do richer countries have higher well-being? The answer, as can be seen in Figure 6, is a resounding ‘yes, *but...*’. Whilst the poorest countries tend to have the lowest well-being, the figure reveals a clear pattern of diminishing returns. The most important gains in terms of both life expectancy and life satisfaction occur over the first £10,000 of GDP distribution – beyond that there is little systematic difference between nations. It also reveals some substantial exceptions:

- The country with the highest happy life years (Costa Rica) has a GDP per capita one-quarter of that in the USA.
- Of the top 35 countries in terms of happy life years, five are in Latin America.
- Outside the Latin world, other countries that enjoy relatively high levels of happy life years include Malaysia, Vietnam and indeed China – all of which do better on this indicator than, for instance, relatively prosperous Portugal.¹⁰⁸



Ecological footprint

To achieve one-planet living, a country must keep its ecological footprint below the level that corresponds to its fair share given the world's current biocapacity and population – 2.1 global hectares (or gha) in 2005. In today's resource-intensive economy it should not be surprising that ecological footprint is tightly correlated with per capita income.¹⁰⁹ The poorest countries, such as Malawi, Haiti and Bangladesh, have the smallest per capita footprints. The richest country that achieves one-planet living is Trinidad and Tobago, with a GDP per capita of \$14,603. Most richer countries have bigger per capita footprints. The largest are those of Luxembourg (10.2 gha), the United Arab Emirates (9.5 gha) and the United States of America (9.4 gha). However, some richer countries do have *smaller* (if not small) Footprints. South Korea has a footprint of 3.7 gha. The Netherlands achieve the same level of happy life years as the USA, but with a footprint less than half the size (4.4 gha). Furthermore, some countries do achieve high levels of, for example, health, with very low footprints. For example, life expectancy in the Philippines is 71 years, only seven years less than that in the USA or Denmark – and yet the country's per capita footprint is only 0.9 gha. It is these outliers and exceptions that the HPI brings to the fore.

Of course, as has already been noted, the ecological footprint does not measure everything, and a country achieving one-planet living according to it may well not be living in perfect harmony with the environment – for example, it could be emitting toxic air pollutants, consuming too many non-renewable resources such as metals, or degrading its soil. Furthermore, one-planet living defined as 2.1 gha leaves nothing behind for non-humans. Academics have suggested that we should be leaving 20–30 per cent of our ecosystems 'fallow' to allow them to function healthily.¹¹⁰

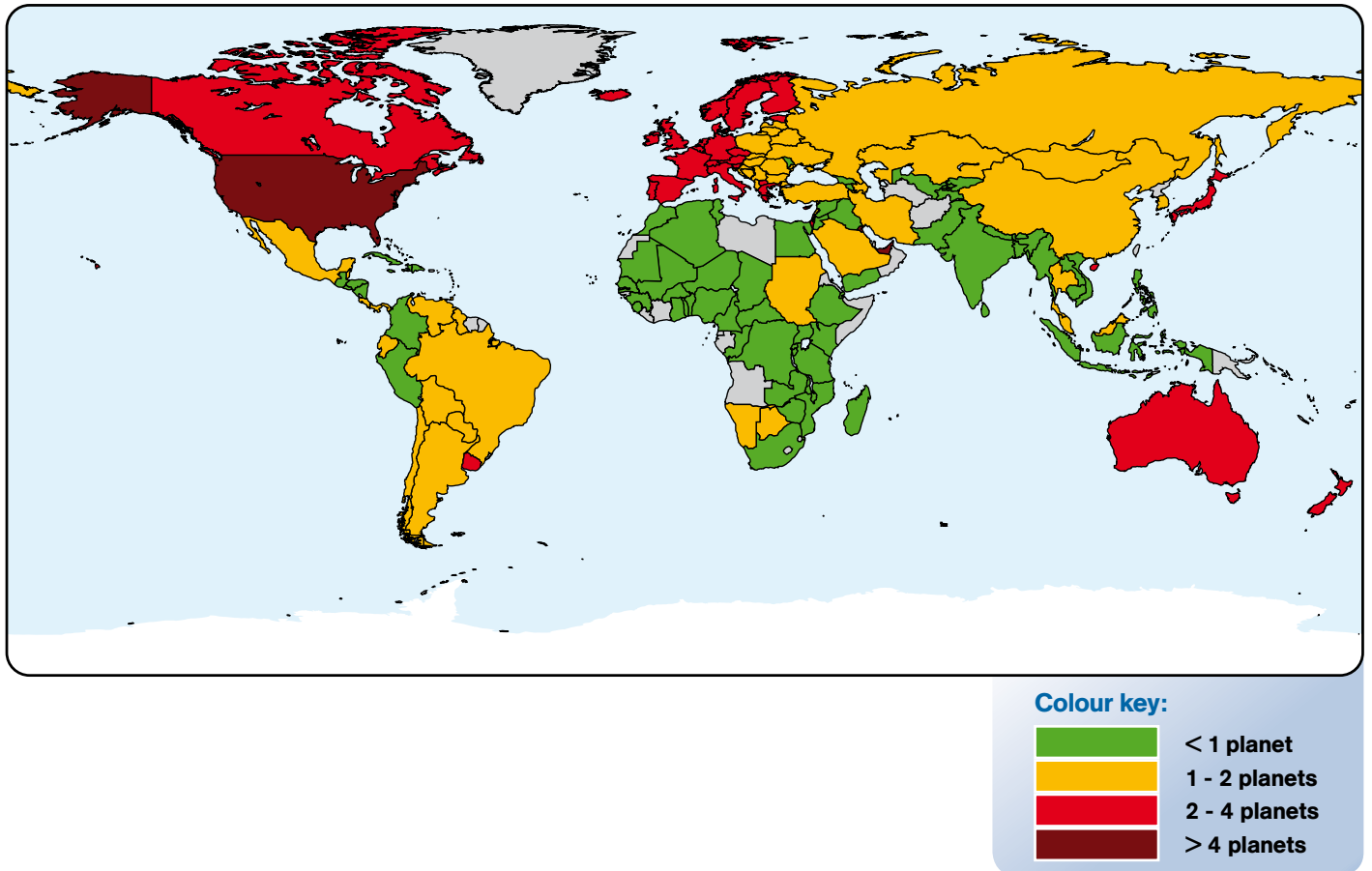
Box 1: What can you get from a global hectare?

You may be curious as to how a global hectare relates to your own life. A global hectare is the same as 10,000m². Based on calculations by the US NGO Redefining Progress, 1000m², one-tenth of a global hectare, can get you *one* of the following:¹¹¹

- 288kg of fruit and veg (9% above the US annual average per-head consumption)
- 20kg of cheese (35% above US annual average)
- 178 litres of milk (72% above US annual average)
- 8kg of beef (average US consumption over 15 weeks)
- 10kg of local only beef
- 7kg of fish (US annual average)
- 125 bottles of imported wine (three times US average)
- 350 330ml bottles of imported beer
- 990 pints of locally produced beer
- 18 medium chickens (1.6kg each)
- 258 baguettes (made from local wheat)
- 440kWh of electricity (based on mix of energy with 5% renewables; would cost £65, and is what average American uses in six weeks)
- A 10-mile round-trip city commute by saloon car every working day for two months OR a round trip, by car, from London to Newcastle.
- A desktop computer with a 20" screen, keyboard and small deskjet printer, but not the energy to run it.

To achieve one planet living under current trade, economic and energy production systems, each individual would need to restrict themselves to a total of 21 such portions of consumption per year. Of course, with more locally produced food and goods, and more renewable energy generation, each individual could consume more.

Figure 7: Ecological footprint worldwide



It should be noted that older versions of the ecological footprint calculations estimated worldwide biocapacity per capita to be 1.8 gha (less than the 2.1 gha calculated using the new methodology). However, the improved methodology has also led to estimates of per capita footprints increasing by a similar amount, meaning that as a planet, we are still using approximately 30 per cent more resources than is sustainable.

Hitting three targets

There is an undeniable tension held within the HPI, between the numerator (happy life years) and the denominator (ecological footprint). On the whole, although we have already seen important exceptions, the two grow hand-in-hand. Particularly low or high HPI scores emerge when a country deviates from this overall pattern.

To unpick the story in a little more detail, we have developed a system of traffic lights to present the data in the HPI in a slightly different way. Each component for each country is categorised as 'good' (green), 'middling' (amber) or 'bad' (red) as shown in Table 1 (a fourth category of 'blood red' is included for extremely high footprints).¹¹² The results tables (see inside back cover) use these colours. As well as colours for each separate component, one overall colour on a six-colour traffic light is determined based on the algorithm shown in the Happy Planet Map key (Figure 10, also see table on inside back cover).

Table 1. Traffic light thresholds for three components

	Blood Red	Red	Amber	Green
Life expectancy		< 60 years	60 – 75 years	> 75 years
Life satisfaction		< 5.5	5.5 – 7.0	> 7.0
Ecological footprint	> 4 planets	2 – 4 planets	1 – 2 planets	< 1 planet

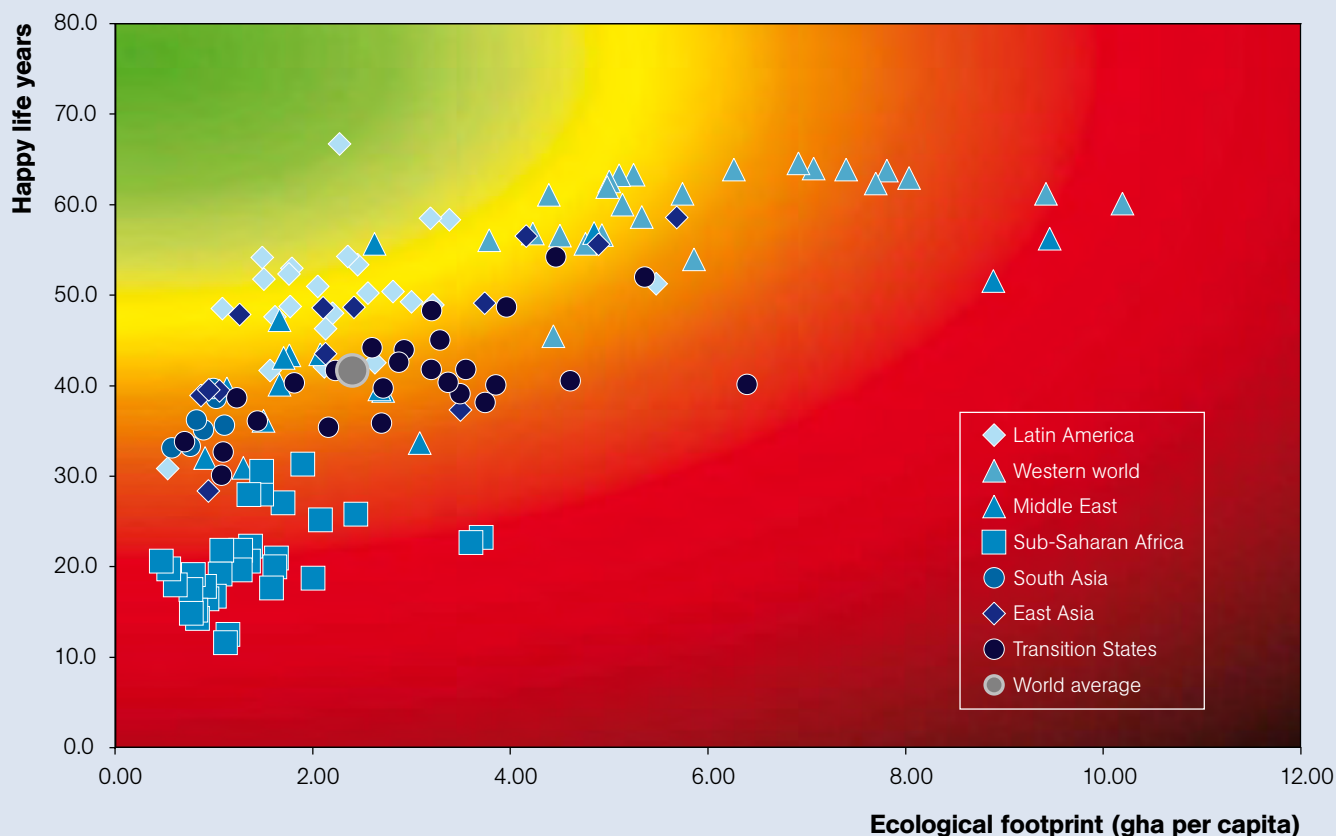
Presenting the data in this way does something very useful – it addresses the issue of unsatisfactory trade-offs. When different measures are combined into a single score, there is the possibility that poor performance on one may be compensated for by good performance on another. In some cases, this might be reasonable. But sometimes, it is undesirable. Suppose India were to adopt policies that lead to a decrease of its footprint from 0.9 gha to 0.5 gha, but suffer a 5-year loss of life expectancy (from 63.7 years to 58.7 years). The result would be a higher HPI score. Intuitively, however, this seems to be a poor policy choice. The country is already easily living within its ecological limits so reducing its footprint is not a priority. Instead, increasing life expectancy and life satisfaction are more important, even if this does result in slight increases in footprint. Figure 8 shows graphically how different countries manage the trade-off between well-being and resource consumption.

The traffic light system imposes thresholds on each of the three components. It insists on certain levels of life satisfaction and life expectancy, as well as one-planet living. Failure to achieve any of these criteria ensures that a country will not get three green lights, even if its overall score may be high. The traffic light system is therefore not agnostic with regards to the trade-offs a country makes between components. In the example above, India's overall colour would shift from yellow to dark orange were it to adopt such policies. By contrast, if it were to increase average life expectancy to 75 years whilst its footprint grew to reach one-planet living (2.1 gha), its overall colour would shift to light green despite its HPI score going down.

The fact that different stories are told depending on the approach used (either total scores or colours) is inevitable given we are dealing with three targets. It shows that, whilst the HPI score is useful, we also need to consider the three components in their own right. Appendix 1 considers some of the other issues faced in creating so-called 'composite indicators' such as the HPI.

Beyond the complexity of the relationships between the components, the simplicity of overall HPI scores reveals some powerful and important messages. It is to these scores that we now turn.

Figure 8: The green target. Happy life years and ecological footprint for 143 countries, and world average



6. A happy planet?

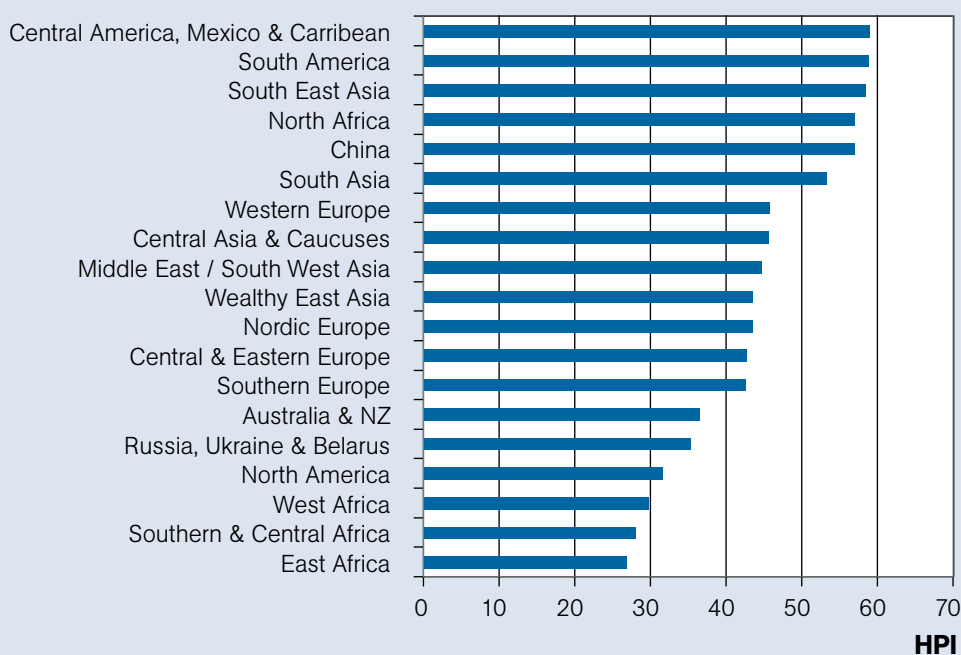
A happy planet? Perhaps not. Looking at the world's population as a whole, mean life expectancy is just 68.3 years, life satisfaction is only 6.1 and we are overshooting our ecological limits with a mean footprint of 2.4 gha. The planet's overall HPI score of 49 out of 100 reflects the fact that humanity as a whole has much to change if we are to live long, happy lives that do not cost the Earth.

While many countries do get closer to the target of high happy life years and low footprint, there are many parts of the world which still have a long way to go. The map (Figure 10) and table on the inside back cover reveal two very different regions as being particularly far from sustainable well-being, but for different reasons. Sub-Saharan Africa, where the highest score is 40.4 (Djibouti) and all but three countries emerge in red, is known for having many problems. The three countries at the bottom of the table (Botswana 20.8, Tanzania 17.8, and Zimbabwe 16.6) have all seen declining health over the last 15 years. More surprising perhaps, is the other large red region – the USA. Here, high well-being cannot make up for a disproportionately large ecological footprint – consuming resources as if we had 4.5 planets to sustain us. As a result, the US's HPI score is 30.7, and it ranks 114th out of 143 countries worldwide.

Europe and the rest of the rich developed world do not do much better as a whole. The highest score in Western Europe (the Netherlands 50.6) is only just above the global average. Most countries appear on the map in orange – as a result of their large footprints. Central and Eastern European countries also score poorly overall, due not only to unsustainable footprints, but also to low levels of life satisfaction and mediocre levels of life expectancy.

Higher HPI scores are found as one looks in-between the extremes of the poorest and richest countries. As shown in Figure 9, the two top sub-regions are those of Latin America.¹¹³ Here, levels of life satisfaction and life expectancy

Figure 9: HPI by sub-region



are high (perhaps surprisingly high to people from rich nations accustomed to regarding the global South as a den of misery and disease). The two sub-regions boast ten countries with levels of life expectancy higher than certain EU members (Hungary and Estonia), many of them much poorer and with significantly smaller ecological footprints. As we have noted, some of the highest figures for life satisfaction are also found in this region – Costa Rica's figure of 8.5 standing out particularly. Other sub-regions that do reasonably well are South East Asia and North Africa.

