



HAPPY
PLANET
INDEX

The Happy Planet Index: 2012 Report

A global index of sustainable well-being

Contents

- Executive summary 3
- 1. New economy, new indicators..... 4
- 2. A measure of sustainable well-being 6
- 3. Results: An amber planet 10
- 4. Steps towards a happy planet 17
- Appendix: Calculating the Happy Planet Index.... 19
- Endnotes 22

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.



Executive summary

There is a growing global consensus that we need new measures of progress. It is critical that these measures clearly reflect what we value – something the current approach fails to do.

The Happy Planet Index (HPI) measures what matters. It tells us how well nations are doing in terms of supporting their inhabitants to live good lives now, while ensuring that others can do the same in the future, i.e. sustainable well-being for all.

The third global HPI report reveals that this is largely still an unhappy planet – with both high- and low-income countries facing many challenges on their way to meeting this same overall goal. But it also demonstrates that good lives do not have to cost the Earth – that the countries where well-being is highest are not always the ones that have the biggest environmental impact.

The HPI is one of the first global measures of sustainable well-being. It uses global data on experienced well-being, life expectancy, and Ecological Footprint to generate an index revealing which countries are most efficient at producing long, happy lives for their inhabitants, whilst maintaining the conditions for future generations to do the same.

$$\text{Happy Planet Index} \approx \frac{\text{Experienced well-being} \times \text{Life expectancy}}{\text{Ecological Footprint}}$$

This simple headline indicator gives a clear sense of whether a society is heading in the right direction. It provides a vital tool to ensure fundamental issues are accounted for in crucial policy decisions.

At heart, the HPI is a measure of efficiency. It calculates the number of Happy Life Years (life expectancy adjusted for experienced well-being) achieved per unit of resource use.

This year's results:

- Confirm that we are still not living on a happy planet, with no country achieving high and sustainable well-being and only nine close to doing so.
- Highlight that eight of those nine countries are in Latin America and the Caribbean.
- Show the highest ranking Western European nation to be Norway in 29th place, just behind New Zealand in 28th place.
- Place the USA in 105th position out of 151 countries.
- Demonstrate how the scores of high-income countries are brought down considerably by their large Ecological Footprints.

The HPI is a headline indicator that provides an overall picture, but countries which do well on the HPI can still suffer many problems. Other indicators will also be necessary to fully assess how societies are doing. **nef** (the new economics foundation) has developed a measurement framework of which HPI is one component; it sits alongside other measures such as economic performance and environmental pressure.

In a world of dwindling resources, efficiency has to sit at the heart of our approach. For this reason we believe the HPI should be used as a headline indicator of progress. That there is a need for a new indicator like it cannot be questioned.

The Happy Planet Index is a new measure of progress that focusses on what matters: sustainable well-being for all. It tells us how well nations are doing in terms of supporting their inhabitants to live good lives now, while ensuring that others can do the same in the future.

In a time of uncertainty, the Index provides a clear compass pointing nations in the direction they need to travel, and helping groups around the world to advocate for a vision of progress that is truly about people's lives.



1. New economy, new indicators

Improving the quality of our lives should be the ultimate target of public policies. But public policies can only deliver best fruit if they are based on reliable tools to measure the improvement they seek to produce in our lives.

Angel Gurría, Secretary General of the OECD, May 2011¹

The Happy Planet Index (HPI) is a new measure of progress. It tells us how well nations are doing in terms of supporting their inhabitants to live good lives now, while ensuring that others can do the same in the future. It points the way towards sustainable well-being for all.

This, the third global HPI report, presents the latest data on how countries are doing in terms of achieving sustainable well-being. It reveals that this is largely still an *unhappy* planet – with both rich and poor countries facing many challenges on their way to meeting this same overall goal. But it also demonstrates that good lives do not have to cost the Earth – that the countries where well-being is highest are not always the ones that have the biggest environmental impact.

The report comes at a time of uncertainty for the world – with widening inequality and economic crises threatening many countries, and environmental crisis threatening all. For many – including politicians, academics, and communities – there is a realisation that part of the blame for this situation may lie with the types of goals that nations have prioritised. How we measure progress, the indicators that are at the fore of the minds of politicians and the public, and on the front pages of the newspapers, are central to defining those priorities. This is why we call on partners around the world to join us in working towards measuring progress differently.

The measurement impulse

Following World War II, governments began to adopt emerging measures of economic activity. In particular Gross Domestic Product (GDP) was used as an indicator of national progress. For all its flaws, it was an excellent tool for measuring progress towards the goal of increased economic production.

But in the twenty-first century, politicians, NGOs,² academics, and the general public are looking beyond economic growth to understand progress. Whether one talks about 'a different kind of growth' (as described by the OECD's³ Chief Economist Pier Carlo Padoan),⁴ or 'prosperity *without* growth' (as suggested by former UK Sustainable Development Commission Economist Professor Tim Jackson),⁵ there is an emerging consensus that economic activity should be seen as a means to an end, rather than an end in itself.

Those involved in this international conversation talk about the end goal in different ways. The OECD's motto is *better policies for better lives*. The UK Office for National Statistics has embarked on a programme to measure National Well-Being.⁶ Italy's Statistics Office is working on *Benessere Equo e Sostenibile* (sustainable and equitable well-being).⁷ In Germany, a high-level parliamentary commission has been set up to explore the links between *growth, prosperity and quality of life*.⁸ In Bhutan, the government has committed itself to pursuing *Gross National Happiness*, a notion that is also catching on in Brazil. In Ecuador and Bolivia, the term used is *Buen Vivir*, which translates to living well.⁹ In China, leaders also recognise that a different approach to development is needed.^{10,11}

Across the board, two goals are consistently present – achieving good lives for present generations and respecting environmental limits to allow future generations to do the same. We call this 'sustainable well-being'.

A new vision of progress calls for new indicators – something that all these countries and organisations have recognised. Indeed, since the first HPI was launched in 2006, many measurement initiatives, led by governments, supra-national organisations, NGOs, and academics, have emerged. In 2011, the UN General Assembly unanimously adopted Resolution 65/309, which *invites Member States to pursue the elaboration of additional measures that better capture the importance of the pursuit of happiness and well-being in development with a view to guiding their public policies*.¹²

Deciding how to measure progress is not some arcane issue for statistics office and academics to ponder alone. Measurement influences the decisions we make as governments and as individuals. An indicator like GDP, which has gained considerable political weight, can bring governments down. Aware of the public attention given to GDP growth rates, governments will do anything to ensure that they are kept positive, with environmental consequences often seen to be of secondary importance.¹³ It can be easy to forget that, in reality, all of our prosperity rests fundamentally on the one planet we all share. The prominence given to certain indicators can also frame political debate in ways that are unconscious and pervasive.¹⁴ It is therefore important that what we measure tallies with what we value.

And it is more important than ever today. If responses to the economic crisis are simply about returning to business as usual, this will only serve to take us closer to environmental crisis – something which appears to have been forgotten by many in the last few years. But climate change is not getting any further away, and known reserves of many key resources such as oil, copper, and tin look set to run dry in the next few decades.^{15,16} The old, inefficient economy is no longer physically possible.¹⁷

A new economy needs to produce the conditions for good lives that don't cost the Earth and this may require a radical shift from the system we have today. Here at **nef** (the new economics foundation), we are busy trying to put together a picture of what this economy looks like, including a new economic model which, for the first time, attempts to explore how an economy can deliver well-being whilst staying within environmental limits. The HPI provides the standard by which such society-wide solutions to today's challenges can be assessed.



2. A measure of sustainable well-being

Brazil supports the establishment of a process to set new ways of measuring progress that reflect the environmental, social and economic facets of development ... The process... must avoid the proposal of indices that are overly complex, or that have too many components.

Brazil's contribution to the preparatory process for the UN Rio +20 conference¹⁸

The HPI provides a single, easily communicable headline indicator which gives an overall sense of whether a society is heading in the right direction.

Of course, human society is complicated. There are so many things that matter to us, so many things going on, that measuring everything would be impossible. The Earth and the health of its ecosystems are no simpler. What can we measure that will allow us to decide whether our societies are improving or not? What can we model to judge whether a particular course of action is likely to be for the better or the worse?

From what we have said so far, it is clear that an overall indicator needs to take two things into account – current well-being and our impact on the planet. If we can assess the extent to which we achieve the former whilst ensuring the latter stays within fundamental limits, then we have, if nothing else, a compass which provides a sense of direction.