The HPI is still only as good as the raw data it is based on, and so it is worth being careful in interpreting the small differences between individual countries. More can be learnt from looking at the generally larger differences between groups of countries. Having said that, a glance at the top of the table offers some clues as to what sustainable well-being might involve.

Countries at the top of the HPI

1st place: Costa Rica **Life sat: 8.5** **Life exp: 78.5 years** **Footprint: 2.3** **HPI: 76.1**

With the highest levels of reported life satisfaction, and the highest happy life years – Costa Rica stands out in the HPI even before considering its ecological footprint. It has the fifth-lowest human poverty index in the developing world, and the proportion of people living on less than \$2-a-day is lower than in Romania – an EU member.¹¹⁴ What makes these results even more remarkable is that it achieves this with a quarter of the footprint of the USA.

This is no matter of chance. Costa Rica, a haven of democracy and peace in turbulent Central America, has taken very deliberate steps to reduce its environmental impact. Unique in the world for having combined its ministries of energy and the environment back in the 1970s,¹¹⁵ a staggering 99 per cent of its energy comes from renewable sources.¹¹⁶ In 1997, a carbon tax was introduced on emissions – with the funds gained being used to pay indigenous communities to protect their surrounding forests. Deforestation has been reversed, and forests cover twice as much land as 20 years ago. In 2007, the Costa Rican Government declared that it intended to become carbon neutral by 2021. As a result of these huge steps, Costa Rica has risen up the ranks of Yale University's Environmental Performance Indicator, from 15th in the world in 2006 to 5th in 2008, the highest position outside Europe.¹¹⁷

Professor Mariano Rojas, a Costa Rican economist at the Latin American Faculty of Social Sciences in Mexico, is unsurprised by his country's performance and adds a few further explanations:

- The abolition of the country's army in 1949, freeing up government money to spend on social programmes.
- Solid social networks of friends, families and neighbourhoods, allowed by a sensible work-life balance.
- Rich natural capital.
- Equal treatment of women.
- Strong political participation.

Costa Rica is not heaven. Its welfare state, one of the most developed outside Scandinavia, must deal with an economic system that produces high levels of inequality, and almost 10 per cent of the population live on under \$2- a-day. Clean water and adult literacy are *almost* universal, but not quite. And, whilst we wait with bated breath to see if Costa Rica really does move towards being carbon neutral in forthcoming HPIs, its current ecological footprint is still eight per cent above the one-planet living threshold.

2nd place: Dominican Republic **Life sat: 7.6** **Life exp: 71.5 years** **Footprint: 1.5** **HPI: 71.5**

The third-most populous country in the Caribbean and Central America, behind Guatemala and Cuba, the Dominican Republic was where Christopher Columbus set up the first permanent European settlement in the New World. It is a diverse country, with 73 per cent of the population being of mixed ethnicity.

Whilst the Dominican Republic's condition is similar to many other countries in the region – a medium score in the Human Development Index, dependence on the USA for trade, relatively high life expectancy given its income levels and, high levels of inequality – unlike many of its neighbours it manages to achieve a life expectancy of over 70 years with a very small footprint.

It is tempting to consider whether its small footprint has anything to do with the country having led the way in

environmental conservation in Latin America since the 1970s; 32 per cent of the Republic is covered by national parks and reserves – the highest proportion in the Americas. This coverage stems from the presidencies of Joaquín Balaguer, who was a key figure in the nation's politics for the entire second half of the twentieth century. His motivations were unclear, and his methods were certainly not ones to advocate, but his iron fist was responsible for halting logging in the country, preventing urban build-up in natural parks and raising the profile of the environment in national politics.¹¹⁸

As politics in the Dominican Republic have become more democratic, local NGOs have begun to flourish. Whereas most environmental NGOs in many developing countries tend to be imports from the rich world, here local groups dominate.

3rd place: Jamaica **Life sat: 6.7** **Life exp: 72.2 years** **Footprint: 1.1** **HPI: 70.1**

Jamaica's appearance in the top three of the HPI table comes somewhat as a surprise. It is fair to say that the country has been in some economic trouble for over 30 years, resulting in high levels of inequality and unemployment, and some of the highest homicide rates in the world. Moderate levels of life satisfaction perhaps reflect this reality.

And yet, despite these problems, the island is able to maintain some of the best levels of health in the developing world, as indicated by its high average life expectancy. Together with its very small ecological footprint, it is this which puts Jamaica towards the top of the HPI table.

In his book *Poverty and life expectancy: the Jamaica paradox*, American historian Professor James Riley traces the roots of the island's good health.¹¹⁹ He finds that gains in life expectancy began to be made in the 1920s, as the British imperial apparatus began to pull out of the island, and continued for 50 years. What is notable is that these gains were made regardless of economic growth. For example, between 1920 and 1950, life expectancy increased from 36 years to 55

years, despite stagnant GDP growth. He attributes the progress to well-targeted low-cost government solutions such as good sanitation and public awareness campaigns. As a result, most Jamaicans have access to improved water – unusual in a county with a GDP per capita one-tenth that of the USA. Also of note are the conditions around childbirth in the country: 97 per cent of babies are born with the assistance of skilled health professionals, and only four per cent of children are underweight – a figure comparable to richer nations such as Argentina. Lastly, it is worth noting that, despite high inequality, Jamaica is able to ensure that few people fall in the most extreme poverty bracket. The proportion of people living on under \$1-a-day is less than in richer countries such as Costa Rica, Argentina or Turkey.¹²⁰

With regards to its ecological footprint, Jamaica is starting to move towards renewable energy sources. The Wigton Wind Farm, constructed in 2004, provides 63GWh per year of electricity.¹²¹ Currently, approximately five per cent of its energy requirements are met from renewable sources – a low figure but roughly the same as that of the UK.

Pura Vida

Latin America. Let's not beat about the bush. The region has had, and continues to have, its fair share of misery: decades of civil wars and coups, the destruction of the Amazon, sharp inequality, and the favelas and slums of metropolises from Mexico City to Sao Paulo. For some, the region represents a sad tale of lost opportunity. In 1900, Chile, Argentina and Mexico all had higher per capita GDPs than Japan. Even Colombia's GDP per capita was only half that of Italy's or Norway's (nowadays it is behind by factors of four and six respectively). But, while Italy, Norway and Japan have all strengthened into rich and relatively equal societies, Latin American countries have, for the most part, fallen down the list of the richest countries.

And yet, the top two sub-regions in terms of the HPI are those of Latin America. What sense can we make of this success? Are Latin Americans as happy as they say they are? And what, if anything, can the rest of the world learn from Latin America?

Survey data reveals two key features of Latin American culture. One is the presence of relatively unmaterialistic aspirations and values, compared to countries with similar economic conditions.¹²² Latin Americans report being much less concerned with material issues than, for example, they are with their friends and family. Secondly, social capital is particularly strong in the region. Civil society is very active, from religious groups to workers' groups to environmental groups. The data on 'formal' social capital is reflected in anecdotal evidence of informal social capital in terms of strong family and community ties.

We have already seen, in Chapter 3, how these two factors – non-material aspirations and social relations – are crucial to well-being. In Latin America, they combine to create a society that is able to rise above economic hardships, whilst drawing great benefit from its social links. It is worth noting that, despite a poor economic record in terms of average income and an even poorer record in terms of inequality, Latin America still enjoys levels of health that are close to those of Central Europe and often superior to Eastern Europe. As well as reasonable state provision in many countries (e.g., in Colombia almost half of the country's 44 million people enjoy free public health care), this is likely to be in part due to strong social networks forming a safety net for those who are less fortunate.

Some have mocked the high levels of reported life satisfaction in Latin American countries as belying a lack of knowledge of anything better (i.e. Western lifestyles). On the contrary, Latin America is perhaps more exposed to North American culture than anywhere else in the developing world. Yet somehow it has been more resitant to idolising this lifestyle, or at least more able to be happy with its own way of life despite this influence. *Pura vida* is a popular expression in Costa Rica which is used somewhat like the English term 'cool'. It translates literally as 'pure life' and represents in itself an attitude to what is important.

Whether this satisfaction is well-founded or not, it may have played a vital role in Latin America's history. In her book *Positivity*, Professor Barbara Frederickson talks about how positive emotions tend to provide positive feedback and enable people to flourish and build resilience to future challenges.¹²³ Perhaps this explains why Latin America, despite its chequered history, is now able to boast functioning democracies in most countries.

Indeed, Latin America is currently enjoying a renaissance of civic engagement. Around the continent, people are engaging with democracy more, and, in 2007, only three countries were in the bottom-third of the worldwide distribution for the World Bank's Voice & Accountability indicator.¹²⁴ In two of these three cases, there are strong arguments for believing that these low scores merely reflect how voice has been defined narrowly in this indicator.^{125,126} New participative forms of democracy, such as participatory budgeting, and local action groups are springing up across the region.¹²⁷ The writer Roy Madron is currently working on a book entitled *Can Latin America save the world?* where he highlights the promise of these new approaches for dealing with global problems of climate change and social justice.¹²⁸

Moving from matters social to environmental, Latin America's small per capita footprints are not just 'par for the course' for developing countries. The footprints of many of these countries, from Argentina to Mexico, are less than what would be expected given their levels of GDP.¹²⁹ The region has implemented many pro-environmental solutions that richer countries have balked at. Colombia has its own 'green constitution'. We have already mentioned Costa Rica's almost complete elimination of fossil fuels for electricity production. Brazil is the second-largest producer of hydroelectric power worldwide; 70 per cent of Colombia's energy is produced in this way. Mexico is the third-largest producer

of geothermal energy. Overall, in 2004, 24.8 per cent of Latin America's electricity came from renewable energy.¹³⁰ By comparison, in the EU, at that time, the total was only 13.7 per cent.¹³¹

Democratic developing nations like these, with populations clamouring for improved living standards, stand at a juncture. Either they will attempt to follow the West onto a path of high consumption, and the high environmental impact and erosion of social capital that seem inexorably to accompany it. Or they will recognise the inherent unsustainability of such a development path and attempt to value the assets they have in terms of natural and social capital, and explore how to preserve their low footprints while improving the quality of life for their poor.

In the following chapter we highlight how two giant developing countries – Brazil and China – appear to have moved in different directions from this critical crossroads.

Three colours green

Sadly not in 2005. No country achieved green on all three components. Even Costa Rica failed to do so, given that its footprint is slightly above one-planet living. The Dominican Republic and Jamaica, in second and third places, both fail to achieve the life expectancy threshold of 75 years. In other words, no country can be complacent – all have work to do to achieve sustainable well-being.

Box 2: A sense of proportion

In the original HPI report we noted a striking number of small islands amongst the highest-scoring countries. This time round, we have excluded many small island nations from the calculations due to a lack of quality data. However, the same pattern still appears to hold amongst those that are included. Half of the ten small island nations included in the HPI this year are in the top 20 per cent of the HPI rankings. Only one of the remaining five is not in the top-half of the rankings.¹³²

Statistical tests reveal the mean life satisfaction, life expectancy and HPI scores of small islands to be significantly higher than non-islands – whilst their income levels do not diverge in the same way.¹³³ These results should come as no surprise to anyone who has read Karl Polanyi's increasingly popular, classic work *The great transformation*. In it he presents various types of social and economic organisation on islands as evidence against some of Adam Smith's more sweeping assumptions on the central role of markets.¹³⁴ Complex forms of 'gift exchange,' in which people partly meet their needs not through markets mediated with cash, but through the giving and receiving of gifts, operated over vast areas, reveal a system that not only meets people's needs in a challenging environment but bonds society together by emphasising economic relationships based on cooperation and reciprocity, rather than individualistic competition.

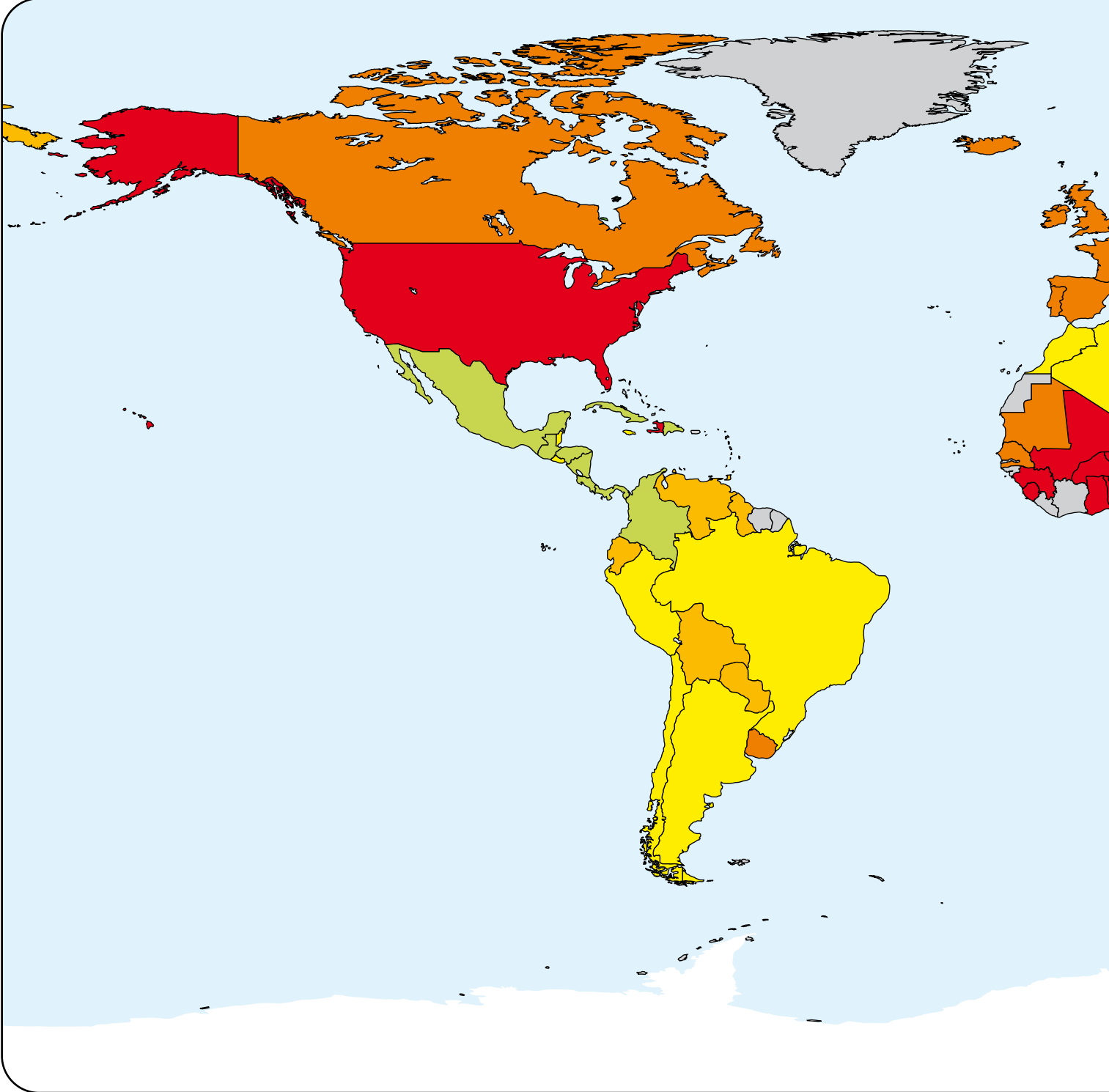
The negative experiences of some remote small islands, such as the iconic history of Easter Island described in Chapter 5, delivers a clear warning of the dangers of transgressing natural limits. But the remarkable survival and relative success of others suggests that more immediate contact with, and hence a greater awareness of physical limits (reminders are everywhere on small islands), can successfully encourage ecological efficiency.

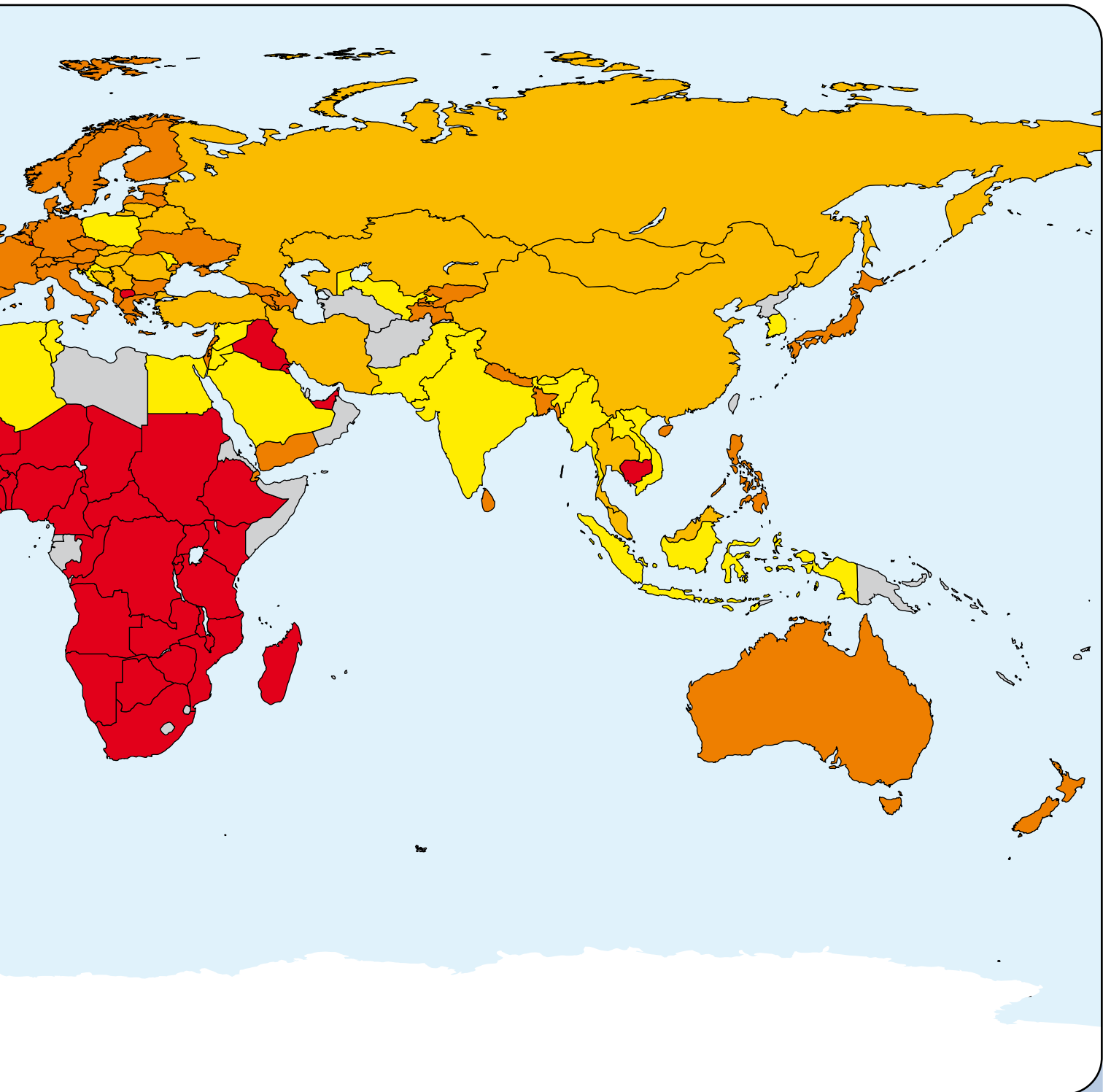
Yet, ironically, these havens of ecological efficiency are also often the places which are most vulnerable to ecological disaster. The prospect of 'climate refugees' has become a reality on the Carterets in the Pacific, where climate change is already making some land uninhabitable, leading to forced displacement of local people. Reluctantly, the people of another low-lying island nation, Tuvalu, have negotiated a long-term plan with New Zealand to relocate its people as and when necessary, as global warming worsens.

This vulnerability has pushed small island nations to the forefront of the battle to combat global warming. In August 2008, the Pacific Islands Forum, aware of the threat of rising sea levels endorsed a Climate Change Declaration. In March 2009, the President of the Maldives announced his nation's intention to go carbon neutral by 2020. The plan is ambitious and will require investment to the tune of \$110 million. However, it states that by freeing itself of its dependence on oil imports, the Maldives will have made back that money within only 11 years.

Andrew Simms is Policy Director at nef

Figure 10: A map of the world colour-coded by HPI





Colour key:

All 3 components good

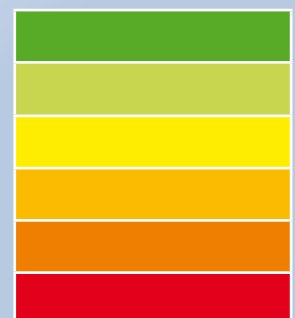
2 components good, 1 middling

1 component good and 2 middling

3 components middling

Any with 1 component poor

2 components poor, or 'blood red' footprint



7. Progress or regress?

The previous chapter revealed a world that is far from sustainable well-being. Few nations are achieving one-planet living – consuming their fair share of the world’s resources – and none are doing so whilst maintaining good levels of well-being. Significant progress needs to be made if we are to attain a world of high well-being that does not cost the Earth.

In this chapter we shall determine which direction we have been moving in so far. Political figures and business leaders keen to demonstrate their green credentials have highlighted the process of ‘decoupling’. For example, globally, we now produce 38 per cent less CO₂ emissions per dollar of economic activity than we did in 1960.¹³⁵ In their terms we have been getting more ecologically efficient. However, these measures exclusively focus on the ecological efficiency of generating *economic growth*. As we have seen in Chapter 2, economic growth is only one part of the well-being jigsaw. To truly understand changes in ecological efficiency, we need to look at how the HPI has changed over time, thus assessing how much *well-being* is achieved per unit of environmental cost.¹³⁶

We carried out two exercises. First, we took 36 major countries for which we have data on life satisfaction from a single survey over three different time points – 1990, 2000 and 2005 – to see how they are faring.¹³⁷ Note that this is a better way of comparing over time than looking back at the first HPI, which used different data sources. Secondly, we attempted to trace back progress from 1961 for 25 nations currently in OECD. The picture that emerges is somewhat mixed. Whilst gains in HPI have been seen in many countries over the last 15 years, the largest countries of the world have all seen decreases. Also, based on the available

Figure 11: Ecological footprint and happy life year trajectories over time for selected countries and regions

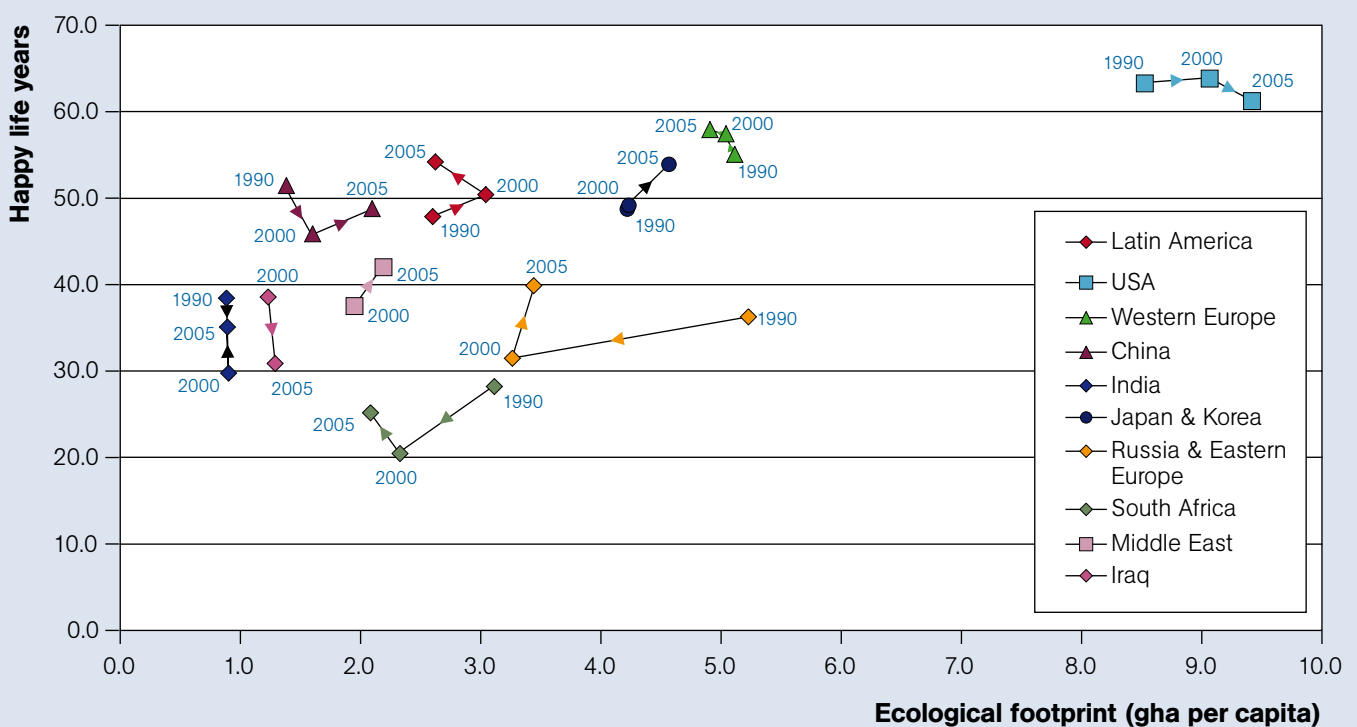


Table 2. HPI scores over time for selected countries and regions

	1990	2000	2005
Latin America	51.6	51.6	58.3
USA	34.2	33.0	30.7
Western Europe	42.1	44.4	45.3
China	68.8	59.1	57.1
India	58.1	44.7	53.0
Japan and Korea	41.9	41.7	43.6
Russia and Eastern Europe	27.3	30.7	37.7
South Africa	28.0	23.1	29.7
Middle East		46.1	49.3
Iraq		53.9	42.6

data back to 1961 (and estimates where this is patchy), it appears that developed nations have become substantially *less* efficient in supporting well-being. In other words, whilst we have become more efficient at producing GDP, we may be further from sustainable well-being now than we were 45 years ago.

Between 2000 and 2005, the HPI scores of the countries for which we have data increased by an average of seven per cent (Figure 11, Table 2). Over the full period between 1990 and 2005, the average increase was 11 per cent.¹³⁸ However, these averages hide a range of different patterns; 25 out of the 36 countries saw HPI gains up to 2005. These gains were predominantly seen in Latin America, the former Communist countries, the Middle East and, to a lesser extent in South East Asia and Western Europe. However, the three biggest countries in the world, China, India and the USA, all suffered decreases in HPI, as did some other wealthy nations. The biggest fall was seen in Iraq – which experienced a decrease of 21 per cent between 2000 and 2005.

Does economic growth have anything to do with these changes – do countries with the fastest growing economies improve HPI scores the most? No. If anything, there is actually a *negative* correlation between GDP growth and change in HPI scores between 1990 and 2005.¹³⁹ Contrast China, whose GDP per capita has almost tripled in the 15 years between 1990 and 2005, with Brazil, whose GDP per capita has risen at a far more leisurely rate, leading to a 17 per cent increase in HPI scores over 15 years. Meanwhile, however, life expectancy in Brazil has increased at twice the rate it has in China. Average life satisfaction, falling in China between 1990 and 2005, has risen slightly in Brazil. Box 3 explores why this may be the case.¹⁴⁰ Most dramatically, the countries' ecological footprints have rushed in different directions. This is unsurprising if we consider that more than half of Brazil's electricity is produced from hydroelectric power, whilst China is alleged to be building as many as two new coal-powered power stations every week.¹⁴¹

Box 3: Unhappy China?

A recent bestseller in China is a book called *Unhappy China*.¹⁴⁶ It is an angry, nationalist polemic that many in the country would disagree with, but its title might resonate with more. The death of Maoism as a semi-religious ideology has left a vacuum of belief that some would argue has been filled by a faith in money. Others still have turned to more conventional religions; there are now more Christians in China than Communist Party members.

Despite the many benefits of the move to a market economy, including soaring GDP and much poverty reduction, many people have felt sharply the downsides of rapid growth. In the Reform Era, China changed very rapidly from being one of the most materially equal societies to one of the most unequal, with a huge rural/urban divide. The gap between rich and poor in China is now greater than it has ever been. The urban middle class has grown and enjoys a greater disposable income than in the past. However, without the safety net they previously enjoyed many feel vulnerable to inflation, illness and job loss.

Internal migration has helped to fuel much of China's rapid urbanisation: construction and domestic services, for instance, have relied on the informal economy that migration from the countryside provides. For some, this movement has reconfigured identities in positive ways; many young women have found the move to the cities highly empowering. However, the 'floating population' in the cities often live in poor conditions without social benefits, and some are mistreated severely by employers. Back in the countryside, villages almost entirely populated by children and the elderly are left behind, rupturing their social fabric.

There is a sense of disquiet felt by many about China's growing inequality, and there is great anger about widespread corruption. A lot of Chinese people express strong support for the central government, but undisguised anger about the arbitrary use of power by local officials, who are often seen to be motivated by little more than personal gain.

Perhaps most striking are the severe environmental problems caused by China's breakneck growth. Twenty of the world's 30 most polluted cities are in China. A serious water contamination incident occurs once every two to three days, with more than 70 per cent of the country's waterways polluted. In China there is increasing consciousness of pollution, and many express great concern about its health consequences. In some rural areas, very high incidences of cancer have been attributed to water pollution. Food contamination scandals are seen to highlight failures of oversight and continued corruption. Many people now worry about the country's ability to cope with a changing climate: northern China is suffering its worst drought in half a century; in 2008, the country's infrastructure was crippled by snowstorms. Building a more resilient China may be an important part of constructing a happy China.

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Lost efficiency

If progress over the last 15 years has been disappointing, trends over the last 45 years are more disturbing. OECD was set up in the aftermath of World War II to help in the reconstruction of Europe and other regions devastated by the war. Currently it represents thirty of the richest nations of the world. Traditionally, a strong proponent of economic growth,¹⁴² it is the unexpected but welcome locus for a new project on *Measuring the progress of societies*, launched in 2007 with the aim of reconsidering how progress is assessed worldwide.¹⁴³

OECD members would do well to take stock of how they have progressed over the last 45 years. We calculated HPI scores for 19 of the 20 original OECD members back to 1961, as well as an average for these 19 countries as a whole (Figure 12).¹⁴⁴ As early as 1961, these countries were consuming more resources than what would currently allow for one planet living – the average ecological footprint was 4 gha.¹⁴⁵ Only Italy was living on less than the current fair share of 2.1 gha.

However, based on the HPI, they were considerably more efficient at achieving well-being in 1961 than they were in 2005. Whilst happy life years have increased by 15 per cent over the 45-year period, per capita ecological footprints have increased by 72 per cent – combined this has led to a drop of HPI from 43.1 points to 35.7 (a drop of 17 per cent).

Figure 12: Happy life years, ecological footprint and HPI over time for OECD nations

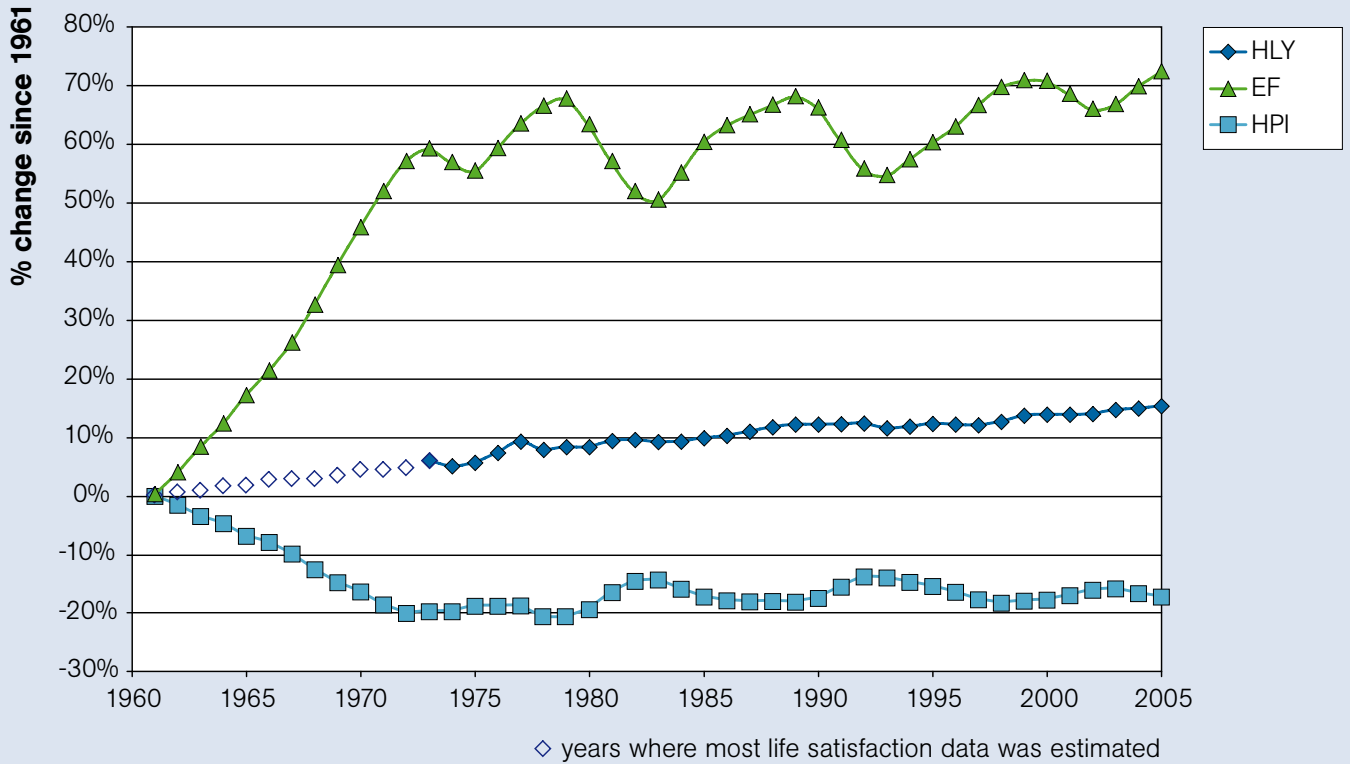
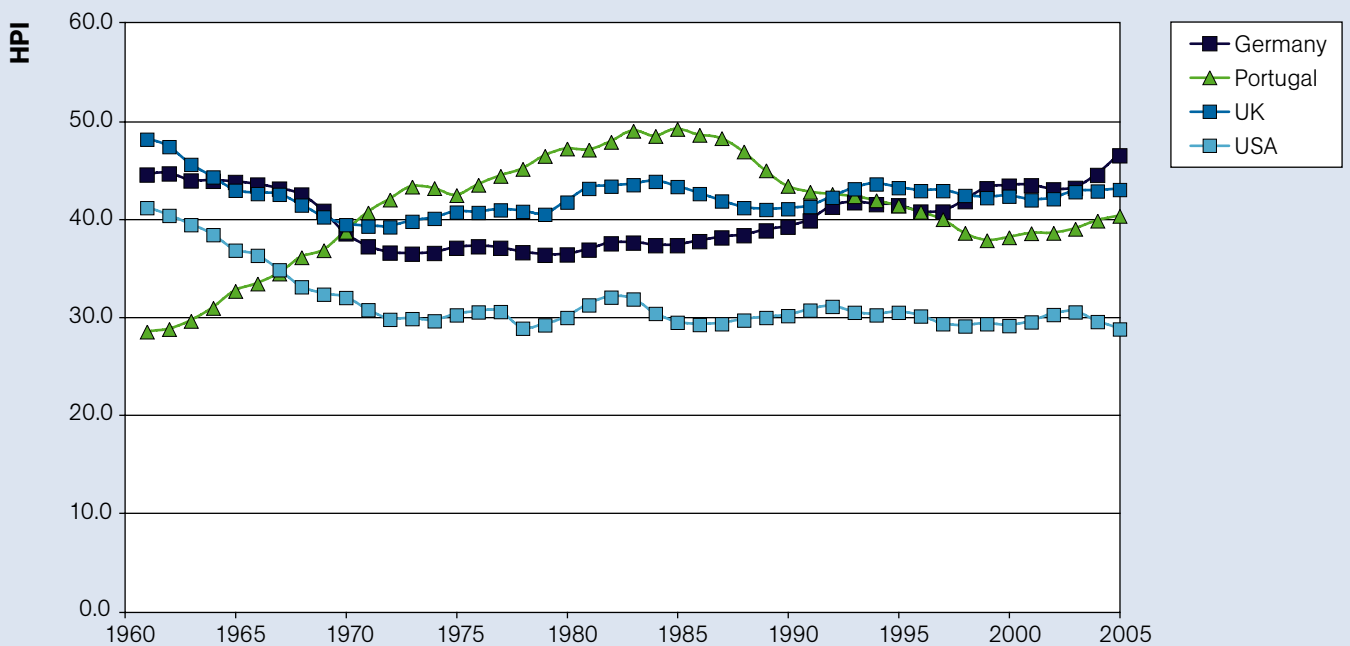