The following paragraphs explain how the HPI measures these factors through three components: experienced well-being, life expectancy, and Ecological Footprint; and how it brings them together into a single meaningful efficiency measure, to produce one of the first global measures of sustainable well-being.¹⁹

Well-being

If you want to know how well someone's life is going, your best bet is to ask them. The HPI uses data from surveys which do just that, providing a measure of *experienced well-being*.

When asking people how they themselves feel about their lives, we allow them to decide what is important to them, to assess the issues according to their own criteria, to weight each one as they choose, and to produce an overall response. This democratic, non-paternalistic approach does not rely on experts knowing what is 'best' for people. It also measures something which is universally considered valuable – everybody wants to feel good about their life. This applies across cultures and also across time.

Another approach that *could* be adopted would be to create a list of things which we think are important to people's well-being – for example, education, income, and safety – measure them, and then bring them together into some kind of index. But how do we decide what things to include in that list and how do we combine them? Should some things be given more weighting than others? And what does the number that comes out at the end actually mean?

Measuring well-being through direct measures of experience using survey data, builds on a rich vein of psychology, economics, and sociology research, and has been demonstrated to provide valid and reliable data.^{20,21,22} In this report, experienced well-being is assessed using a question called the 'Ladder of Life' from the Gallup World Poll.²³ This asks respondents to imagine a ladder, where 0 represents the worst possible life and 10 the best possible life, and report the step of the ladder they are currently standing on.²⁴

Alongside experienced well-being, we also include a measure of health – life expectancy. We use this measure because health is also universally considered important. For example, the OECD has recently collected data from its *Better Life Index* website which allows it to compare how people rate the importance of a range of different life domains. The two highest ratings are given to life satisfaction (a measure of experienced well-being), and health. Furthermore, these two domains remain the top two factors in eight out of eleven world regions.^{25,26} Average life expectancy is a well-established indicator that has been calculated since the nineteenth century. In fledgling Germany, Bismarck based the state retirement age of 65 on life expectancy data.²⁷ The UN's *Human Development Index* has included life expectancy since its inception.

We have combined life expectancy and experienced well-being in a variation of an indicator called *Happy Life Years*, developed by sociologist Ruut Veenhoven.²⁸ Modelled on the indicator Quality Adjusted Life Years, this indicator is calculated by adjusting life expectancy in a country by average levels of experienced well-being.

Environmental impact

Unless you care nothing for the future – neither your own, nor that of your children, nor that of future generations – environmental impact matters. We live in a world of scarce resources. A society that achieves high well-being now, but consumes so much that sufficient resources are not available for future generations, can hardly be considered successful. Nor could one that depends on the extraction of resources from other countries, leaving their inhabitants with nothing. For that reason, resource consumption is central to the HPI.

We use the Ecological Footprint, a metric of human demand on nature, used widely by NGOs, the UN, and several national governments.²⁹ It measures the amount of land required to sustain a country's consumption patterns. It includes the land required to provide the renewable resources people use (most importantly food and wood products), the area occupied by infrastructure, and the area required to absorb CO₂ emissions. Crucially it includes 'embedded' land and emissions from imports. So the CO₂ associated with the manufacture of a mobile phone made in China, but then bought by someone living in Chile, will count towards Chile's Ecological Footprint, not China's.

Calculating the index

Achieving the two elements of sustainable well-being requires efficiency. The HPI measures this as the number of Happy Life Years achieved per unit of resource use. This is calculated approximately by dividing Happy Life Years by Ecological Footprint. ('Approximately' because there are some adjustments to ensure that all three components – experienced well-being, life expectancy and Ecological Footprint – have equal variance so that no single component dominates the overall Index).

$$\text{Happy Planet Index} \approx \frac{\text{Experienced well-being} \times \text{Life expectancy}}{\text{Ecological Footprint}}$$



Box 1. The Ecological Footprint and biocapacity

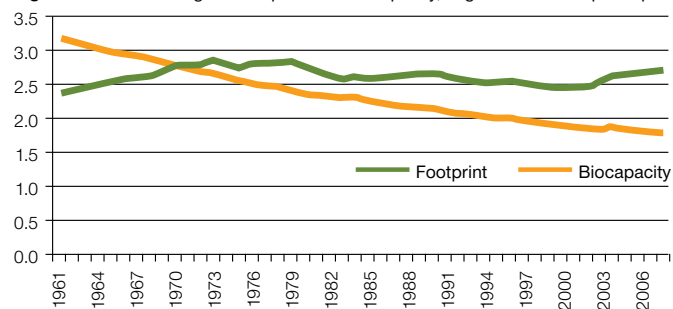
Global Footprint Network, which has developed the Ecological Footprint, also calculates biocapacity for countries and for the world as a whole. This is a measure of how much land is available to produce the resources and services whose consumption is measured by the Footprint. Both the Ecological Footprint and biocapacity are measured in terms of global hectares (g ha), which represent a hectare of land with average productive biocapacity.

Combining biocapacity data with global population, we can work out an upper limit of consumption that could be sustained by everyone on the planet whilst remaining within environmental limits – the figure is currently 1.8 g ha per capita.³⁰ Figure 1 shows how the world as a whole went beyond this limit in 1970 and is now in ecological overshoot.³¹ As a result, we have been extracting the world's resources faster than it can regenerate them – a way of conceptualising many of our current environmental crises.

The Ecological Footprint is not a perfect measure of environmental impact. There are issues that it does not fully take into account, and the methodology has been constantly improved over the last 20 years. But, to date, it represents the best overall assessment of human demand on nature.

Most importantly the Ecological Footprint assesses *global* impact. High income nations often point to their declining CO₂ emissions and improving local environments as evidence of having taken sustainability seriously, but the reality is that the lifestyles of people living in those countries still contribute to environmental degradation: they have simply 'exported' this damage to the low income countries where the products they consume are produced. Many countries live beyond their own biocapacity in this way. This is not only unjust, it is also economically unwise. When a country is consistently dependent on others for its resources, it is vulnerable and runs up an ecological debt that it will eventually have to face.

Figure 1. Global Ecological Footprint and biocapacity, in global hectares per capita³²



The Ecological Footprint highlights that it is still the wealthiest nations that have the most to do in terms of reducing environmental impact. Most people living in emerging economies, such as India or Indonesia, consume at levels that do not take us beyond planetary limits.

For more information, visit www.footprintnetwork.org



Traffic-light scores

As well as the overall HPI score produced by this equation, this report also uses a traffic-light system whereby thresholds for 'good' (green), 'middling' (amber), or 'bad' (red) performance are used for each of the three components. These thresholds are applied in acknowledgement of the fact that performance against each of the three measures is not entirely substitutable – there are goals for each one. For example, with the Ecological Footprint, green is achieved if a country lives within its fair share of global biocapacity (below 1.8 g ha per capita). The overall HPI scores are also displayed with an expanded six-colour traffic light. To achieve bright green – the best of the six colours – a country would have to perform well on all three individual components. The second category, light green, is achieved if a country performs well on two components, and middling on the third one (see Figure 5 for further details).

A clear message

By integrating the fundamental issues into a single indicator, the HPI ensures that none are left on the sidelines in crucial policy decisions, as, for example, CO₂ emissions are at the moment. Many of the initiatives for measuring progress emerging at the moment, which propose large sets of indicators, risk remaining peripheral because they are too complicated to communicate and do not provide a clear message of whether we are doing well or not.

3. Results: An amber planet

The global community faces an enormous challenge; improving people’s lives in a way that is sustainable, equitable, and socially just. Measurement can play a central role in meeting this challenge, and changes to the way in which governments measure progress is an urgent priority if we are to increase human well-being and ensure environmental sustainability.

René Ramírez Gallegos, National Secretary for Planning and Development, Ecuador³³

This year’s results confirm that we are still not living on a happy planet. Figures 2 to 4 map out national performance on each of the three component indicators (life expectancy, experienced well-being, and Ecological Footprint), and highlight the top and bottom countries on each. Figure 5 shows the combined score of the components brought together for the HPI itself, as well as presenting the top and bottom countries in terms of HPI.