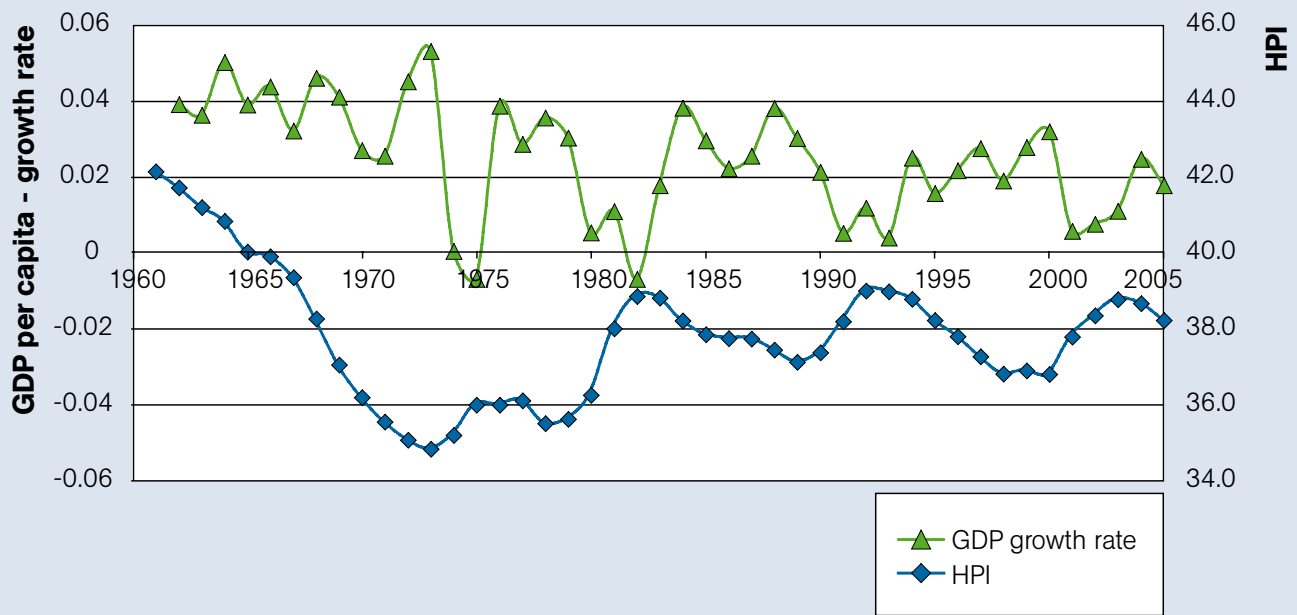
Figure 13: HPI over time for selected OECD countries



It is fair to say that this decline has not been universal. The UK's HPI score only dropped 11 per cent. Germany's HPI score has *increased* by four per cent, Portugal's by 42 per cent. The greatest driving factor in the lost efficiency appears to be the USA's plummeting HPI score – falling 30 per cent during the 45-year period (see Figure 13).

Also, the decline has not been continuous. The greatest declines in HPI occurred right at the beginning of the time period in question, in the 1960s. Between 1961 and 1971, the average per capita footprint for the 19 countries increased by 52 per cent – from 4.0 gha to 6.0 gha. Meanwhile, well-being, measured in

Figure 14: HPI and GDP growth rate over time for OECD nations



happy life years, only increased a mediocre 4 per cent, from 49.2 years to 51.4 years. By 1978, the group's mean HPI score was at its lowest point – 34.2. The following 25 years *have* seen marginal gains in HPI, but these have been erratic and driven somewhat by economic cycles – with the HPI score lowest during economic boom periods (Figure 14). Furthermore, not all countries have seen these marginal gains. The USA's HPI score has continued to fall slightly, with no increase on the horizon.

These findings appear to demonstrate that the economic model of the leading developed nations of the world leads to ever *less* efficiency in terms of achieving high well-being with a low environmental cost. Ironically, it is when the economic system is doing best that our efficiency is lowest – evidence for sure that the motor has been fitted the wrong way round. Scanning across the 45 years of our time series and the 19 original OECD countries considered (as well as the six new OECD countries analysed – see endnote 142), there is no single example of a country achieving high well-being with a sustainable footprint. The closest any OECD nation came appears to be the Netherlands in 1961 (with an HPI score of 61.5 points). Based on our traffic light system, though, it would have only achieved one green light (for life satisfaction), with amber lights for an unsustainable footprint and a life expectancy below 75 years.

This analysis also offers some positive lessons. The second-highest HPI score across our time series, is one from 2004 – that of Mexico. Between 1961 and that year, its HPI score had increased by 31 per cent. Whilst the country's footprint did grow in that time, life expectancy and life satisfaction increased at a faster rate leading to increasing efficiency.¹⁴⁷

Also telling is the pattern for Germany. Until 1979, the country's pattern was similar to that of other rich Western nations, such as the USA and the UK. However, from that year onwards, Germany's footprint was reduced from 5.8 gha to 4.3 gha in 2005. Combined with continuing increases in life expectancy, this has led to the country's HPI score rising 28 per cent from 1979 to 2005. Sustainable well-being has not been achieved, but at least there's movement in the right direction.

8. Snapshots of a happier planet

A community in Scotland share ownership of a new wind farm with developers.¹⁴⁸ A 'Big Lunch' is arranged on streets across Britain to bring neighbours together.¹⁴⁹ A community in a council estate in Luton partners up with tea-growers in Southern India to ensure trade that is even fairer than fair trade.

Around the world hundreds of slow cities and transition towns spring up to ensure better, greener lives.¹⁵⁰ Bogota in Colombia gains a major new urban planning and transport programme entitled *Planning for Happiness* which amongst other things, provides the bustling metropolis with a bus rapid transport system, 300km of cycle paths and 100,000 trees.¹⁵¹ The President of the Maldives pledges that his country will be carbon neutral within a decade.

All around the world, individuals, communities and governments are taking the first steps towards a happier planet. Before looking at the bigger picture (which we will do in Chapter 9), we want to give up the stage so as to hear about just some of the inspiring solutions and ideas that are emerging. In this chapter we hear from Paul Cooke, Sustainability Officer at Caerphilly County Borough Council, Colin Beavan, aka *No Impact Man*, three practitioners working in the field of education for sustainable development, and **nef's** own climate change expert Dr Victoria Johnson, who explores low carbon solutions for developing countries. Lastly we also take a step beyond the HPI, to explore what measurement of well-being could look like with **nef's** *National Accounts of Well-Being*.



Caerphilly – Living better, using less

Sustainable development and well-being may not be the first things that spring to mind when one thinks of the Welsh Valleys. However, in March 2008, Caerphilly county borough, just north of Cardiff, became the first local authority in the UK to truly build well-being into its understanding of sustainable development, by approving its new Sustainable Development Strategy, *Living better, using less*. It took over 18 months to develop, and drew heavily on the thinking behind the HPI.

Caerphilly residents already have one of the lowest ecological footprints in the UK at 4.8 gha per person.¹⁵² However, this still means that they are each consuming 2½ times their fair share of the Earth's resources. A key aim of the new strategy is to enable the communities of the county borough to live longer, healthier, more fulfilled lives, in a sustainable way that breaks the link between wealth and resource consumption, and between resource consumption and fulfilled lives.

Living better, using less uses the HPI equation as a key element of explaining what the authority defines as sustainability.

$$\text{Living better, using less} = \frac{\text{Long, healthy lives} \times \text{Satisfied lives}}{\text{Resources consumed}}$$

This equation brings together three objectives, with targets for 2030 set to provide a framework within which shorter-term plans can sit. Each of the three targets is to be monitored using a headline indicator, modeled on the components of the HPI:

- 1. To promote longer healthier lives**, with a target of ensuring an average life expectancy for a resident, wherever they live in the county borough, of at least the UK national average by 2030.
- 2. To promote fulfilled and satisfied lives**, with a target of ensuring an average life satisfaction rating for a resident of the county borough of at least the UK national average by 2030.
- 3. To reduce resource consumption**, with a target of ensuring that the average ecological footprint for a resident of the county borough is 2.87 gha by 2030 (based on a target of one-planet living by 2050).

Additional indicators have also been identified to assess progress and to ensure that Caerphilly is moving in the right direction.

As part of the monitoring process, a survey of 6000 residents of the county borough is to be undertaken to establish definitive data on ecological footprint and life satisfaction. There is considerable variation across the county borough with 13 wards falling within the 100 most deprived wards in Wales, whilst some other areas, mainly in the south near the boundary with Cardiff, are relatively affluent.¹⁵³ The survey will identify patterns across the county borough. It is anticipated that the findings of the survey will help to inform future policy.

Caerphilly also commissioned from **nef** a report providing examples of policies and interventions that could be implemented at the county level to both reduce resource consumption, and promote fulfilled, satisfied and healthy lives. Based on this report, Caerphilly has started work on developing the following projects:

- Community gardens, which get people doing mild exercise, meeting others in their community, eating healthily, and reducing their reliance on imported food.¹⁵⁴
- Green gyms, as developed by the British Trust for Conservation Volunteers.¹⁵⁵ The idea is to get people out of energy-consuming indoor gyms and getting their exercise outdoors, in contact with nature, improving their local landscapes.
- A sustainable commissioning model, whereby the Council's approach to selecting service and goods suppliers will be based on a 'triple bottom line' including environmental and social impacts.¹⁵⁶

Paul Cooke is Team Leader for Sustainable Development and Living Environment at Caerphilly County Borough Council. For more information, see www.caerphilly.gov.uk/sustainable/english/home.html

Prioritising resource use to improve lives – an account from *No Impact Man*¹⁵⁷

I've thought a lot about the definition of waste. The way I figure it, a good way of defining waste is the use of planetary resources that don't improve quality of life. Instead of environmental effectiveness being based on the restrictive view that we should simply 'use less,' we should instead 'use well'. This offers the intersection of environmentalism and human aspiration.

Much of packaging, to take a simple example, offers no quality of life improvement. Nix it. The generation of electricity in a small sub-Saharan village where children can't yet read at night improves education. Do it.

To what extent do we – as individuals and as a culture – prioritise what really makes life worth living? How much time do we not spend with our kids or friends, for example, because we're trying to get rich so that we can later, um, have the leisure time to spend with our kids and our friends? How much time – and resources – do we spend on big houses or better cars when really we just want to watch the sunrise?

On a cultural level, then, how much effort is spent on economic throughput when what we want are strong communities full of people that have the time and inclination to support each other? How much effort do we expend on making sure we can all have a third TV when what we really want is a great education for our kids or great theatres for our adults?

Which brings me back to my original definition of waste. How many resources are we wasting – both as individuals and as a culture – on things that don't even improve our lives? If we made a rule of targeting resources only at things that delivered quality of life, we would end up automatically saving the planet.

Colin Beavan, No Impact Man

Colin's readers were asked to provide answers to the following question:

What could you change in your own personal life that would mean you get more of what you really think makes your life great and may, at the same time, save resources?

Here are a few of the answers he received:

'Growing more of my own food.' (Judith)

'Get rid of our television.' (Kelsey)

'Work a 4-day, 40-hour workweek and save one day of commuting. I'd also like to get a used bike and use it for errands around town.' (Christine)

'I find that if I keep the computer turned off at night, I'm more likely to relax with the lights dimmed and with a good book.' (dgross)

'I'm getting involved in starting an Earth Council in the town I live in (www.earthcouncils.org) so that I can both develop relationships with others in the community and work to make it both socially and environmentally sustainable. I'm very excited.' (Bethany)

'I have sold my car and begun taking public transit. It saves me around \$800/month and instead of driving to and from work for a little over an hour a day, I spend my time walking through my community or riding on the bus with a book in my hand or an interesting train of thought going through my head.' (Peter)

'Ride a bike or walk to and from work. I really enjoy being outdoors and being alone with few distractions on my commute (no radio, fan running, stupid drivers). I also hate driving.' (Brooke)

Access to energy and appropriate technology

It is inescapable that energy is fundamental for human development. One of the most important driving forces behind the industrial revolution was the tapping of coal to provide a ready source of energy.¹⁵⁸ Today, it is clear that the countries which have poor access to energy are unable to lift themselves out of poverty. No country consuming energy equivalent to less than 750kg of oil per year per capita achieves an average life expectancy of over 75 years.¹⁵⁹ The world's least developed countries consume on average energy equivalent to only 305kg of oil per year per capita.

Of course, there are several downsides to energy use, CO₂ emissions and the exhaustion of finite resources being just two of the major ones. Our reliance on fossil fuels is a historical anomaly – the energy stored in them and released in a geological instant has taken millions of years to build up. It is not surprising that such radical tampering with geological timeframes should be so potentially damaging to the environment. One estimate is that the energy an average Westerner uses in their daily life is equivalent to having 147 slaves working 24 hours a day on their behalf.¹⁶⁰

However, as with the relationship between life satisfaction and income, there is a clear pattern of diminishing returns between energy use and development outcomes. Albania's life expectancy of 76.2 years is achieved with annual energy consumption of 755kg of oil equivalent per capita, less than *one-tenth* the energy consumption of the USA, where life expectancy is only 1.7 years longer at 77.9 years.

This helps us to frame the challenge. It is not to ensure worldwide access to energy equivalent to those levels currently used, and wasted, in richer nations, but rather to ensure access to energy, and efficiency of use, similar to that found in Albania, Panama or Cuba – three nations with excellent levels of health and low levels of energy use in comparison to the richest nations.¹⁶¹

Renewable energy sources can potentially provide all the energy needed for human development, whilst avoiding the further CO₂ emissions and other chemicals harmful to the local environment and human health. Many developing countries already lead the way in terms of renewable energy. As we have seen, Latin American nations produced a quarter of their electricity from renewable resources in 2004, much more than the EU managed. Their success in this field is helped by the fact that many enjoy access to rich energy resources in terms of sun, wind and hydro-electric. The falling costs of the relevant technologies and increasingly expensive and scarce fossil fuel reserves mean that it is often cost-effective in the long-term for developing countries to invest in these resources.

Rather than relying exclusively on the construction of huge hydro-electric dams, however, it is becoming increasingly clear that small-to-medium scale projects may provide greater benefits, especially when they are owned and run locally. With relatively little initial investment required, they can quickly produce economic benefits, creating jobs, reducing economic dependency and ensuring a reliable and sustainable energy future. Cutting energy costs and reducing uncertainty frees up local and public resources to invest towards other development targets. There are also considerable social benefits as community ownership provides local people with more control over their day-to-day lives and engages them in decision-making processes. Shared ownership can enhance community cohesion, whilst providing a forum to promote further pro-environmental behaviour.¹⁶² In short, as well as supplying power, locally owned renewable energy schemes can also *empower* marginalised communities.

Alongside access to energy one also needs to consider energy efficiency. This is not a new idea – most of humanity's history has been one where energy was a scarce resource and therefore needed to be used in the most efficient way possible. However, efficiency appeared to drop out of discussion in the modern developed world until the energy crisis of 1973. Only then did the expression 'appropriate technology' become prominent, encapsulating the idea that the 'best' technology is not always the highest performing, but that which achieves its purpose by most efficiently using the energy and materials available.

Appropriate technology is solution-focused technology that takes into account the environmental, social and economic context it is designed to work in. A classic example is the 'pot-in-pot refrigerator' which was developed in 1995 by a Nigerian inventor to keep food cool and fresh without using electricity. *Practical Action* is an NGO which works to help communities develop such solutions in developing countries. Projects that they have worked on include the development of cycle trailers made from local waste metals, to help local people carry bulky items without the use of motorised transport. Such technologies can reduce the energy requirements for development, making low-carbon development more feasible.

Dr Victoria Johnson is a researcher on nef's climate change team

HPI in education

The ideas contained in the earlier HPI reports have caught the imagination of many people working in the field of education for sustainable development. What makes you happy, how important stuff is to your happiness, and whether you can imagine a happy life without costing the Earth are all questions that can be discussed with young people. In doing so, they can be encouraged to explore the issues on two levels – on the one hand their own personal lifestyles and aspirations, and on the other the wider national and indeed global issue of achieving good lives for everyone without costing the planet.

Here, three practitioners talk about how they have drawn on the HPI in education materials they are developing or have developed.

Less is more?

'I now understand that I am a bad role model when it comes to the carbon footprint... I feel good now I realise that I can help and I am going to do all I can to help save on my carbon footprint!' These reflections came from a middle school pupil involved in a pilot project to explore the concept *Less is more?* partly inspired by the HPI and work connecting sustainability to well-being.