The maps reveal that the warning lights are glaring brighter than ever before – no country achieves bright green in the HPI map, indicative of good performance on all three components. Indeed, only nine are in the second-best category (light green). Eight of those nine are in Latin America and the Caribbean. Two are classified as very high development by the UN (Argentina and Chile), five as high development (Mexico, Costa Rica, Panama, Jamaica, and Belize), and two as medium development (Vietnam and Guatemala).³⁴

Indeed, amongst the top 40 countries by overall HPI score, only four countries have a GDP per capita of over \$15,000.³⁵ The highest ranking Western European nation is Norway in 29th place, just behind New Zealand in 28th place. The USA is in 105th position out of 151 countries. In all cases, the scores of high income countries are brought down considerably by their large Ecological Footprints. The USA’s Footprint was 7.2 g ha in 2008. If everyone on the planet were to live like Americans did in 2008, we would need four planets to maintain our consumption.

Given this context, Table 1 takes a closer look at the three countries that top the overall HPI rankings. As well as providing the key statistics for each one, we also report a ranking for the countries which takes inequality in well-being into account (Box 2).

How do high-income Western countries compare with these three? Figure 6 provides a way of looking at this question. It plots countries in terms of their Ecological Footprint and Happy Life Years. The target is the top left corner – high Happy Life Years and a Footprint below 1.8 g ha. Countries like Costa Rica are close to this target, though not there yet. High-income countries are spread across the top, from the top middle to the top right. Qatar, for example, has an average experienced well-being score of 6.6 out of 10, and life expectancy of 78.4 years (both below those of Costa Rica). And yet its Footprint is 11.7 g ha per capita – over four times higher than Costa Rica’s. As a result it ranks 149th out of 151 countries in this year’s HPI. New Zealand, by contrast, achieves much higher experienced well-being (7.2 out of 10) and life expectancy (80.7 years), but with a much smaller Footprint – 4.3 g ha per capita. This is still far from being sustainable (being over twice the fair share of 1.8 g ha per capita), but the difference highlights that even amongst high-income countries, there is room for manoeuvre. As a result, New Zealand ranks 28th in the HPI.

RANK	LIFE EXPECTANCY	
1	Japan	83.4
2	Hong Kong	82.8
3	Switzerland	82.3
4	Australia	81.9
5	Italy	81.9
6	Iceland	81.8
7	Israel	81.6
WORLD AVERAGE		
		69.9
149	Congo, Dem. Rep. of the	48.4
150	Central African Republic	48.4
151	Sierra Leone	47.8

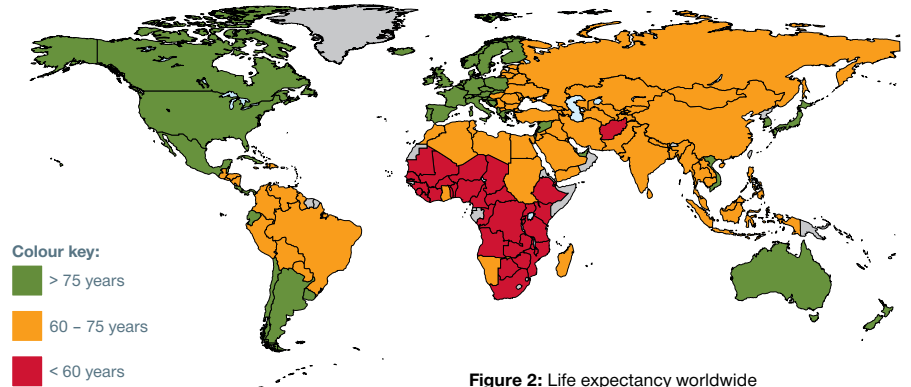


Figure 2: Life expectancy worldwide

RANK	EXPERIENCED WELL-BEING	
1	Denmark	7.8
2	Canada	7.7
3	Norway	7.6
4	Switzerland	7.5
5	Netherlands	7.5
6	Sweden	7.5
7	Venezuela	7.5
WORLD AVERAGE		
		5.3
149	Botswana	3.6
150	Tanzania	3.2
151	Togo	2.8

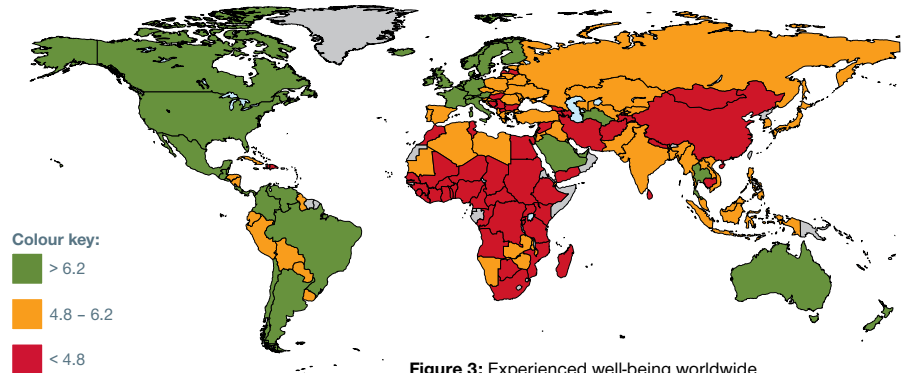


Figure 3: Experienced well-being worldwide

RANK	ECOLOGICAL FOOTPRINT PER CAPITA (GHA)	
1	Qatar	11.7
2	Luxembourg	10.7
3	Kuwait	9.7
4	United Arab Emirates	8.9
5	Denmark	8.3
6	Trinidad and Tobago	7.6
7	United States of America	7.2
WORLD AVERAGE FOOTPRINT		
		2.70
WORLD AVERAGE BIOCAPACITY		
		1.78
149	Bangladesh	0.7
150	Haiti	0.6
151	Afghanistan	0.5

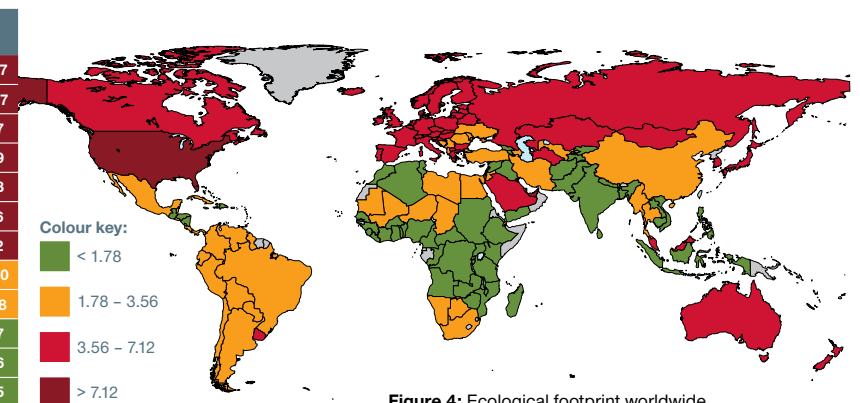


Figure 4: Ecological footprint worldwide

Figure 5: A map of the world, colour-coded by HPI

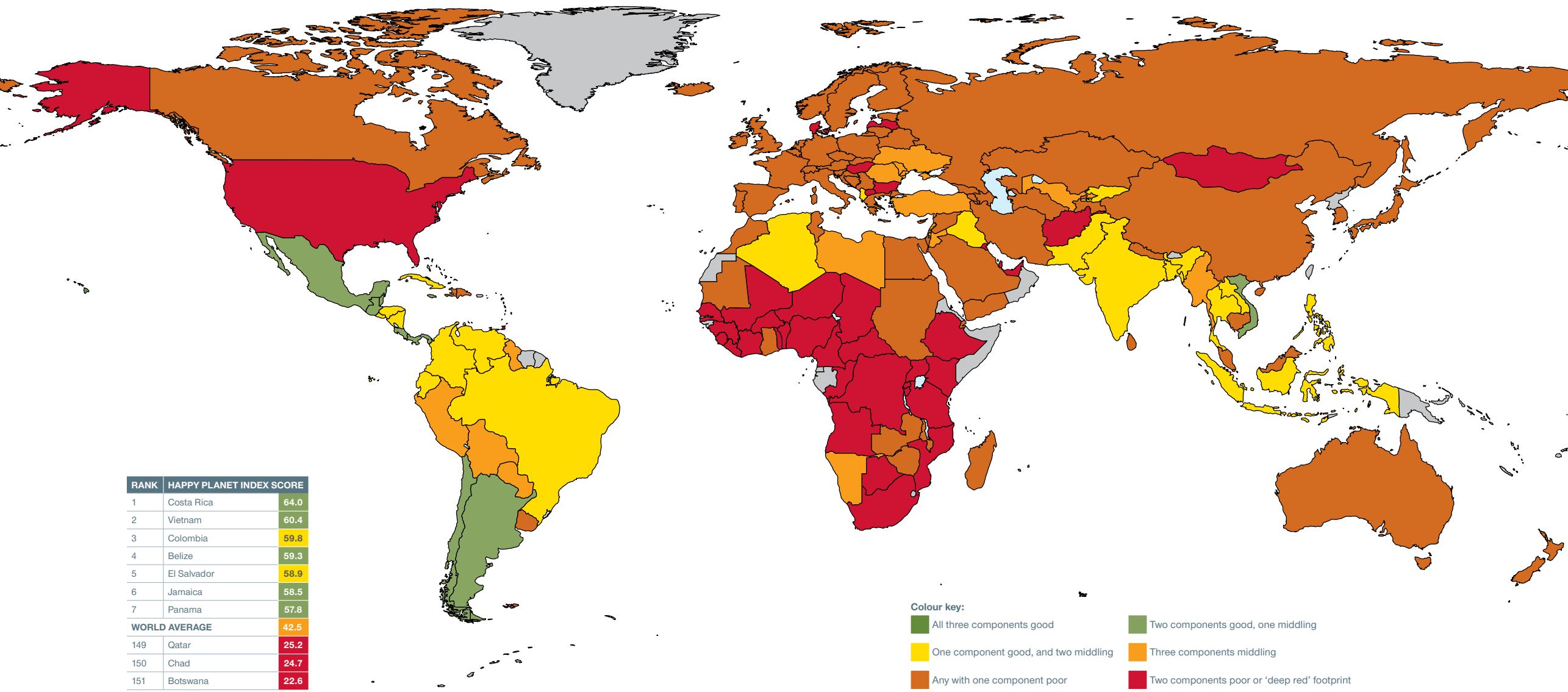


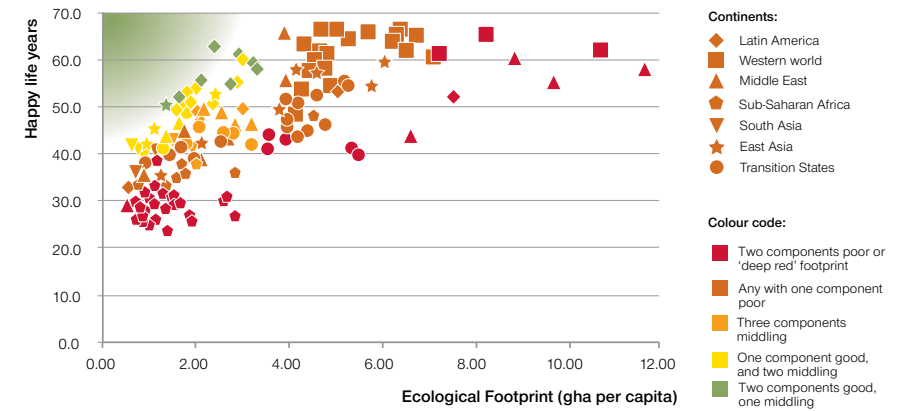
Table 1. Overall HPI rankings

1 Costa Rica	
Experienced well-being: 7.3	For the second time, Costa Rica tops the HPI, again with a substantial lead. The country has embraced sustainability in its national policies: it produces 99 per cent of its energy from renewable sources, has reversed deforestation in the country, and, in 2008, committed itself to becoming carbon neutral by 2021. ³⁶
Life expectancy: 79.3 years	
Ecological Footprint: 2.5 g ha per capita	Costa Rica has the second highest life expectancy in the Americas, higher than the USA's; experienced well-being higher than many richer nations; and a per capita Ecological Footprint one third the size of the USA's.
HPI: 64.0	
Inequality adjusted rank: 1st	
But Costa Rica's Footprint is larger than it would need to be for it to live within its fair share of planetary resources, and is larger than its own biocapacity (1.6 g ha per capita). This is partly due to consumption patterns - the goods consumed by many in the country will have been produced in other countries that have less sustainable energy policies. This goes to show that one country cannot achieve sustainability alone.	
2 Vietnam	
Experienced well-being: 5.8	Vietnam's average life expectancy is now equal to that of Slovakia, despite Slovakia having a per capita GDP seven times larger and a Footprint that is more than three times larger.
Life expectancy: 75.2 years	
Ecological Footprint: 1.4 g ha per capita	Year-on-year economic growth rates have been high, but this in part reflects a very low starting base following the crippling effects of the Vietnam War. Throughout this time, the government's stance has been to favour stability over growth. ³⁷
HPI: 60.4	
Inequality adjusted rank: 2nd	
Is Vietnam's score just a product of its position on the development curve? Will further growth lead to a per capita Ecological Footprint more similar to that of its richer neighbour Malaysia (3.9 g ha) and with inequality levels to match? That depends the development path it chooses.	
3 Colombia	
Experienced well-being: 6.4	Colombia's Footprint is almost within one-planet living, life expectancy is higher than some European countries such as Bulgaria and Latvia, and experienced well-being is relatively high.
Life expectancy: 73.7 years	
Ecological Footprint: 1.8 g ha per capita	The country also takes well-being seriously. The capital, Bogota's <i>Planning for Happiness</i> in 2004, was one of the first examples of a government explicitly looking to improve people's experienced well-being. Currently, the country is running a huge social project <i>Unidos</i> , ³⁸ which uses co-production techniques ³⁹ and community assets, with the aim of lifting 350 000 families out of extreme poverty and substantively improve the lives of 1 150 000 families.
HPI: 59.8	
Inequality adjusted rank: 7th	
Of course instability and inequality are still problems for the country. Adjusting the HPI for inequality (Box 1) takes the country down to 7th place in the rankings.	

What the HPI doesn't measure

The HPI measures a lot, but it does not measure everything. Countries that do well on the HPI suffer many problems. Many high-ranking countries are tainted by important human rights issues. Though one would expect the infringement of rights to negatively impact on the well-being of some people in the country, the HPI does not set out to directly measure those rights. Furthermore, because it is likely that people directly affected by extreme human rights abuses represent a minority, the population average well-being score may not fully reflect this harm (even when inequality is accounted for). In the same vein, the HPI does not directly measure the degradation of ecosystems associated with soil erosion and deforestation, or impacts on biodiversity, or local pollution issues.

Figure 6: The green target. Happy life years and Ecological Footprint for 151 countries, and world average



Bearing this in mind, we do not recommend that the HPI be the only thing that countries measure. Blind pursuit of a single objective, whilst disregarding the means to achieving it, is dangerous. As we will make clear in the next chapter, other indicators will be necessary to fully assess how societies are doing. Nevertheless, the HPI does capture an overall sense of how well a nation is doing, using only three indicators, in a meaningful and interpretable sense. This is its key value.

Changes in happiness

The data we have used for experienced well-being comes from the Gallup World Poll, which began in 2007. This allows us to look at change over time in experienced well-being for a large number of countries, using the same data source. Table 3 shows some risers and fallers in experienced well-being between, roughly, 2007 and 2010. It provides strong evidence to support the idea that experienced well-being is sensitive to changes in the world – with Spain and Greece, now suffering severe economic difficulties, amongst the top 10 fallers over the period.

	1st wave		2nd wave	
	Experienced well-being	Date of survey	Experienced well-being	Date of survey
RISERS				
El Salvador	5.2	Sep-07	6.7	Aug-10
Zimbabwe	3.2	Mar-08	4.8	Mar-11
Venezuela	6.5	Dec-06	7.5	Aug-10
Slovakia	5.3	Apr-06	6.1	Jun-10
Chile	5.8	Aug-07	6.6	Sep-10
Brazil	6.3	Aug-07	6.8	Aug-10
Germany	6.5	Jan-09	6.7	Jun-10
FALLERS				
Botswana	5.5	Jul-08	3.6	Dec-10
Morocco	5.4	Dec-07	4.4	Nov-10
Spain	7.3	Apr-08	6.2	May-10
Greece	6.6	May-07	5.8	Jun-10
Tunisia	5.4	Jun-08	4.7	Apr-11
Egypt	4.6	May-08	3.9	Apr-11
China	4.9	Oct-07	4.7	Jul-10

Table 2. Selected risers and fallers in terms of experienced well-being in Gallup World Poll⁴⁵

Box 2. Inequality-adjusted HPI

Like all indicators, the Happy Planet Index is evolving over time. The HPI score in this report is calculated using the mean experienced well-being score and mean life expectancy for each country. One of the consequences of this is that the index does not fully reflect inequality in these outcomes – it is theoretically possible for two different countries to have the same average scores (in terms of means) in life expectancy and experienced well-being and achieve the same HPI score, despite differences in the way these measures of well-being are distributed across the population.