The question mark in the title is important, because when we ask that question, sometimes, quite clearly more must mean more! Schools have been supported in this project by Worcestershire County Council (who acted as lead partner), Teachers in Development Education (TIDE), Practical Action and **nef**, exploring the implications for children's learning, curriculum development and whole-school culture. This has tied in closely with the County Council's work towards a world class curriculum, linked in turn to the thinking behind the QCA's Primary Curriculum Review.

Honeybourne First School made *Less is more?* the focus for a full term's curriculum planning and delivery. At first the idea was daunting to staff, but as they explored the opportunities that would come out of this approach, the benefits began to outweigh the obstacles. They used the concept to explore design and technology (with a story about a king and a draughty castle to get things started), gardening, waste and sustainable schools. Elaine Huntington, the head teacher at the school reflected that 'in looking at the six R's (rethink, refuse, reduce, re-use, repair, recycle) I have never seen Year five so switched on to discussion and listening to each others' ideas. What was really astounding was that pupils who are often quiet and less keen to come forward offered opinions and joined in with vigour!'

In another school a teacher commented that once given the starting points, 'children were driving the agenda, raising ideas about what they wanted to know and finding out what they could do', and in another school 'teachers' cynicism was broken down when they could see what children were learning and how much they were getting out of it.'

The project will lead to more thinking and more questions. Ideas, case studies, starting points and a report will be made available through the Worcestershire County Council website (in autumn 2009). At a time when both prolific consumption is wreaking havoc with global systems, atmospheric and ecological, and the recession forcing us to reconsider received wisdom around economic growth models, it seems our children are ready to engage in thinking about what might come

next. Although this can be difficult at times, they seem to feel better about being included in the thinking and choices, rather than being ignored!

Rupert Brakspear is Learning for Sustainability Officer at Worcestershire County Council



What makes you happy?

WWF has used the HPI in one activity of a suite called *Taproots* (soon available at www.wwf.org.uk/what_we_do/working_with_schools/resources), which is aimed at helping teachers who work to make

their schools sustainable focus on their deep personal motivation and build strong group relationships. The HPI is used in an activity called *What makes you happy?*, in which key information related to the UK is presented to the group, such as which countries are near us in the HPI, and the possible reason why several of them are much poorer in GDP terms. Teachers discuss their immediate reactions to this information, and are given handouts with other brief facts taken from the HPI report.

They are then encouraged to do active listening in pairs to talk about what really makes them happy, and to consider their own relationship to wealth and consumption.

This is presented in the context of discourses of 'well-being' in schools, posing the question of whether schools have a duty to develop pupils' well-being in relation to issues of sustainable consumption.

Zaria Greenhill is on the Education team at WWF

Behind the label

In *Behind the label*, Waste Watch seeks to provide a secondary school resource which combines a sophisticated critique of consumer culture with an eye-opening analysis of the environmental footprint of everyday products. It affords pupils opportunities to chart and reflect on their own consumption patterns and environmental footprints.

The introductory lesson in our pack explores how well the promise of happiness implied in consumer culture stands up in the light of emerging research in the social sciences. Graphs and data from **nef**'s HPI were particularly powerful in communicating the poor correlation between wealth and subjective well-being, while simultaneously reinforcing our broader message that consumption has potentially negative environmental impacts.

Damien Morris developed Behind the label whilst working in the education team at Wastewatch

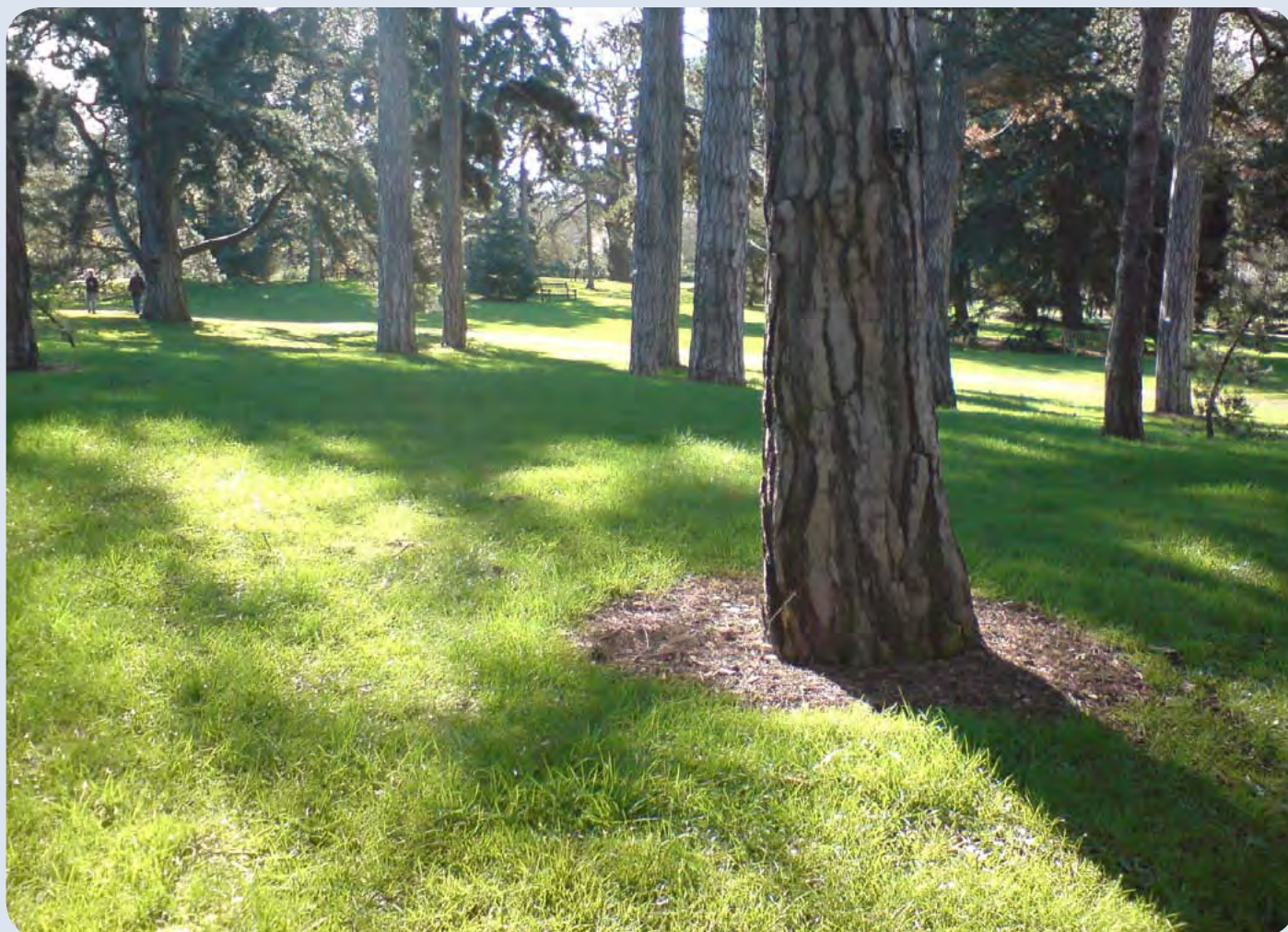
Beyond HPI

As discussed in Chapter 2, measuring people's well-being is no simple matter. Asking a single question about their satisfaction with life will invariably hide vital nuances. Furthermore, we know that there are cultural biases affecting how people respond to survey questions. A different interpretation of the word 'satisfied', and a country could score quite differently. This is why **nef** has been calling for methodical and detailed *National Accounts of Well-Being* which ask about a range of different aspects of people's lives and allow a more textured picture.

In 2006, a unique survey was carried out across over 20 countries in both Western and Eastern Europe. The third round of the European Social Survey included a special module on well-being and asked respondents 55 questions about how their lives were going. **nef**, having helped develop the well-being module, set about analysing the data and, in 2009 released the first *National Accounts of Well-Being* assessing various dimensions of social and personal well-being in 22 countries.

There are differences between the rank order of these 22 countries based on the overall well-being index from the National Accounts, and that based on the single life satisfaction question. Switzerland only ranks 8th out of 22 in terms of life satisfaction, but is 2nd in terms of overall well-being. Meanwhile Ireland and the UK drop three and two places respectively if one takes all aspects of well-being into account. However, it is important to note that most countries' ranking change very little; 13 out of the 22 countries move only one place, or not at all.¹⁶³

In other words, whilst National Accounts of Well-Being are vital to get a fuller picture of well-being within a country, and make more detailed comparisons between countries, life satisfaction on its own provides a clear indicator of the overall way things are going.



Photograph: Andrew Simms

9. Tying together the threads of a happy planet

We should ... dethrone the idea that maximising the growth in measured prosperity, GDP per capita, should be an explicit objective of economic and social policy.

Adair Turner, Chair of the UK Financial Services Authority, 2007.¹⁶⁴

The previous chapter pulled out just a few snapshots of steps towards a happier planet. For us to get there, however, a substantial shift is required.

This is made very clear in Figure 15, which shows the change in HPI required (for OECD nations) to achieve high well-being, whilst reducing ecological footprints down to 1.7 global hectares (which allows 20 per cent of land to remain fallow and support non-human organisms).¹⁶⁵

Business as usual is not likely to get us there. It's time to look at the bigger picture.

Uneconomic growth¹⁶⁶

The results of this year's HPI provide two broad lessons. First, Western nations, considered the pinnacle of development using currently dominant measures, are not the most ecologically efficient at achieving well-being.

Figure 16 shows the relative performance on HPI of 19 sub-regions across the world. The poorest sub-regions (sub-Saharan African) score lowest and increasing GDP appears to lead to increasing HPI. However, this relationship is short-lived and, before one reaches the middle of the graph (around \$8000 per capita), it reverses such that increasing GDP per capita means lower HPI scores – North America scoring little better than the poorest African sub-regions.

In 2006, the Chair of the UK Financial Services Authority, Lord Adair Turner wrote in an essay entitled *Dethroning Growth* that 'there is no empirical basis for believing

Figure 15: Targets for happy life years, ecological footprint and HPI for OECD nations for 2050

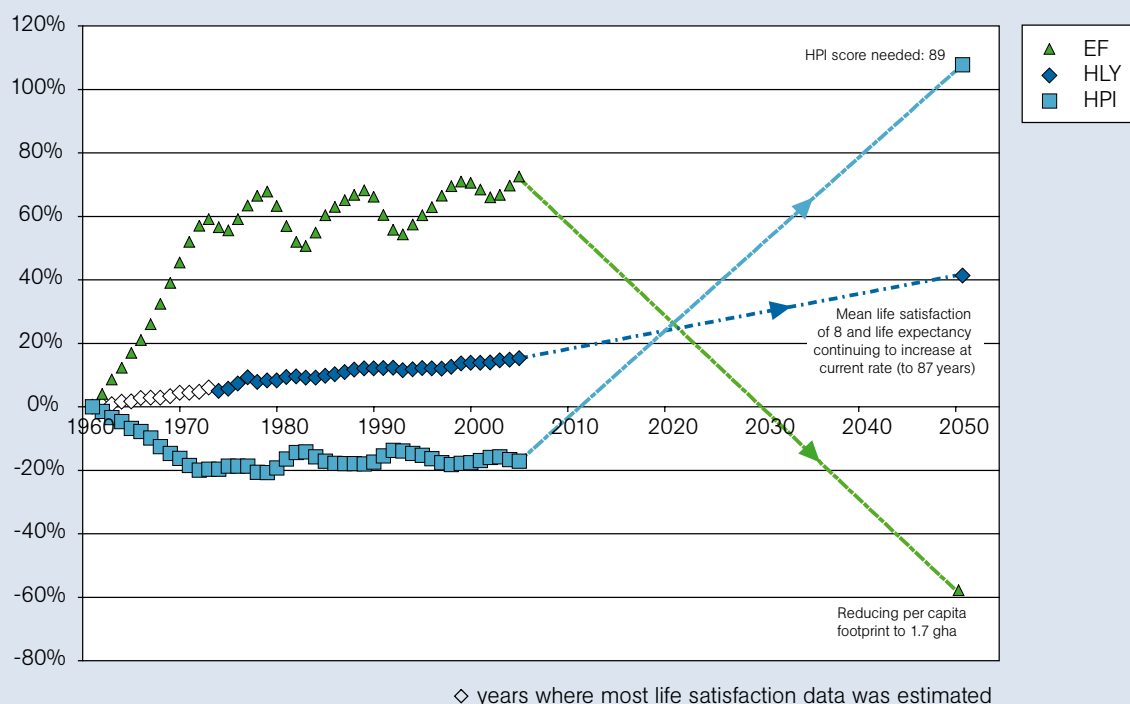
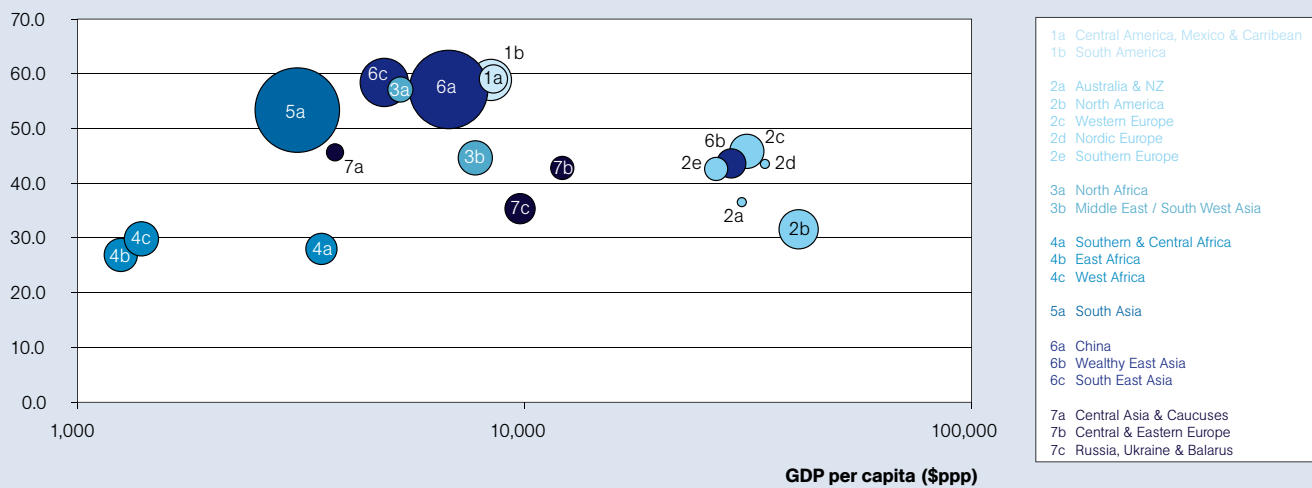


Figure 16: GDP per capita vs. HPI for sub-regions. Dot size represents the population of the sub-region. GDP per capita is plotted on a logarithmic axis which spreads out data points to the left and tightens the gaps between those to the right.



that the aggregate happiness of British people will increase significantly if British GDP per capita grows by 20 per cent over the next ten years.¹⁶⁷ Our analyses support this conclusion, and go further. Not only does well-being cease to increase above certain levels of GDP, but indeed the *efficiency* of achieving well-being decreases dramatically. Our currently dominant economic models result in a ‘maximum’ peak of sustainable well-being, beyond which it is hard to get.¹⁶⁸ This is seen when comparing across countries and, to some extent, examining how countries’ HPI scores have changed over time. As the ecological economist Herman Daly puts it, many countries are in a period of *uneconomic* growth.

Clues to solutions

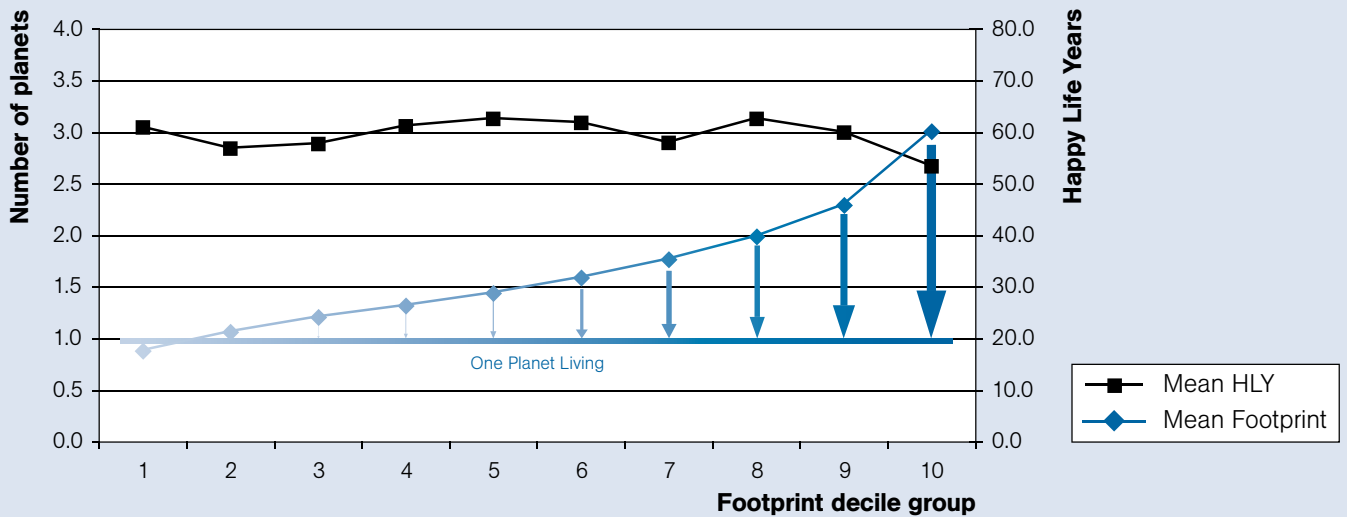
These findings confirm the research discussed in Chapter 3. Beyond a certain point having added income does not lead to higher well-being – what economists call *diminishing returns*. Furthermore, where a relationship does exist, there is evidence to believe that this is a matter of *relative* income – a marker of status – rather than the absolute effect of having more money.¹⁶⁹ In short, if Western societies had lower GDPs, and consumed fewer resources, there would be little negative impact, if any, on their well-being. Our data suggest that even reducing our resource consumption to the levels of many Latin American nations is not likely to lead to a long-term decline in well-being.