In practice, the distortions caused by not taking into account distribution and inequality are likely to be more severe for an indicator like GDP per capita than for an indicator like the HPI. GDP per capita is often disproportionately influenced by the very rich, and as a result, mean income is often a lot higher than what most people earn (median income). The distributions of life expectancy and life satisfaction on the other hand are generally less extreme – nobody lives more than 10 times longer than the average.

There is also reason to believe that mean life satisfaction and life expectancy for a country are themselves influenced by the distributions of *income* within that country. An extra £5000 for someone earning £10 000 a year will make a much bigger difference in terms of life satisfaction and life expectancy than the same additional amount of money for someone earning £100 000 a year.^{40,41,42} As a result, one would expect that countries that are more equal in terms of income, with more of the total income shared by those at the bottom of the income spectrum, will have better outcomes in terms of experienced well-being and life expectancy. This is a finding which has been reported in some studies.^{43,44}

We also consider inequality to be worth considering explicitly, using robust data and methodology. This year, for illustrative purposes, we have explored how country rankings might change if we were to take into account within-country inequality in life expectancy and experienced well-being, drawing on the methodology used in the 2011 UN *Human Development Index* (see the appendix for further details). Importantly, we look at the inequality in the two HPI outcomes (life satisfaction and life expectancy) *not* in income. Table 3 shows, for selected countries, the HPI ranking that results from carrying out the adjustment alongside the ranking on the main HPI. Further results can be downloaded from the website www.happyplanetindex.org.

We intend to continue to explore the methodological issues regarding how a measure of sustainable well-being can best reflect inequality, and to report on this further in future reports.

	Ranking (main HPI)	Ranking (inequality adjusted HPI)
Costa Rica	1	1
Vietnam	2	2
Colombia	3	7
Cuba	12	10
Honduras	13	23
Brazil	21	31
Norway	29	22
UK	41	39
Syria	47	64
Iran	77	99
Slovakia	89	75
USA	105	104
Denmark	110	93
Togo	141	145

Table 3. Selected countries ranked according to main HPI and inequality-adjusted HPI

4. Steps towards a happy planet

We need a new economic paradigm that recognizes the parity between the three pillars of sustainable development. Social, economic and environmental well-being are indivisible. Together they define gross global happiness.

Ban Ki-Moon, Secretary-General of the United Nations, April 2012⁴⁶

The HPI within a framework for measuring progress

Whilst the HPI can provide an overall sense of direction, further indicators are of course needed to shape policy and flesh out the details of societies that can achieve good lives without costing the Earth. With that in mind, **nef** is starting to build a coalition of organisations to develop a framework for measuring societal progress (Figure 7).

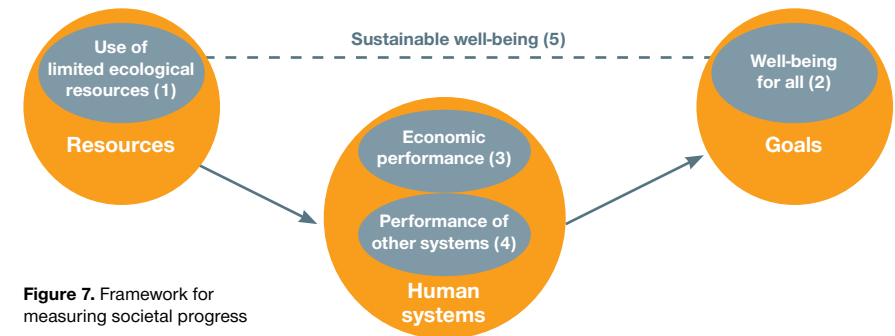


Figure 7. Framework for measuring societal progress

This framework, we believe, should start by distinguishing between three different spheres: our goals (in terms of well-being for all), our scarcest resources (limited ecological resources), and the processes and systems which should be designed to achieve maximal well-being outputs with minimal resource inputs. Within the latter sphere, we have separated out the economic systems as these are the ones that have been the biggest focus of policy to date and are the ones that likely require the biggest change to enable sustainable well-being for all. It is upon the human systems that governments have the most immediate influence, but it is well-being and sustainability that they must ultimately seek to enhance.

For policy-making, in-depth measurement is needed within each of the spheres in the figure. But we also suggest the identification of five key headline indicators which provide an overall picture of how we are doing. The numbers within the diagram relate to these headline indicators:

- 1 Measure of environmental pressure per capita (for the resources sphere).
- 2 Measure of the percentage of the population flourishing (for the goals sphere).
- 3 Measure of economic performance – how well the economy is doing in terms of delivering sustainability and well-being for all (for the economic half of the human systems sphere).
- 4 Measure or set of measures of the other (non-economic) policy-amenable drivers of well-being for all (for the remaining human systems).
- 5 Measure of well-being per unit of environmental pressure (the HPI, or an HPI-like measure; connecting the resources and goals spheres).



We propose that this framework is linked together, so that the headline indicators connect to the more detailed ones, providing a more joined-up approach to policy-making which puts the overall goals of society at the heart of political decisions.

A charter for a happy planet

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

In April 2012, the UN held its first High-Level Meeting on the measurement of progress, highlighting the importance of developing indicators that go 'Beyond GDP' in the run-up to the Rio +20 summit in June 2012, and making it clear that this issue is now on the global agenda.

The HPI is a clear understandable measure of sustainable well-being for all that could provide the much needed balance to the prominence currently given to GDP. Alongside this report, nef is launching a Happy Planet charter (see Box 3).

Support for alternative measures has reached new levels. Six years ago, at the time of the first HPI, no one would have imagined that the UN would pass a resolution on happiness, that Nobel Prize winning economists would be strongly advocating it, or that a Prime Minister of a G8 nation would ask his national statistics office to measure it.

The sense of transition in the world can be felt both in the North and in emerging economies. The developing world cannot blindly follow the path that high-income countries took over the course of the twentieth century. Progress cannot and should not be simply characterised by ever-growing GDP. In a world of dwindling resources, efficiency has to sit at the heart of our approach. At the same time, a vision of progress that is solely about using fewer resources is not a goal to motivate human endeavour. The 'happy' in the Happy Planet Index reminds us of what we are trying to achieve and indicates that this goal is indeed possible.

Box 3. Happy Planet Charter

We need new measures of human progress.

The Happy Planet Index offers us an excellent example of how such measures work in practice. It shows that while the challenges faced by rich resource-intensive nations and those with high levels of poverty and deprivation may be very different, the end goal is the same: long and happy lives that don't cost the earth.

We must balance the prominence currently given to GDP with those measures that take seriously the challenges we face in the 21st century: creating economies that deliver sustainable well-being for all.

By signing this charter we:

- ▶ Call on governments to adopt new measures of human progress that put the goal of delivering sustainable well-being for all at the heart of societal and economic decision-making
- ▶ Resolve to build the political will needed across society to fully establish these better measures of human progress by working with partner organisations
- ▶ Call on the United Nations to develop an indicator as part of the post-2015 framework that, like the Happy Planet Index, measures progress towards the key goal for a better future: sustainable well-being for all.

Appendix: Calculating the Happy Planet Index

The Happy Planet Index (HPI) is an efficiency measure which captures the degree to which long and happy lives are achieved per unit of environmental impact. This appendix describes the data sources for the HPI components, the HPI calculation methodology and discusses the illustrative inequality adjustments to the HPI made in Box 1.

Sources of data

Life expectancy

The life expectancy figure for each country reflects the number of years an infant born in that country could expect to live if prevailing patterns of age-specific mortality rates at the time of birth in the country stay the same throughout the infant's life.⁴⁷ We used 2011 life expectancy data which were obtained from the 2011 UNDP *Human Development Report*.

Experienced well-being

The data for average levels of well-being in each country are drawn from responses to the ladder of life question in the Gallup World Poll, which used samples of around 1000 individuals aged 15 or over in each of more than 150 countries.⁴⁸ The question asks:

*Please imagine a ladder with steps numbered from zero 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?*⁴⁹

While we used the latest data available for each country as at February 2012, the period during which the Gallup World Poll was last administered varies from country to country. For a majority of countries, the poll was administered in 2010 or 2011. But there were 20 countries where the latest poll was administered in 2008 or 2009, and 7 countries where it was administered in 2006 or 2007.⁵⁰

The data used to measure average levels of well-being in this HPI report differ from the previous two HPI reports. In the first HPI report, data on well-being were gathered from a wide range of disparate sources, and modelling techniques were used to estimate values for countries where no well-being data were available.⁵¹ In the HPI 2.0 report, data on well-being were obtained from responses to the satisfaction with life questions in the Gallup World Poll⁵² and World Values Survey, and statistical modelling techniques were applied to take into account differences between the two surveys to ensure that the well-being data used to construct the final index were comparable.⁵³

Unlike previous waves of the Gallup World Poll, which included questions on both life satisfaction and the ladder of life, the latest wave of the Gallup World Poll did not include a satisfaction with life question. As a result, for this version of the HPI, we were faced with the choice of using a different measure of well-being such as the ladder of life, or to continue to use responses to satisfaction with life questions for a more limited number of countries by bringing together data from a number of different surveys. Recent research comparing the satisfaction with life and ladder of life question show that while the two measures have different mean scores and



distributions of scores, they are highly correlated and tell very similar stories about the likely sources a good life.^{54,55} In light of this research, we chose to use responses to the ladder of life question in the Gallup World Poll as a measure of well-being. While using this measure allows us to include a large number of countries in the index and helps minimise the distortions associated with putting together data from different sources, it reduces the extent to which well-being data and HPI scores from this report are directly comparable to those in previous HPI reports.

Ecological Footprint

For 142 of the 151 countries for which we had well-being data, we used 2008 Ecological Footprint data (the latest available data) from the 2011 Edition of the Global Footprint Networks National Footprint accounts.⁵⁶ For the other nine countries,⁵⁷ we estimated the Ecological Footprint figures using predictive models generated by undertaking stepwise linear regressions of Ecological Footprint (for all countries where data were available) against a range of country-specific variables (including CO₂ emissions, GDP per capita, the degree of industrialisation and urbanisation, population density, and geographical dummies). Due to limited data availability for two of the countries for which we were estimating Ecological Footprint data (Palestine and Djibouti), it was necessary to use two different predictive models.⁵⁸

Calculating Happy Planet Index

This report uses a modified methodology for calculating the HPI, involving two stages. First Happy Life Years are calculated by multiplying the ladder of life score by life expectancy for each country. The final HPI is then calculated by dividing Happy Life Years by Ecological Footprint. In order to ensure that no single component of the HPI dominates either Happy Life Years or the final HPI score, statistical adjustments are required in both stages of the calculation process.

If the HPI were calculated by simply multiplying the raw numbers for life expectancy and ladder of life and then dividing by Ecological Footprint, the Ecological Footprint measure would dominate the entire index. This is because the variation in the Ecological Footprint is considerably larger than the other two HPI components, both individually and multiplied together as Happy Life Years.⁵⁹ This is undesirable as there is no reason to think that variation in any one of the measures is more important or significant than variation in the others.⁶⁰ In calculating the HPI, we therefore applied statistical adjustments to moderate the degree of variation in the individual components. We treated life expectancy as a reference, and applied adjustments to the ladder of life and Ecological Footprint.

HPI scores were also calibrated such that they all lie between 0 and 100.

The difference between this methodology and that used in previous HPI reports, is that we did not previously adjust experienced well-being before combining it with life expectancy. The methodology to do this has come out of work for Eurostat, the statistical office of the European Union,⁶¹ where a similar indicator has been produced.

The first stage of calculating the HPI is to calculate Happy Life Years. First a constant (α) is added to the ladder of life score so that the coefficient of variance for the ladder across the entire dataset equals that of life expectancy. The adjusted ladder of life score is then multiplied by life expectancy and adjusted by dividing by $(10+\alpha)$, to give a Happy Life Year score between 0 and the average life expectancy for each country.

$$\text{Happy Life Years} = \frac{(\text{Ladder of life} + \alpha) \times \text{Life expectancy}}{10 + \alpha}, \alpha = 2.93$$



In the second stage, a constant (γ) was subtracted from Happy Life Years to ensure that a country with an average ladder score of 0 or a life expectancy of 25 or lower would achieve an HPI score of 0, and a constant (β) was added to Ecological Footprint to ensure that its coefficient variance was equal to that of adjusted Happy Life Years. Finally, the final HPI scores were calculated by dividing adjusted Happy Life Years by adjusted Ecological Footprint, and then multiplying by a constant (δ) to ensure that a country with an average ladder score of 10, an average life expectancy of 85 and an Ecological Footprint of 1.78 g ha per capita (equivalent to one planet living) would achieve an HPI score of 100. The formula for the HPI can be expressed as:

$$\text{Happy Planet Index} = \delta \times \frac{\text{Happy Life Years} - \gamma}{(\text{Ecological Footprint} + \beta)}$$

where: $\delta = 7.77$, $\beta = 4.38$, $\gamma = 5.67$

Alternatively, using its three primary components, the formula for HPI can also be expressed as:

$$\text{Happy Planet Index} = \phi \times \frac{((\text{Ladder of life} + \alpha) \times \text{Life expectancy}) - \pi}{(\text{Ecological Footprint} + \beta)}$$

where: $\alpha = 2.93$, $\beta = 4.38$, $\pi = 73.35$, $\phi = 0.60$

Exploring adjustments to the Happy Planet Index to take into account inequality

The HPI score in this report is calculated using the mean ladder of life score and mean life expectancy for each country, and thus does not reflect inequality in these outcomes. As such, two countries could have the same mean scores for the two components and achieve the same HPI score, despite large differences in levels of equality in those two measures. We consider inequality to be a serious issue, and believe that it should be measured and reported in a robust and rigorous way. Further work would be required to establish how inequality could be best incorporated, if at all, into an indicator such as the HPI. Areas for further consideration include the dimensions of inequality to include (which may include income, life expectancy, experienced well-being, environmental footprint), whether inequality should be assessed on a global or national basis, the measurement methodology, and the method of incorporation into the index (for example, whether to adjust existing components or introduce an additional inequality component).

In Box 1 of Chapter 4, we noted for illustrative purposes, how the rankings of certain countries might change if we were to adjust each country's average life expectancy and ladder of life scores to take into account within-country inequality in these two dimensions. We replaced the average life expectancy for each country with the inequality adjusted average life expectancy provided in the UNDP *Human Development Report 2011*. This is the first time the UN has calculated such an indicator, which it does using the Atkinson technique (Atkinson, 1970) with an aversion parameter $\epsilon=1$, where the inequality adjusted average is equal to the geometric mean.^{62 63}

We use the same technique to calculate an inequality-adjusted mean for the ladder of life. Adjusting the ladder of life and life expectancy scores for inequality changed the cross-country variation of the individual HPI components, so new parameters needed to be calibrated for the illustrative inequality-adjusted measure to ensure that no one individual component dominates the overall index and the final score lies between 0 and 1. The formula simplifies to:

$$\text{Happy Planet Index}_{IA} = \phi_{IA} \times \frac{((\text{Ladder of life}_{IA} + \alpha_{IA}) \times \text{Life expectancy}_{IA}) - \pi_{IA}}{(\text{Ecological Footprint} + \beta_{IA})}$$

where: $\alpha_{IA} = -0.715$, $\beta_{IA} = 1.646$, $\pi_{IA} = -17.875$, $\phi_{IA} = 0.424$