Secondly, material factors are only part of what constitutes the good life. Our struggle to increase per capita incomes has come at the expense of our social capital and mental health (also discussed in Chapter 3). For many in the West, the challenge is now *not* to continue increasing our monetary incomes, but to ensure meaningful lives, and strong social ties. Often, achieving these aims requires reducing the focus on consumption, and freeing up time for other pursuits.

This is seen at the individual level as well as at the country level. Inspired by the first HPI, the regional government of the Veneto region in northern Italy (an area with a population of 4.9 million, which contains the cities of Venice and Verona) used questions from **nef**’s online HPI survey in a bold pilot study to explore its progress towards a ‘well-being economy’.¹⁷⁰ The questions allowed it to calculate both ecological footprint and happy life years at the individual level.

Figure 17, based on the results of this small but representative survey suggest that well-being, at least in northern Italy, does not depend much on footprint. It shows that those individuals with the smallest footprint (on the left of the curve) have similar levels of well-being to those with the largest footprint. If anything, it appears that those with the highest footprints actually have marginally *lower* well-being.

Figure 17: Happy life years and ecological footprint for individuals in the Veneto region



Either way, it appears that even those with the lowest footprint possible in a given context can achieve high levels of well-being and that, generally, increasing one's footprint does not tend to lead to higher well-being.

However, in most contexts, be it Italy, the UK or indeed any other country, our behaviour as individuals is still largely captive to our wider society. Few of us can afford to choose an energy supply that does not emit CO₂, and few of us can ignore the constant barrage of voices urging us to consume more and to demonstrate our worth through our consumption. Even worse, our economic systems are set up to require mass consumption, as we have seen in the last year. In other words, whilst we as individuals can choose a path of happier planet living, it will require changes to the economy and society for us to get there.

Economic development needs to be decoupled from environmental impact and, perhaps more importantly, well-being needs to be further decoupled from economic development. This requires technical solutions, but also requires tough leadership from government and a fundamental shift in the aspirations of normal people. If we continue to define a nation's progress in terms of GDP growth, and if we continue to define an individual's success in terms of their net financial worth, then we are doomed to an unsustainable form of well-being for just a few today, and deprivation for everyone else and for future generations.

In this report, we do not claim to have all the solutions. However, we *do* know what measures should be used in judging whatever paths societies take. New economic and social models must be sought which allow an increase in well-being – both in terms of health, and in terms of how people feel – whilst decreasing ecological impact. The HPI is the best measure currently available to assess these goals in the round.

Box 4: Global manifesto for a happier planet revisited

In 2006, we launched a global manifesto for a happier planet, outlining 10 steps towards sustainable well-being. These steps are as relevant today as ever:

1. **Eradicate extreme poverty and hunger.**

Recognise that increasing material wealth in (so-called) developed countries does not lead to greater happiness, and that extreme poverty systematically undermines people's opportunities to build good lives for themselves and their families.

2. **Improve healthcare.**

Increase access to clean water, halt the rise in diseases such as HIV/AIDS and malaria, and reduce child and maternal mortality. The World Health Organization estimates that everyone in the world could be provided with a good level of basic healthcare for just \$43 per person, per year.

3. **Relieve debt.**

Many developing countries are forced to prioritise the service of crippling financial debt over providing a basic standard of living.

4. **Shift values.**

Value systems that emphasise individualism and material consumption are detrimental to well-being, whereas those that promote social interaction and a sense of relatedness are profoundly positive. Government should provide more support for local community initiatives, sports teams, arts projects and so on, whilst acting to discourage the development of materialist values where possible (for example, by banning advertising directed at children).

5. **Support meaningful lives.**

Governments should recognise the contribution of individuals to economic, social, cultural, and civic life and value unpaid activity. Employers should be encouraged to enable their employees to work flexibly, allowing them to develop full lives outside of the workplace and make time to undertake voluntary work. They should also strive to provide challenges and opportunities for personal development at work.

6. **Empower people and promote good governance.**

A sense of autonomy is important at all levels for people to thrive, and there is growing evidence that engaging citizens in democratic processes leads to both a more vibrant society and happier citizens.¹⁷¹

7. **Identify environmental limits and design economic policy to work within them.**

Globally we need to live within our environmental means. One-planet living should become an official target of government policy with a pathway and timetable to achieve it.

8. **Design systems for sustainable consumption and production.**

Ecological taxation can be used to make the price of goods include their full environmental cost, and to encourage behaviour change. Clear consistent labelling that warns of the consequences of consumption would also help, as well as giving manufacturers full life-cycle responsibility for what they produce.

9. **Work harder to tackle climate change.**

Emissions need to be cut by 80 per cent by 2050.

10. **Measure what matters.**

We cannot achieve our targets without measuring progress towards them. We need to be clear what they are: high well-being for everyone, without overshooting our ecological limits. The HPI is the best measure currently available which brings together these goals.

Strategies for a better life

In Chapter 2 we presented a diagram of society as a system and steered the focus of this report towards its edges – the ‘means’ in terms of natural resources and the ‘ends’ in terms of well-being. Most of what society ‘does’, however, happens in the middle. These are what we might call ‘strategies’: how we run our economy, build our communities, or design our education system. We have seen that some of the strategies on which we rely have not led to sustainable well-being. So, what strategies might be needed instead? What strategies might, without destroying the planet, ensure that people everywhere lead long, disease-free lives, enjoy a sense of individual vitality, have opportunities to undertake meaningful, engaging activities conferring feelings of competence and autonomy, boosting resilience and self-esteem, and fostering social connections which, in simple terms, support people to feel healthy and happy?

Might they include...

...a steady state economy?

The economy has emerged several times in this report as central to determining whether we are able to achieve good lives that do not cost the Earth. Maybe, to achieve this goal, it is here that we need to start. For many rich countries, sustainable well-being might involve a much smaller, more stable, economy which produces less unnecessary goods which are, in No Impact Man’s terms, simply ‘waste’. Perhaps, with less being produced, paid work would become less dominant in people’s lives. We might, for example, only work three or four days a week (Box 5) and in turn, take advantage of this shift to reduce unemployment by sharing work more equitably.

...strengthening the core economy?

With potentially more time on our hands, might we think of a future in which we invest more in civil society – perhaps by volunteering or participating in democratic decision-making? Or maybe we would use the opportunity to achieve greater reciprocity within communities and in the delivery of public services, ensuring public money is able to achieve more with less?

...redefining status?

Maybe our very aspirations will be different in our pursuit of sustainable well-being? Might we be encouraged to think from an early age about what is important to us? Being taught to listen more to our intrinsic motivations to develop ourselves and care for others could be one of the strategies we pursue. Maybe there would be no advertising – at least to children – thereby taking away one of the pressures that currently encourages us to demonstrate our status through how much we earn, what we own and what we consume (including fast food, tobacco and other health-limiting products). Instead, perhaps we would

Box 5: The rat race

Since the beginning of the Industrial Revolution, our economies have had to struggle with the mixed blessing of technology providing constantly increasing productivity. This has saved us from the misery of back-breaking work in the fields, and provided us with unimaginable advances from the biro to the bullet train. But there is a flip side. Were productivity to continue increasing without the economy producing more stuff, then human labour would be less and less required to produce the necessary trappings of life. Sounds good? Well, economists have feared that this would lead to spiralling unemployment, resulting in vast inequality and, ultimately, the collapse of society. To date, economic growth has helped us to avoid this outcome, by constantly increasing the amount of stuff being produced, thereby ensuring that (most) people have jobs. But, of course, as we have already seen, this growth simply cannot continue. The planet is not growing. And we have already exceeded the limits of what it can sustain.

It doesn’t have to be this way. The British economist John Maynard Keynes thought that, by the end of the twentieth century, people would be working two days a week thanks to the great productivity increases he was seeing.¹⁷² He assumed that, rather than producing more to keep everyone in work, we would simply work fewer hours and take the benefits of increasing productivity as increasing leisure time. How could he have known that humanity would choose instead to continue working longer hours so as to produce and consume products that do not enhance our well-being, whilst ravaging our finite and precious natural resources?¹⁷³

consume only that which brought us higher well-being without an unforgivable environmental cost. Knowing how the needs to feel competent and stretched are intrinsic to humans, perhaps we would think more about striving to learn new skills to make and grow things, rather than always purchase them ready-made.

...slowing down?

It's not just the economy that might need to slacken the pace – individuals do, too. This could have health benefits in terms of reducing stress, as well as improving our experience of life. Might we have more time to value and appreciate what we have? Rather than rushing off for city breaks with camera flashing, might we take time to explore the corners of our own countries when on holiday? Or have more opportunities to really immerse ourselves in other cultures when we travel abroad? In simple terms, slowing down might just mean spending more time with friends and family.

...transforming how we travel?

Maybe we would rely less on cars for our day-to-day travel needs? Perhaps we would not have to travel so far to get to work or to go shopping? Our strategies for sustainable well-being could be based on more efficient regular public transport for all, as well as cycling and walking for more people. As a result, we could find ourselves with a healthier society with less obesity, less local pollution and fewer road accidents, as well as a society which does not undermine its own long-term future.

...technological transformation?

Technology will surely be a key strategy towards mitigating environmental costs as we pursue good lives. A sure win is renewable energy. Might a decentralised, community ownership approach be the best way to ensure its implementation achieves social as well environmental goals? Meanwhile, perhaps the priority for technological development will be to cut down on the inefficient use of non-renewable resources? Maybe we could achieve the type of closed-loop circular production systems that some sustainability engineers talk about, where the waste from one production system becomes the raw materials of another.¹⁷⁴

...business as unusual?

What role might businesses play in our transition to sustainable well-being? How can they better respond to the needs of all of their 'stakeholders' – employees, customers and communities? Perhaps they would take on a different form? Perhaps we would consider the advantages and disadvantages of businesses so big that they have undue influence over governments and communities? Similarly, we might not want banks that are too big to fail. Could we also envision a strategy which shifts us towards high streets which once again pulsate with their own distinct lives and unique identities?

By following these strategies we are likely to create more opportunities for people to build the five ways to well-being into their lives. These evidenced-based, everyday actions – connect, be active, take notice, keep learning and give – identified in recent work carried out by **nef** for the UK's Foresight Project on Mental Capital and Wellbeing, are among the most effective ways for individuals to enhance their well-being. What is more, they are all achievable with minimal use of planetary resources.¹⁷⁵

Not all the strategies we have suggested are applicable to every context. Nor do they form an exhaustive list. But we hope that they provide some sketch of what good lives that do not cost the Earth might look like and a basis to the debates we need to be having, now, to get us moving in the right direction. There may be many other strategies for achieving high well-being and low environmental impact; what unites them is that all of their outcomes are embodied in the HPI.^{176,177,178}

a map of the world that does not include Utopia is not worth even glancing at.
Oscar Wilde¹⁷⁹

A charter for a happy planet

The future is not the result of choices among alternative paths offered by the present, but a place that is created – created first in the mind and will, created next in activity. The future is not some place we are going to, but one we are creating. The paths are not to be found, but made, and the activity of making them changes both the maker and the destination.

John Scharr

There is a role for everyone in working towards this happy planet. Governments need to put the appropriate incentives and disincentives in place. Statisticians need to develop tools to measure what really matters – well-being and environmental impact. Local communities need to support low footprint solutions by providing appropriate infrastructure and nurturing social capital. Engineers and physical scientists need to work to achieve human-scale technological solutions to our needs. Social scientists need to consider the roles of consumption, aspirations and values to human well-being, and what is needed to escape from the materialistic rat race we are locked into. Businesses need to consider not only the environmental and social impacts of how they deliver goods and services, but also *whether* the goods and services they produce add anything to human well-being. And lastly, individuals need to evaluate their own lives and consider which aspects truly bring them well-being and which are just waste – an unnecessary burden on the planet.

The website associated with this report (www.happyplanetindex.org) introduces a new happy planet charter. Those who sign it believe that:

- A new narrative of progress is required for the twenty-first century.
- It is possible to have a good life without costing the Earth.
- Over-consumption in rich countries represents one of the key barriers to sustainable well-being worldwide and that governments should strive to identify economic models that do not rely on constantly growing consumption to achieve stability and prosperity.

They call for:

- Governments to measure people's well-being and environmental impact in a consistent and regular way, and to develop a framework of national accounts that considers the interaction between the two so as to guide us towards sustainable well-being.
- Developed nations to set an HPI target of 89 by 2050 – this means reducing per capita footprint to 1.7 gha, increasing mean life satisfaction to eight (on a scale of 0 to 10) and continuing to increase mean life expectancy to reach 87 years.
- Developed nations and the international community to support developing nations in achieving the same target by 2070.

If you too agree that we need to find a new compass, that this is within our grasp, and that we can achieve good lives in ways that are not dependent on economic growth and resource depletion, why not join us by signing up to our charter and creating the momentum that now, more than ever, has the potential to lead to transformative change.

Appendix 1: Composite indicators

As discussed in Chapter 4, simple headline indicators are necessary to help us consider complex issues in the round and understand society's overall trajectory. However, bringing together different types of data in a single indicator does pose several problems, one of which – that of trade-offs – we have already discussed in Chapter 5. We shall consider a couple more in this appendix – units and weighting – using the example of the UN Human Development Index. (A more thorough technical consideration of composite indicators has been produced by OECD and the EU's Joint Research Centre.¹⁸⁰)

First, in most cases, the individual measures that are being combined together come in different units. To take two components of the Human Development Index as an example, GDP is measured in US dollars per capita, whereas life expectancy is measured in years. Combining them requires some kind of standardisation, since dollars and years of life are not intrinsically compatible – there is no standard exchange rate between them. Typically, this standardisation is achieved using some kind of statistical method such as indexation relative to upper and lower limits, or z-scores.¹⁸¹

The second difficulty concerns the relative importance of each individual measure to the overall score: the *weighting*. This is less of a technical issue than a conceptual one. Which is more important to 'development', GDP, life expectancy or education? The UN's Human Development Index weights each of these equally in compiling an overall score.

Whilst these two problems, as well as that of trade-offs, are sometimes difficult to resolve, history shows that they are all tractable given enough time and effort. And it is important to consider them against the very considerable advantage that a well-designed composite indicator holds over a basket – it provides a single, clear and (hopefully) intuitive measure of good and bad that can be widely interpreted. A composite headline indicator can act as a 'compass', pointing the direction in which societies should travel, in a way that sets of indicators rarely manage. Just as the simplicity of GDP helped it to become the indicator that told the story of growth, so we hope that the HPI – or something like it – can point the way to a high well-being, low-carbon future.

Appendix 2: Calculating the HPI

This appendix explains the data sources used, and the steps taken, in calculating the HPI scores for this report. It covers the main 2005 dataset as well as the datasets used for time trends in Chapter 7.

Data sources for 2005

Life expectancy

Average life expectancy at birth was taken from the 2007/08 Human Development Index report, which provides figures for the year 2005.¹⁸²

Life satisfaction

We used data from the life satisfaction question introduced in Chapter 2. This asks respondents:

*All things considered, how satisfied are you with your life as a whole these days?*¹⁸³

Responses are made on a numeric scales from 0 to 10, where 0 is dissatisfied and 10 is satisfied.

In the first HPI report, data on life satisfaction around the world had to be gathered from a wide range of disparate sources. Moreover, a considerable amount of modelling was required to fill in the gaps for those countries where no life satisfaction data were available at all.¹⁸⁴ In HPI 2.0, however, we are able to take advantage of new data collected by pollsters Gallup. Its World Poll has, in the last two years, included the question on life satisfaction and asked it in 112 countries included in this report.¹⁸⁵ Gallup's intention is to continue polling the countries of the world on a regular basis so as to monitor how life develops. Provided this data is made publicly available, this is a promising opportunity to allow regular updates of the HPI.

To augment these 112 countries, we also included data from the two most recent waves of the World Values Survey (WVS, from 2000 and 2005). This survey asks the exact same question regarding life satisfaction, albeit with a slightly different response scale (1–10 as opposed to 0–10). The two waves cover 84 countries. Where data were available for a country for both waves, an average of the two figures was taken.

As has been noted, the Gallup survey and WVS, despite using a virtually identical question, do not always find the same levels of life satisfaction in any given country. The reasons behind this have not been fully explored but two factors are likely to be important:

- 1. Samples reached.** It is always a challenge for surveys to reach rural or poorer communities in developing countries. For example the Gallup surveys of 2008 in Angola and Laos did not reach some of the most remote parts of the country. The two surveying organisations may have differed in their access in some contexts. Given their substantial resources, we suspect Gallup may have been more successful.
- 2. Question order can have strong effects on survey responses.** When a question follows related questions, responses to it may be affected in various ways. The Gallup survey asks the life satisfaction question towards the end of the survey, a substantial portion of which concerns national conditions in terms of the economy and government. Meanwhile, the WVS asks the life satisfaction before almost any other substantive questions. It is therefore likely that, in the former, consideration of the state of the nation will be primed by the time respondents reach the life satisfaction question. Whilst this is, of course, important, it is not the only factor determining life satisfaction – the danger is that its priming will overshadow consideration of other factors such as consideration of one's own general everyday experiences and of specific life domains such as work, family relations and leisure time. This possibility is consistent with the finding that the Gallup

survey tends to lead to lower scores for poorer countries than the WVS, and higher ones for richer countries. The implication is that, whilst respondents in poorer countries responding to the World Values Survey consider their life in the round and value the positive elements, those responding to the Gallup Survey might be focusing rather more on the poor state of their nation's economy and government, and therefore giving less priority to other aspects of their lives.

Whilst the second point may be reason to prefer the WVS, the first, as well the larger number of countries for which data is available, appears to favour the Gallup Survey. As such we used Gallup data as first choice.

The differences between the two survey designs meant that we could not simply 'fill the gaps' for the 16 countries where Gallup data were not available and WVS data were. Instead, we took advantage of the fact that 68 countries were covered by both surveys and carried out a linear regression to determine the relationship between the two sets of life satisfaction figures. Gallup life satisfaction was treated as the dependent variable, and WVS life satisfaction as the independent variable. To allow better prediction and help understanding of the differences between the two sets of results, 19 further indicators were considered as independent variables on a stepwise basis.¹⁸⁶ These included the Human Development Index, life expectancy, GDP per capita, the logarithm of GDP per capita, the education index from the Human Development Index, the six components of the World Bank's *Governance Matters* dataset¹⁸⁷ and eight geographical dummy variables. The following variables emerged as significantly altering the relationship between Gallup life satisfaction and WVS life satisfaction: Human Development Index, Voice & Accountability (from *Governance Matters*), Education Index and a dummy variable for Anglo-Saxon countries.

Combined with the WVS life satisfaction score, these four variables are able to predict 91% of the variance in Gallup life satisfaction. This good fit means that the regression can be used to predict Gallup life satisfaction for those countries where only WVS data is available. In other words, it allows us to ask the question: 'Given their response to the WVS, what would such-and-such country have scored in terms of life satisfaction had a Gallup survey been conducted there?' This estimation was done for the 16 countries where we had WVS data but not Gallup data.

Data for a further 14 countries were available for a slightly different question, asked by Gallup, known as the 'ladder-of-life':

Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. Suppose we say that the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time, assuming that the higher the step the better you feel about your life, and the lower the step the worse you feel about it? Which step comes closest to the way you feel?

This question is also often interpreted as an assessment of life satisfaction, and indeed correlates highly with the standard life satisfaction question ($r = 0.83$). However, as with the WVS data, these extra data points could not simply be added to our dataset. Using the same stepwise regression methodology, we found the relationship between the ladder-of-life data and life satisfaction modified by average life expectancy, the rule of law and two geographical dummy variables – 90% of variance was predicted.¹⁸⁸ Ladder-of-life scores were therefore used to predict Gallup scores for the 14 countries.

Given its unique experiment with the concept of Gross National Happiness (GNH), we were keen to include Bhutan in our data set despite it not being covered by either the Gallup or WVS surveys. The first GNH survey was conducted in 2008. Analysis is still underway, but the Centre for Bhutan Studies made data available to us which allowed us to estimate a figure for life satisfaction of 6.1 for the country.¹⁸⁹ In all other cases, the countries included were those for which life satisfaction or ladder of life data were available.

Although we did not include them among the 143 countries reported on here, we also estimated life satisfaction figures for 36 further countries based purely on objective indicators. Using the stepwise methodology, the following four variables emerged as significant: life expectancy, the log of GDP per capita, a dummy variable for countries in the Tropics, and an adjusted measure of ecosystem services product (ESP).¹⁹⁰ Without subjective data, this regression had a poorer fit, but it was still possible to predict 80% of variance in life satisfaction based on purely objective data, suggesting that estimated life satisfaction figures are reasonable proxies where real data is not available. Whilst the estimated data for these countries were not used directly in this report, they were required for the specification of the constants used in the HPI equation (see below). Further information is available from the authors on request.

Ecological footprint

Ecological footprint data for 2005 were available from the WWF's *Living Planet Report 2008* for 134 out of the 143 countries for which we had life satisfaction data. To estimate the remaining figures, we carried out three stepwise linear regressions based on available data. Three regressions were required due to varying levels of data availability for different countries. For most countries the following variables entered the regression as significant predictors of ecological footprint: GDP per capita, CO₂ emissions per capita, level of urbanisation, size of industrial sector (as a percentage of GDP), population density and tropic dummy variable. For some countries, however, some of this data (specifically the percentage of GDP from industry) was not available. A separate regression was carried out excluding this variable, and including some geographical dummies, which led to ecological footprints being estimated based on the following data: GDP per capita, CO₂ emissions per capita, population density, and dummy variables from tropics, Latin America and Anglo-Saxon countries. For one further country (Palestine), CO₂ emissions data were not available, and a separate regression was required for this country based on: GDP per capita, population density

and three regional dummy variables. All three of these regressions are based on models with good fit, the first two predicting 86% of variance each, with the model for Palestine predicting 81% of variance.¹⁹¹

HPI for 2005

The methodology used to calculate the overall HPI score remains unchanged from the first HPI.

The simplest way to calculate ecological efficiency, given the three components of the HPI would be to divide happy life years (life satisfaction x life expectancy) by ecological footprint. This approach has been taken by the ecological economist Mick Common, who calls such a measure I.¹⁹²

However, such an approach produces an index entirely dominated by the ecological footprint. The country with the highest I based on the data for 2005, would be Haiti – which has very poor levels of life satisfaction and life expectancy, but the smallest ecological footprint: 0.5 gha.

There is a simple statistical explanation for this. Ecological footprints range from Haiti's 0.5 gha, to Luxembourg's 10.2 gha (a factor of 20). Meanwhile, HLY figures range from Zimbabwe's 11.6 to Costa Rica's 66.7 (only a factor of less than 6). Due to the inherent nature of the data, there is more variation in footprints than in HLY scores. However, this does not mean the variation in HLY is substantively less important.

An example would help to explain. Imagine Haiti were to quadruple its ecological footprint to 2.0 gha, such that it was at almost one-planet living. To maintain the same I score, it would need to similarly quadruple its HLY score from 30.8 to 123.3. Clearly this is impossible – it would require a life satisfaction of 10 and average life expectancy of 123 years. In the real world, doubling its HLY score (such that it is similar to that of European nations) would seem a more feasible target. The adjustments we make ensure that such a change would be reflected with an increased HPI score, rather than the perverse decrease in I score that would result.

To achieve this, a constant (α) is added to the ecological footprint to ensure that its *coefficient of variance*¹⁹³ across the entire dataset matches the coefficient of variance for HLY across the dataset.¹⁹⁴ In effect, this serves to dampen variation in the footprint. Once this is done, HLY can be divided by the adjusted footprint to produce an efficiency measure. This is then multiplied by a second constant (β) such that a country achieving a maximum life satisfaction score of 10, and life expectancy of 85, whilst living within its global fair share of resources (one-planet living), would score 100. The resulting formula simplifies to the following:

$$\text{Happy Planet Index} = \frac{\text{Happy Life Years}}{\text{Ecological Footprint} + \alpha} \times \beta$$

$\alpha = 3.35; \beta = 6.42$

HPI for 1990 and 2000

HPI was also calculated for 1990 and/or 2000 for 36 countries. The only life satisfaction data available for these years was from waves two and four of the WVS. To estimate

figures that would be comparable to those for 2005, which were either from the Gallup survey, or estimated to match Gallup data, we used a simple ratio equation, such that the ratio between the life satisfaction score in the 2000 WVS and the 2005 WVS was multiplied by the Gallup figure for 2005:

$$\text{Estimated Life Sat}_{2000} = \text{Gallup}_{2005} \times \frac{\text{WVS}_{2000}}{\text{WVS}_{2005}}$$

A similar equation was used to estimate figures for 1990.

A similar problem regarding data availability presented itself with life expectancy. Revised estimates of life expectancy in 2000 and 1990 are not readily available in a compatible format to the figures we used in 2005 (taken from the *Human Development Report*). As such, we used figures from the *World Development Indicators* data set and used a ratio equation to ensure that they were comparable to the 2005 figures.

Ecological footprint figures for all years back to 1961 were provided by the *Global Footprint Network*.¹⁹⁵ Rather than rely on figures for a single year, we took the average of the figure for the year in question (be it 1990 or 2000) and the average of the figures for the two adjoining years, as shown in the equation below:¹⁹⁶

$$\text{Estimated Footprint}_{2000} = \text{avg}(\text{Footprint}_{2000}, \text{avg}(\text{Footprint}_{1999}, \text{Footprint}_{2001}))$$

To calculate the HPI based on the three components for these two years, the same formula and constants were used as for 2005.

HPI back to 1961

The HPI scores we calculated for the OECD trend analysis are not directly comparable with those for 1990, 2000 and 2005, as we have made no attempt to calibrate the raw data.

Life satisfaction data for this analysis comes from a variety of sources. We use the Eurobarometer as a source of figures for several European nations back to 1973.¹⁹⁷ Other data points come from the World Database of Happiness.¹⁹⁸ Only data on life satisfaction is used directly. Data on questions on happiness are used to predict life satisfaction using regression models. It should be remembered that, especially before 1973, there is very little data on life satisfaction worldwide and, as such, the estimates we present should be recognised as just that: estimates. For full details of how life satisfaction data were calculated for this analysis please contact the authors.

Life expectancy and ecological footprint were less problematic. Three-year rolling averages were used for ecological footprint (as described in the section above). Life expectancy figures came from the *World Development Indicators* data set.

As with the 1990 and 2000 HPI scores, we used the same formula and constants to calculate HPI scores back to 1961.

Endnotes

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- 16 Figures based on United Nations Development Programme (2007) *Human Development Report 2007/2008* (Basingstoke, UK: Macmillan).
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- 33 We found 102 newspaper articles about the Happy Planet Index within five days of it being launched (11–16 July 2006), and considerably more blogs.
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- 35 UN World Commission on Environment and Development (1987) *Our common future* (Oxford: OUP).

- 36 Adams WM (2006) *The future of sustainability: Re-thinking environment and development in the twenty-first century*. Report of the IUCN Renowned Thinkers Meeting. It has since come to our attention that an Austrian NGO, the Sustainable Europe Research Institute (SERI) also called for a similar metric in 1999.
- 37 A similar approach has also been developed independently by the ecological economist Common M (2007) 'Measuring national economic performance without using prices' *Ecological Economics* **64**:92–102.
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- 40 World Database of Happiness (www1.eur.nl/fsw/happiness). Item O-SLW/c/sq/n/10/a.
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- 58 Similar language is used in the 1996 UN Human Development Report which states 'human development is the end – economic growth a means' (UNDP, 1996, p.1).
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- 62 Determined using Nexis online database – with the search term GDP, from 1 September 2008 to 29 April 2009. In previous years, GDP was referred to around 1700 times in the same period.
- 63 Jackson (2009) *op. cit.* p99.
- 64 Based on figures from the historical economist Angus Maddison, economic growth worldwide only really began in the early 19th Century (www.ggdc.net/maddison).
- 65 For a summary of the development of the System of National Accounts, see Waring M (1998) *Counting for nothing: What men value and what women are worth* [first published in 1977] (Wellington, NZ: Bridget Williams Books).
- 66 When exactly, is not clear. One might suggest it was at the point where reported life satisfactions ceased to increase in the Western world. One analysis suggests it was some time in the 1970s, where gains in GDP were cancelled out by increasing environmental and social costs (Jackson, 2004, *op. cit.*).
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- 68 Quoted in Hamilton C (2004) *Growth fetish* (London: Pluto Press).
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- 71 Woodward and Simms (2006) *op. cit.*
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- 82 Reprinted from Myers D G (2000) 'The funds, friends, and faith of happy people' *American Psychologist* **55**:56–67.
- 83 See endnotes 19 and 20.
- 84 EIU (2005) Economist Intelligence Unit's Quality of Life Index *The Economist*, January.
- 85 Poll carried out by GfK NOP in 2006 on behalf of the BBC, reported at http://news.bbc.co.uk/1/hi/programmes/happiness_formula
- 86 Survey carried out in Australia, Brazil, Canada, France, Germany, India, Italy, Kenya, Russia and the UK by GlobeScan Incorporated for Ethical Markets Media between June and August 2007. www.globescan.com/news_archives/emm_beyondgdp.htm
- 87 Data from the third round of the European Social Survey.
- 88 Stiglitz J, Sen A and Fitoussi J-P (2008) Issues paper – *Commission on the Measurement of Economic Performance and Social Progress*. www.stiglitz-sen-fitoussi.fr/en/index.htm
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- 102 van den Bergh (2009) *op. cit.*
- 103 For further discussion of what makes good measurement see Lawlor E, Nicholls J and Neitzert E (2009) *Seven principles for measuring what matters: A guide to effective public policy-making* (London: nef).
- 104 Not to mention other environmental impacts such as loss of biodiversity and emission of local pollutants.
- 105 The first *Happy Planet Report*, published in 2006 and based on data from 2003, covered 178 countries. 2005 data were used this time round as this is the latest year for which data was available on the Ecological Footprint, at the time of writing. Ecological Footprint calculations are time-consuming and based on complex data on trade flows compiled by the United Nations.
- 106 Though not an independent country, data are widely available which distinguish between Hong Kong and the rest of China. This is opportune as average lifestyles and living conditions are substantially different.

- 107 27 countries have seen a decrease in life expectancy from 1990 and 2005, including Belarus, Botswana, Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Republic of Congo, Cote d'Ivoire, Gabon, Kazakhstan, Kenya, Democratic Republic of Korea (North Korea), Kyrgyzstan, Lesotho, Malawi, Montenegro, Mozambique, Namibia, Nigeria, Russia, South Africa, Swaziland, Trinidad & Tobago, Turkmenistan, Ukraine, Zambia and Zimbabwe. Other countries have seen dips in that period (e.g. Moldova, Rwanda and several others), but then recovery in recent years. Based on the World Bank's *World Development Indicators* data set.
- 108 It is worth noting that the Gallup World Poll we have predominantly used for this report is more 'conservative' than other world sources on life satisfaction. It tends to find higher life satisfactions for rich countries and lower life satisfactions for poor countries than, for example the World Values Survey does. For example, the Gallup World Poll reports a mean life satisfaction of 7.9 for the USA and 7.1 for Argentina. Meanwhile, if we had used the World Values Survey from 2005, we would have found a mean life satisfaction of 7.0 for the USA and 7.5 for Argentina – exactly the opposite pattern. Reasons for this are discussed in Appendix 2. The important point to note is that, had we prioritised the World Values Survey data, the relationship between GDP per capita and happy life years would have been even weaker.
- 109 $r = 0.9$. An r of 0.0 would mean that there is no correlation whatsoever – the two measures are completely unrelated. An r of 1.0 would mean that the two sets of numbers are perfectly correlated – if one doubles, the other does too.
- 110 Price A (2009) *Slow-tech: Manifesto for an over-wound world* (London: Atlantic Books).
- 111 Unless specified otherwise, food products are assumed to be split 50/50 between local produce and produce imported from over 200 miles away.
- 112 The thresholds for these categories are similar to those used in the first HPI in 2006. For life satisfaction they were chosen to roughly produce three equal groups of countries. For life expectancy, they were based on assessments of what seemed a reasonable length of time to live. People in most OECD countries can expect to live over 75 years, but not all – for example, average life expectancy in Slovakia is 74.2 years, and in Hungary is 72.9 years. Meanwhile, the threshold from amber to red for life expectancy, 60 years, corresponds roughly with the threshold between middle- and low-development based on the Human Development Index.
- 113 See data tables at the back of the report to see which countries belong to which sub-regions.
- 114 UNDP (2007) *op. cit.*
- 115 The UK only did so in 2008 with the Department of Energy and Climate Change.
- 116 Energy bulletin – <http://www.energybulletin.net/node/863>
- 117 <http://epi.yale.edu/Home>
- 118 Diamond (2005) *op. cit.*
- 119 Riley J (2005) *Poverty and life expectancy: The Jamaica paradox* (New York: Cambridge University Press).
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- 121 Wright R (2001) 'Wind energy development in the Caribbean' *Renewable Energy* **24**:439–444.
- 122 See first HPI report for a discussion of this: Marks *et al* (2006) *op.cit.*
- 123 Frederickson B (2009) *Positivity* (New York: Random House).
- 124 This indicator measures the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and a free media. *Governance Matters*, available at: http://info.worldbank.org/governance/wgi/sc_country.asp
- 125 Rodriguez E (2008) 'Participation and decision making in local spaces in Cuba: Notes for a debate on the challenges facing popular power after 30 years' *Latin American Perspectives* **36**:104–113.
- 126 Gott R (2005) *Hugo Chavez and the Bolivarian Revolution* (London: Verso).
- 127 Sousa Santos (1998) 'Participatory budgeting in Porto Alegre: Toward a redistributive democracy' *Politics & Society* **26**:461–510.
- 128 For details on this perspective, see www.gaiandemocracy.net
- 129 A regression on Ecological Footprint using \ln (GDP per capita) as an independent variable predicts higher footprints for Latin American countries than actually exist. Including a dummy variable to code for Latin American countries, it emerges as significant, with a beta coefficient of -0.6. In other words, controlling for GDP per capita, Latin American countries have footprints that are 0.6 gha less than other countries.
- 130 From a presentation given by the Inter-American Development Bank in December 2008 in El Salvador (available at www.summit-americas.org/SIRG/2008/SIRG_1208/IDB_1208_En.PPT).
- 131 From Eurostat database 'Electricity generated from renewable sources – % of gross electricity consumption' Downloaded from http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables on 13.05.09.
- 132 This remaining one – Hong Kong – is technically no longer an autonomous state.
- 133 These results are based on independent group t-tests, not assuming equal variation. $p = 0.02$ for life satisfaction, $p = 0.01$ for life expectancy and $p = 0.001$ for HPI. Meanwhile $p = 0.406$ for GDP per capita.
- 134 Polanyi K (1944) *The great transformation; the political and economic origins of our time* (New York: Farrar. & Rinehart).
- 135 CO₂ emissions (kg per 2000 US\$ of GDP), from *World Development Indicators*.
- 136 The issue of decoupling is one of great controversy. Whilst it is true that, in economic terms, less resources are required per \$ of economic activity now than in the past, this has not translated to a reduction in resource use overall. For an introduction into this issue see Chapter 5 of Jackson (2009) *op. cit.*
- 137 These 36 countries were: Argentina, Brazil, Bulgaria, Chile, China, Egypt, Finland, France, Germany, India, Indonesia, Iran, Iraq, Italy, Japan, Jordan, Korea (South), Mexico, Moldova, Morocco, Netherlands, Peru, Poland, Romania, Russia, Serbia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States of America, and Vietnam.
- 138 Averages calculated here without weighting countries for population.
- 139 $r = -0.44$, $p < 0.01$. No significant correlation is found between GDP growth and change in HPI between 2000 and 2005.