Endnotes

- 1 During introductory remarks at OECD Forum 2011, first Session on Measuring Progress on 24 May 2011 in Paris, France. Downloaded from www.beyond-gdp.eu/key_quotes.html
- 2 Non-governmental organisations – i.e. civil society organisations or charities.
- 3 The OECD is the Organisation for Economic Co-Operation and Development. Founded in the aftermath of World War II principally to speed recovery in Europe, it has become a powerful multi-national organisation counting amongst its members 34 high-income nations.
- 4 Speech made at the OECD Conference 'Two years after the Stiglitz-Sen-Fitoussi report: What well-being and sustainability measures?' Available at www.oecd.org/document/49/0,3746,en_21571361_48428993_48874865_1_1_1_1,00.html
- 5 Jackson T (2009) *Prosperity without Growth?* London: Sustainable Development Commission. Available at <http://www.sd-commission.org.uk/publications.php?id=914>
- 6 ONS (no date) Measuring national well-being. Available at www.ons.gov.uk/well-being
- 7 www.misuredelbenessere.it/ – in Italian
- 8 www.bundestag.de/bundestag/ausschuesse17/gremien/enquete/wachstum/index.jsp - In German
- 9 The term 'buen vivir' originates from a Quechua phrase *Sumak Kawsay* – which is probably better translated as 'living in plenitude'.
- 10 The World Bank (2012) *China 2030: Building a modern, harmonious and creative high-income society*. This report, co-written by China's leaders and the World Bank, argues that China will need to change its course if it is to continue to flourish.
- 11 BBB (no date) China lowers growth rate in sustainability drive. Available at <http://www.bbc.co.uk/news/world-asia-pacific-12589757>
- 12 <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N11/420/70/PDF/N1142070.pdf?OpenElement>
- 13 For example, consider a recent speech made by UK Chancellor George Osborne, which warned of slowing down growth 'with endless social and environmental goals'. Carrington D (2012) George Osborne's attacks on the environment are costing the UK billions. Available at www.guardian.co.uk/environment/damian-carrington-blog/2012/mar/15/george-osborne-budget-bill-uk
- 14 Michaelson J, Seaford C, Abdallah S and Marks N (in press). 'Measuring what matters' in F Huppert & C Cooper (Eds.) *Interventions and policies to enhance wellbeing*. Oxford: Wiley-Blackwell.
- 15 Ragnarsdóttir K, Sverdrup H and Koca D (2012). *Assessing Long Term Sustainability of Global Supply of Natural Resources and Materials, Sustainable Development - Energy, Engineering and Technologies - Manufacturing and Environment*. C Ghenai (Ed.), InTech, Available at <http://www.intechopen.com/books/sustainable-development-energy-engineering-and-technologies-manufacturing-and-environment/rare-metals-burnoff-rates-versus-system-dynamics-of-metal-sustainability>
- 16 Ragnarsdóttir K (2008) Rare metals getting rarer. *Nature Geoscience* 1:720-721
- 17 Simms A, Johnson V and Chowla P (2010) *Growth isn't possible*. London: nef
- 18 Pg. 30, Submission by Brazil to the preparatory process Rio +20 Conference. Available at www.uncsd2012.org/rio20/content/documents/BRAZIL%20Submission%20%20English%201.11.11doc.pdf
- 19 Knight K and Rosa E (2011) The environmental efficiency of well-being: A cross-national analysis. *Social Science Research* 40: 931-949.
- 20 Centre for Well-Being (2011) *Measuring our Progress*. London: nef.
- 21 Diener E, Inglehart R and Tay L (in press) Theory and validity of life satisfaction scales. *Social Indicators Research*.
- 22 OECD (forthcoming) *Guidelines on the Measurement of Subjective Well-being*. Available at the end of 2012.
- 23 See Appendix for explanation of why this measure of experienced well-being was used in this report.
- 24 See <http://www.gallup.com/poll/122453/understanding-gallup-uses-cantril-scale.aspx> for information on how Gallup have used this indicator.
- 25 Data based on the Better Life Index (<http://oecdbetterlifeindex.org>) and kindly provided by Guillaume Cohen of the OECD. It is important to note that this data cannot claim to be representative.
- 26 Diener E and Scollon C (2003) *Subjective well-being is desirable, but not the summum bonum*. Paper presented at the University of Minnesota Interdisciplinary Workshop on Well-Being.
- 27 Average life expectancy at the time was less than 50, so he knew that this, the first universal government pension, would not have to be paid out to too many people: Carlson R (2005) *The new rules of retirement*. Hoboken, New Jersey: John Wiley & Sons, Inc.
- 28 Veenhoven R (1996) Happy life expectancy: A comprehensive measure of quality-of-life in nations *Social Indicators Research* 39:1–58. Veenhoven himself calls the indicator 'happy life expectancy'.
- 29 Global Footprint Network (2012). *National Footprint Accounts 2011 edition*. Available at www.footprintnetwork.org
- 30 This calculation ignores the needs of other species. If this were taken into consideration, the 'fair share' for each human individual would indeed be lower than 1.8 g ha.
- 31 Much of the fall in per capita biocapacity can be related to rising global population.
- 32 Global Footprint Network (2012) *National Footprint Accounts 2011 edition*. *Op cit*.
- 33 Seaford C, Mahoney S, Wackernagel M, Larson J and Ramirez R (2011) *Beyond GDP: Measuring our Progress*, p12. Available at <http://globaltransition2012.org/beyond-gdp/>
- 34 UNDP (2011) *Human Development Report 2011*.
- 35 Based on World Bank data for 2008 (purchasing power parity, current prices), downloaded from <http://data.worldbank.org/data-catalog/world-development-indicators> on 26 March 2012.
- 36 Marshall C (2008) Costa Rica bids to go carbon neutral. Available at <http://news.bbc.co.uk/1/hi/world/americas/7508107.stm>
- 37 World Bank (no date) Taking stock: An Update of Viet Nam's economic development. Available at <http://siteresources.worldbank.org/INTVIETNAM/Resources/TakingStockEng.pdf>
- 38 More information can be found in Spanish at www.unidos.com.co/public/
- 39 For an introduction to the philosophy behind co-production see Stephens L, Ryan-Collins J and Boyle (2008) *Co-production: A manifesto for growing the core economy*. London: nef.
- 40 Preston SH (1975) The changing relation between mortality and level of economic development. *Population Studies* 29: 231–248.
- 41 Layard R, Mayraz G and Nickell S (2007) 'The marginal utility of income' SOEP papers, DIW Berlin.
- 42 Diener E, Kahneman D, Tov W and Arora R (2010) 'Income's association with judgements of life versus feelings' in E Diener, J Helliwell and D Kahneman (eds) *International Differences in Well-being*. New York: Oxford University Press.
- 43 Oishi S, Kesebir S, and Diener E (2011) Income inequality and happiness. *Psychological Science* 22: 1095-1100.
- 44 Helliwell J and Huang HF (2008) How's your government? International evidence linking good government and well-being. *British Journal of Political Science* 38: 595–619.
- 45 Egypt and Tunisia are also interesting examples. The fall in experienced well-being seen in Table 2 could already be seen *before* the eruption of discontent seen in these countries in 2011, a point that has been made by Gallup themselves - www.gallup.com/poll/145883/egyptians-tunisians-wellbeing-plummets-despite-gdp-gains.aspx. This highlights how experienced well-being reveals important information not captured by GDP, which continued to rise in the run up to the Arab Spring.
- 46 Ki-Moon Ban (2012) Remarks at High Level Meeting on 'Happiness and Well-Being: Defining a New Economic Paradigm'. Available at http://www.un.org/apps/news/infocus/speeches/statments_full.asp?statID=1493
- 47 UNDP (2011) 'Human Development Report 2011' page 130 <http://hdr.undp.org/en/reports/global/hdr2011/>