- 140 Qiang S, Jisu H, Xiaojun S, Xiaodong W and Yang L (2009) *Unhappy China*.
- 141 BBC, 19 June 2007: <http://news.bbc.co.uk/1/hi/world/asia-pacific/6769743.stm>
- 142 See, for example Chapter 3.
- 143 For further information, see the Istanbul Declaration (www.oecd.org/dataoecd/14/46/38883774.pdf) and the OECD website www.oecd.org/progress
- 144 Turkey was excluded due to lack of data. We also calculated HPI scores for six of the ten newer OECD members – Japan, Finland, Australia, New Zealand, South Korea and Mexico.
- 145 Of course, in 1961 the world's population was considerably smaller and ecosystems in more pristine condition and so this resource use was just within the margins of one-planet living at the time.
- 146 Qiang *et al.* (2009) *op. cit.*
- 147 It should be noted that the data for Mexico's ecological footprint is very erratic. Even smoothing this data somewhat, there is huge variation such that, for example, the country's lowest HPI was recorded in 1999, only five years before its highest HPI in 2004. Analysing the data, however, it does appear that the figures around 1999 represent an anomaly rather than the norm.
- 148 Scott K (2009) 'Scottish villagers stun developers by demanding extra turbine' *The Guardian*, 10 May.
- 149 www.thebiglunch.com – The Big Lunch takes place on 19 July 2009.
- 150 One can find out more about Transition Towns at <http://transitiontowns.org>, and Slow Cities at www.cittaslow.net
- 151 Cain A, Darido G, Baltés M, Rodríguez P and Barrios JC (2006) *Applicability of Bogotá's TransMilenio BRT System to the United States*. National BRT Institute.
- 152 Based on estimates by the Stockholm Environment Institute (<http://resource-accounting.org.uk/downloads/?page=downloads>).
- 153 Wards are small scale geographical units in the UK, with populations of around 1,000 people each.
- 154 For a study on a successful community garden project see Bartolomei L, Corkery L, Judd B and Thompson S (2003) *A bountiful harvest: community gardens and neighbourhood renewal* (Sydney, Australia: New South Wales Government Department of Housing) and www.communitygarden.org.au/experience/gardens/waterloo.html
- 155 www2.btcv.org.uk/display/greengym
- 156 This approach was pioneered by Camden Borough in London, in partnership with **nef**. See www.procurementcupboard.org/Tools.aspx for more information and the report commissioned by the UK Cabinet Office: Nietzert E and Ryan-Collins J (2009) *A better return: Setting the foundations for intelligent commissioning to achieve value for money* (London: **nef**).
- 157 First published in February 2009 on No Impact Man's blog <http://noimpactman.typepad.com/blog> and reproduced here in edited form with the kind permission of Colin Beavan.
- 158 Landes D (1972) *The Unbound Prometheus – technological change and industrial development in Western Europe from 1750 to the present* (Cambridge: CUP).
- 159 All figures for energy consumption from *World Development Indicators*.
- 160 Webster K and Johnson C (2008) *Sense and sustainability – educating for a low carbon world* (Preston, UK: TerraPreta).
- 161 Martínez D M and Ebenhack BW (2008) 'Understanding the role of energy consumption in human development through the use of saturation phenomena' *Energy Policy* **36**:1430–1435.
- 162 Seyfang G (2006) 'Ecological citizenship and sustainable consumption: examining local organic food networks' *Journal of Rural Studies* **22**:383–395.
- 163 The correlation is 0.91 and the average rank change is ± 1.6 places.
- 164 Turner A (2007) 'Dethroning growth', in Simms and Smith (2008) *op. cit.*
- 165 See the charter later on this chapter for a definition of the precise targets.
- 166 A term coined by the ecological economist Herman Daly.
- 167 Turner (2007) *op. cit.*
- 168 Again echoing the 'threshold hypothesis' mentioned in Chapter 3 – Max-Neef (1995) *op. cit.*
- 169 Clark *et al* (2008) *op. cit.*
- 170 www.happyplanetindex.org
- 171 Frey B and Stutzer A (2005) 'Beyond outcomes: measuring procedural utility' *Oxford Economic Papers* **57**: 90–111.
- 172 Referred to on p.218 of Hamilton (2004) *op. cit.*
- 173 Using traditional economic models, the Canadian economist Peter Victor has determined that the only way to reduce our CO₂ emissions is to steadily reduce working hours to make up for increasing productivity. Victor P (2009) *Managing without growth: slower by design* (Basingstoke: Palgrave Macmillan).
- 174 Webster and Johnson (2008) *op. cit.*
- 175 Aked J, Marks N, Cordon C and Thompson S (2008) *Five ways to well-being: The evidence* (London: **nef**).
- 176 Daly H (2008) 'On a road to disaster' *New Scientist*, 15 October.
- 177 Jackson T (2009) *op. cit.*

- 178 Smith and Simms (2007) *op. cit.*
- 179 Wilde O (1891) 'The soul of man under socialism' *The Fortnightly Review*. February.
- 180 OECD (2008) *Handbook on constructing composite indicators: Methodology and user guide* (OECD: Paris).
- 181 A z-score is the difference between a given score and the mean of the sample from which it is taken, divided by the standard deviation.
- 182 UNDP (2007) *op. cit.* Figures for Iraq and Serbia, for which the UNDP does not calculate the HDI, are available in table 1a of the report.
- 183 World Database of Happiness (www1.eur.nl/fsw/happiness). Item O-SLW/c/sq/n/10/a.
- 184 Abdallah *et al* (2008) *op cit.*
- 185 Gallup (2006) *The World Poll Questionnaire*. Available at http://media.gallup.com/dataviz/www/WP_Questions_WHITE.pdf. For more information on Gallup's methodology see www.gallup.com/consulting/worldpoll/24046/About.aspx
- 186 Stepwise regression adds variables to the equation one-by-one provided they add a significant degree of predictive power. Variables which do not add much predictive power are not included.
- 187 http://info.worldbank.org/governance/wgi/sc_country.asp
- 188 For full details on the methodologies used here, please contact the authors.
- 189 This is based on responses to a set of 16 questions, including the General Health Questionnaire (GHQ-12; Goldberg D and Williams P (1988) *A user's guide to the General Health questionnaire* (Windsor, UK: NFER-Nelson)). To estimate a life satisfaction score from these questions, we used data from the 17th wave of the UK British Household Panel Survey which included the same 16 questions as well as life satisfaction. For further details contact the authors or the Centre for Bhutan Studies (www.bhutanstudies.org.bt).
- 190 Sutton P and Costanza R (2002) 'Global estimates of market and non-market values derived from night time satellite imagery, land cover and ecosystem service valuation' *Ecological Economics* **41**:509–527.
- 191 Please contact the authors for further details on the three regressions used.
- 192 Common (2007) *op. cit.*
- 193 This is the standard deviation of a variable divided by its mean.
- 194 Coefficients of variance were matched for all 179 countries in our database, not just the 143 reported on in this report. It is for this reason that we estimated life satisfaction figures for the remaining 36 countries where they were not available.
- 195 Reed A (pers comms).
- 196 A few exceptions should be noted. The figure for Mexico for 2000 was suspiciously high (18.3 gha per capita). Rather than use that, we took the average of the two adjoining years (1999 and 2001) and the figure estimated using a regression from other data. The other two exceptions were for Moldova and Slovenia in 1990 which were not yet independent in 1990. As such footprints are not available, but can be estimated using other data.
- 197 Schmitt H and Scholz E (2003) *The Mannheim Eurobarometer Trend File, 1970–2002*.
- 198 www1.eur.nl/fsw/happiness

HPI results table

Countries in HPI rank		Sub-region	Life Exp	Life Sat	Footprint	HPI
2050 target						
1.	Costa Rica	1a	87.0	8.0	1.7	89.0
2.	Dominican Republic	1a	78.5	8.5	2.3	76.1
3.	Jamaica	1a	71.5	7.6	1.5	71.8
4.	Guatemala	1a	72.2	6.7	1.1	70.1
5.	Vietnam	1a	69.7	7.4	1.5	68.4
6.	Colombia	1a	73.7	6.5	1.3	66.5
7.	Cuba	1b	72.3	7.3	1.8	66.1
8.	El Salvador	1a	77.7	6.7	1.8	65.7
9.	Brazil	1a	71.3	6.7	1.6	61.5
10.	Honduras	1b	71.7	7.6	2.4	61.0
11.	Nicaragua	1a	69.4	7.0	1.8	61.0
12.	Egypt	1a	71.9	7.1	2.0	60.5
13.	Saudi Arabia	3a	70.7	6.7	1.7	60.3
14.	Philippines	3b	72.2	7.7	2.6	59.7
15.	Argentina	6c	71.0	5.5	0.9	59.0
16.	Indonesia	1b	74.8	7.1	2.5	59.0
17.	Bhutan	6c	69.7	5.7	0.9	58.9
18.	Panama	5a	64.7	6.1	1.0	58.5
19.	Laos	1a	75.1	7.8	3.2	57.4
20.	China	6c	63.2	6.2	1.1	57.3
21.	Morocco	6a	72.5	6.7	2.1	57.1
22.	Sri Lanka	3a	70.4	5.6	1.1	56.8
23.	Mexico	5a	71.6	5.4	1.0	56.5
24.	Pakistan	1a	75.6	7.7	3.4	55.6
25.	Ecuador	5a	64.6	5.6	0.8	55.6
26.	Jordan	1b	74.7	6.4	2.2	55.5
27.	Belize	3b	71.9	6.0	1.7	54.6
28.	Peru	1a	75.9	6.6	2.6	54.5
29.	Tunisia	1b	70.7	5.9	1.6	54.4
30.	Trinidad and Tobago	3a	73.5	5.9	1.8	54.3
31.	Bangladesh	1a	69.2	6.7	2.1	54.2
32.	Moldova	5a	63.1	5.3	0.6	54.1
33.	Malaysia	7b	68.4	5.7	1.2	54.1
34.	Tajikistan	6c	73.7	6.6	2.4	54.0
35.	India	7a	66.3	5.1	0.7	53.5
36.	Venezuela	5a	63.7	5.5	0.9	53.0
37.	Nepal	1b	73.2	6.9	2.8	52.5
38.	Syria	5a	62.6	5.3	0.8	51.9
39.	Burma	3b	73.6	5.9	2.1	51.3
40.	Algeria	5a	60.8	5.9	1.1	51.2
41.	Thailand	3a	71.7	5.6	1.7	51.2
42.	Haiti	6c	69.6	6.3	2.1	50.9
43.	Netherlands	1a	59.5	5.2	0.5	50.8
44.	Malta	2c	79.2	7.7	4.4	50.6
45.	Uzbekistan	2e	79.1	7.1	3.8	50.4
46.	Chile	7a	66.8	6.0	1.8	50.1
47.	Bolivia	1b	78.3	6.3	3.0	49.7
48.	Armenia	1b	64.7	6.5	2.1	49.3
49.	Singapore	7a	71.7	5.0	1.4	48.3
50.	Yemen	6b	79.4	7.1	4.2	48.2
51.	Germany	3b	61.5	5.2	0.9	48.1
52.	Switzerland	2c	79.1	7.2	4.2	48.1
53.	Sweden	2c	81.3	7.7	5.0	48.1
54.	Albania	2d	80.5	7.9	5.1	48.0
55.	Paraguay	7b	76.2	5.5	2.2	47.9
56.	Palestine	1b	71.3	6.9	3.2	47.8
57.	Austria	3b	72.9	5.0	1.5	47.7
58.	Serbia	2c	79.4	7.8	5.0	47.7
59.	Finland	7b	73.6	6.0	2.6	47.6
60.	Croatia	2d	78.9	8.0	5.2	47.2
61.	Kyrgyzstan	7b	75.3	6.4	3.2	47.2
62.	Cyprus	7a	65.6	5.0	1.1	47.1
63.	Guyana	2e	79.0	7.2	4.5	46.2
64.	Belgium	1a	65.2	6.5	2.6	45.6
65.	Bosnia and Herzegovina	2c	78.8	7.6	5.1	45.4
66.	Slovenia	7b	74.5	5.9	2.9	45.0
67.	Israel	7b	77.4	7.0	4.5	44.5
68.	Korea	3b	80.3	7.1	4.8	44.5
69.	Italy	6b	77.9	6.3	3.7	44.4
70.	Romania	2e	80.3	6.9	4.8	44.0
71.	France	7b	71.9	5.9	2.9	43.9
72.	Georgia	2c	80.2	7.1	4.9	43.9
73.	Slovakia	7a	70.7	4.3	1.1	43.6
74.	United Kingdom	7b	74.2	6.1	3.3	43.5
75.	Japan	2c	79.0	7.4	5.3	43.3
76.	Spain	6b	82.3	6.8	4.9	43.3
77.	Poland	2e	80.5	7.6	5.7	43.2
78.	Ireland	7b	75.2	6.5	4.0	42.8
79.	Iraq	2c	78.4	8.1	6.3	42.6
80.	Cambodia	3b	57.7	5.4	1.3	42.6
81.	Iran	6c	58.0	4.9	0.9	42.3
82.	Bulgaria	3b	70.2	5.6	2.7	42.1
		7b	72.7	5.5	2.7	42.0

Countries in HPI rank		Sub-region	Life Exp	Life Sat	Footprint	HPI
2050 target						
83.	Turkey	3b	71.4	5.5	2.7	41.7
84.	Hong Kong	6b	81.9	7.2	5.7	41.6
85.	Azerbaijan	7a	67.1	5.3	2.2	41.2
86.	Lithuania	7a	72.5	5.8	3.2	40.9
87.	Djibouti	4b	53.9	5.7	1.5	40.4
88.	Norway	2d	79.8	8.1	6.9	40.4
89.	Canada	2b	80.3	8.0	7.1	39.4
90.	Hungary	7b	72.9	5.7	3.5	38.9
91.	Kazakhstan	7a	65.9	6.1	3.4	38.5
92.	Czech Republic	7b	75.9	6.9	5.4	38.3
93.	Mauritania	4c	63.2	5.0	1.9	38.2
94.	Iceland	2d	81.5	7.8	7.4	38.1
95.	Ukraine	7c	67.7	5.3	2.7	38.1
96.	Senegal	4c	62.3	4.5	1.4	38.0
97.	Greece	2e	78.9	6.8	5.9	37.6
98.	Portugal	2e	77.7	5.9	4.4	37.5
99.	Uruguay	1c	75.9	6.8	5.5	37.2
100.	Ghana	4c	59.1	4.7	1.5	37.1
101.	Latvia	7b	72.0	5.4	3.5	36.7
102.	Australia	2a	80.9	7.9	7.8	36.6
103.	New Zealand	2a	79.8	7.8	7.7	36.2
104.	Belarus	7c	68.7	5.8	3.9	35.7
105.	Denmark	2d	77.9	8.1	8.0	35.5
106.	Mongolia	7a	65.9	5.7	3.5	35.0
107.	Malawi	4a	46.3	4.4	0.5	34.5
108.	Russia	7c	65.0	5.9	3.7	34.5
109.	Chad	4b	50.4	5.4	1.7	34.3
110.	Lebanon	3b	71.5	4.7	3.1	33.6
111.	Macedonia	7b	73.8	5.5	4.6	32.7
112.	Congo	4a	54.0	3.6	0.5	32.4
113.	Madagascar	4a	58.4	3.7	1.1	31.5
114.	United States of America	2b	77.9	7.9	9.4	30.7
115.	Nigeria	4c	46.5	4.8	1.3	30.3
116.	Guinea	4c	54.8	4.0	1.3	30.3
117.	Uganda	4b	49.7	4.5	1.4	30.2
118.	South Africa	4a	50.8	5.0	2.1	29.7
119.	Rwanda	4b	45.2	4.2	0.8	29.6
120.	Congo, Dem. Rep. of the	4a	45.8	3.9	0.6	29.0
121.	Sudan	4b	57.4	4.5	2.4	28.5
122.	Luxembourg	2c	78.4	7.7	10.2	28.5
123.	United Arab Emirates	3b	78.3	7.2	9.5	28.2
124.	Ethiopia	4b	51.8	4.0	1.4	28.1
125.	Kenya	4b	52.1	3.7	1.1	27.8
126.	Cameroon	4c	49.8	3.9	1.3	27.2
127.	Zambia	4a	40.5	4.3	0.8	27.2
128.	Kuwait	3b	77.3	6.7	8.9	27.0
129.	Niger	4c	55.8	3.8	1.6	26.9
130.	Angola	4a	41.7	4.3	0.9	26.8
131.	Estonia	7b	71.2	5.6	6.4	26.4
132.	Mali	4c	53.1	3.8	1.6	25.8
133.	Mozambique	4a	42.8	3.8	0.9	24.6
134.	Benin	4c	55.4	3.0	1.0	24.6
135.	Togo	4c	57.8	2.6	0.8	23.3
136.	Sierra Leone	4c	41.8	3.6	0.8	23.1
137.	Central African Republic	4a	43.7	4.0	1.6	22.9
138.	Burkina Faso	4c	51.4	3.6	2.0	22.4
139.	Burundi	4b	48.5	2.9	0.8	21.8
140.	Namibia	4a	51.6	4.5	3.7	21.1
141.	Botswana	4a	48.1	4.7	3.6	20.9
142.	Tanzania	4b	51.0	2.4	1.1	17.8
143.	Zimbabwe	4a	40.9	2.8	1.1	16.6

HPI colour key:

All 3 components good

2 components good, 1 middling

1 component good and 2 middling

3 components middling

Any with 1 component poor

2 components poor, or 'blood red' footprint

Sub-region codes:

1a Central America, Mexico & Caribbean
1b South America

2a Australia & NZ
2b North America
2c Western Europe
2d Nordic Europe
2e Southern Europe

3a North Africa
3b Middle East / South West Asia

4a Southern & Central Africa
4b East Africa
4c West Africa

5a South Asia

6a China
6b Wealthy East Asia
6c South East Asia

7a Central Asia & Caucasus
7b Central & Eastern Europe
7c Russia, Ukraine & Belarus

For colour key of HPI components see Table 1, page 25.

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