- 48 For 10 countries, between 500 and 1000 respondents were surveyed (Puerto Rico, Guyana, Belize, Iceland, Trinidad and Tobago, Haiti, Jamaica, Estonia, New Zealand and Hong Kong).
- 49 http://media.gallup.com/dataviz/www/WP_Questions_WHITE.pdf
- 50 2006: Cuba, Myanmar, Jamaica. 2007: Ethiopia, Namibia, Belize, Guyana. 2008: Mozambique, Norway, Benin, Laos, Madagascar, Togo, Angola, Congo, Trinidad and Tobago, Iceland. 2009: Cote D'Ivoire, Estonia, Burundi, Latvia, Rwanda, Turkmenistan, Malawi, Democratic Republic of the Congo, Zambia and Switzerland.
- 51 Abdallah S, Marks N, Simms A, Thompson S (2006) *The(un)Happy Planet Index: An index of human well-being and environmental impact*. London: nef.
- 52 This question asked "All things considered, how satisfied are you with your life as a whole these days? On a numeric scale from 0 to 10 where 0 is dissatisfied and 10 is satisfied."
- 53 Abdallah S, Thompson S, Michaelson J, Marks N and Steuer N (2009) *The (un)Happy Planet Index 2.0. Why good lives don't have to cost the Earth*. nef: London.
- 54 Helliwell J and Wang S (2012) 'The State of World Happiness' Chapter 2 in Helliwell, J., Layard, R. and Sachs, J. (2012) *World Happiness Report*.
- 55 Helliwell J, Barrington-Leigh C, Harris A and Huang H (2010) 'International Evidence on the Social Context of Well-being' in Diener, E., Helliwell, J., Kahneman, D. (Eds.), *International differences in well-being*. Oxford: Oxford University Press.
- 56 Global Footprint Network (no date) Living Planet Report. Available at www.footprintnetwork.org/en/index.php/GFN/page/living_planet_report_2012
- 57 These countries are Belize, Comoros, Guyana, Iceland, Luxembourg, Malta, Hong Kong, Djibouti and Palestine. In most cases, Ecological Footprint data were not available as the Global Footprint Network does not publish such data for countries with a population lower than 1 million. Palestine has a population of over 1 million, but its unique status and economic situation mean that official trade statistics are probably not a reliable assessment of actual trade and therefore consumption. Hong Kong also has a population of over 1 million, but the relevant data for calculating the EF is not available, as it is not an independent state.
- 58 For the countries with limited data availability (Palestine and Djibouti), the predictive model generated by the stepwise regression included the following variables: CO2 emissions, GDP per capita, urbanisation, population density and dummy variables for the Middle East and latitude. For the other countries, the predictive model generated by stepwise regression included the following variables: CO2 emissions, GDP per capita, industrialisation, urbanisation, population density and latitude.
- 59 To see why this would happen, it is helpful to look to examine the variation of the numerator and the denominator. The numerator, experienced well-being multiplied by life expectancy, varies from 16 for the bottom ranked country, Togo, to 62 for the top ranked country, Canada, less than a fourfold increase. But the denominator, ecological footprint, varies from 0.5 for Afghanistan to 11.7 for Qatar, more than a twenty-fold increase.
- 60 To see why this is an issue, it is helpful to look at an example. Bangladesh has a ladder of life score of 5.0, a life expectancy of 68.9 and an ecological footprint of 0.66 g ha per person. Suppose Bangladesh were to increase its ecological footprint to 1.75 g ha per person, which would still be below its fair share given the world's biocapacity of 1.78 g ha. In the absence of statistical adjustments to the individual components, Bangladesh would only be able to maintain its HPI score by increasing average experienced well-being and life expectancy to levels well beyond those achieved by developed countries (for example, by increasing its average ladder of life score to 9.5 and life expectancy to 96).
- 61 This methodology was recommended to Eurostat in the final report of a study on well-being indicators available at http://epp.eurostat.ec.europa.eu/portal/page/portal/gdp_and_beyond/documents/Feasibility_study_Well-Being_Indicators.pdf. Eurostat has been considering presenting data on this indicator (which they call SALY – satisfaction-adjusted life years) at the beginning of 2013.
- 62 See page 169 UNDP (2011) *Human Development Report 2011*. Available at <http://hdr.undp.org/en/reports/global/hdr2011/>
- 63 Atkinson A (1970) 'On the measurement of economic inequality' *Journal of Economic Theory* 2(3): 244-263.

HPI results table

Countries in HPI rank	Sub-region	Life Exp	Exp Well-being	Footprint	HPI
2050 target		87.0	8.0	1.7	89.0
1 Costa Rica	1a	79.3	7.3	2.5	64.0
2 Vietnam	6c	75.2	5.8	1.4	60.4
3 Colombia	1b	73.7	6.4	1.8	59.8
4 Belize	1a	76.1	6.5	2.1	59.3
5 El Salvador	1a	72.2	6.7	2.0	58.9
6 Jamaica	1a	73.1	6.2	1.7	58.5
7 Panama	1a	76.1	7.3	3.0	57.8
8 Nicaragua	1a	74.0	5.7	1.6	57.1
9 Venezuela	1b	74.4	7.5	3.0	56.9
10 Guatemala	1a	71.2	6.3	1.8	56.9
11 Bangladesh	5a	68.9	5.0	0.7	56.3
12 Cuba	1a	79.1	5.4	1.9	56.2
13 Honduras	1a	73.1	5.9	1.7	56.0
14 Indonesia	6c	69.4	5.5	1.1	55.5
15 Israel	3b	81.6	7.4	4.0	55.2
16 Pakistan	5a	65.4	5.3	0.8	54.1
17 Argentina	1b	75.9	6.4	2.7	54.1
18 Albania	7b	76.9	5.3	1.8	54.1
19 Chile	1b	79.1	6.6	3.2	53.9
20 Thailand	6c	74.1	6.2	2.4	53.5
21 Brazil	1b	73.5	6.8	2.9	52.9
22 Mexico	1a	77.0	6.8	3.3	52.8
23 Ecuador	1b	75.6	5.8	2.4	52.5
24 Peru	1b	74.0	5.6	2.0	52.4
25 Philippines	6c	68.7	4.9	1.0	52.4
26 Algeria	3a	73.1	5.2	1.6	52.2
27 Jordan	3b	73.4	5.7	2.1	51.7
28 New Zealand	2a	80.7	7.2	4.3	51.6
29 Norway	2d	81.1	7.6	4.8	51.4
30 Palestine	3b	72.8	4.8	1.4	51.2
31 Guyana	1a	69.9	6.0	2.1	51.2
32 India	5a	65.4	5.0	0.9	50.9
33 Dominican Republic	1a	73.4	4.7	1.4	50.7
34 Switzerland	2c	82.3	7.5	5.0	50.3
35 Sri Lanka	5a	74.9	4.2	1.2	49.4
36 Iraq	3b	69.0	5.0	1.4	49.2
37 Laos	6c	67.5	5.0	1.3	49.1
38 Kyrgyzstan	7a	67.7	5.0	1.3	49.1
39 Tunisia	3a	74.5	4.7	1.8	48.3
40 Moldova	7b	69.3	5.6	2.1	48.0
41 United Kingdom	2c	80.2	7.0	4.7	47.9
42 Morocco	3a	72.2	4.4	1.3	47.9
43 Tajikistan	7a	67.5	4.4	0.9	47.8
44 Turkey	3b	74.0	5.5	2.6	47.6
45 Japan	6b	83.4	6.0	4.2	47.5
46 Germany	2c	80.4	6.7	4.6	47.2
47 Syria	3a	75.9	4.1	1.5	47.1
48 Austria	2c	80.9	7.3	5.3	47.1
49 Madagascar	4a	66.7	4.6	1.2	46.8
50 France	2c	81.5	6.8	4.9	46.5
51 Italy	2e	81.9	6.4	4.5	46.4
52 Sweden	2d	81.4	7.5	5.7	46.2
53 Armenia	7a	74.2	4.4	1.7	46.0
54 Uzbekistan	7a	68.3	5.1	1.8	46.0
55 Georgia	7a	73.7	4.1	1.4	46.0
56 Saudi Arabia	3b	73.9	6.7	4.0	46.0
57 Paraguay	1b	72.5	5.8	3.0	45.8
58 Nepal	5a	68.8	3.8	0.8	45.6
59 Cyprus	2e	79.6	6.4	4.4	45.5
60 China	6a	73.5	4.7	2.1	44.7
61 Myanmar	5a	65.2	5.3	1.9	44.2
62 Spain	2e	81.4	6.2	4.7	44.1
63 Korea	6b	80.6	6.1	4.6	43.8
64 Bolivia	1b	66.6	5.8	2.6	43.6
65 Canada	2b	81.0	7.7	6.4	43.6
66 Malta	2e	79.6	5.8	4.3	43.1
67 Netherlands	2c	80.7	7.5	6.3	43.1
68 Yemen	3b	65.5	3.9	0.9	43.0
69 Lebanon	3b	72.6	5.2	2.8	42.9
70 Finland	2d	80.0	7.4	6.2	42.7
71 Poland	7b	76.1	5.8	3.9	42.6
72 Malawi	4a	54.2	5.1	0.8	42.5
73 Ireland	2c	80.6	7.3	6.2	42.4
74 Bosnia and Herzegovina	7b	75.7	4.7	2.7	42.4
75 Romania	7b	74.0	4.9	2.8	42.2
76 Australia	2a	81.9	7.4	6.7	42.0
77 Iran	3b	73.0	4.8	2.7	41.7
78 Haiti	1a	62.1	3.8	0.6	41.3
79 Serbia	7b	74.5	4.5	2.6	41.3
80 Azerbaijan	7a	70.7	4.2	2.0	40.9
81 Libya	3a	74.8	4.9	3.2	40.8
82 Croatia	7b	76.6	5.6	4.2	40.6
83 Greece	2e	79.9	5.8	4.9	40.5
84 Malaysia	6c	74.2	5.6	3.9	40.5
85 Cambodia	6c	63.1	4.2	1.2	40.3

Countries in HPI rank	Sub-region	Life Exp	Exp Well-being	Footprint	HPI
86 Ghana	4c	64.2	4.6	1.7	40.3
87 Slovenia	7b	79.3	6.1	5.2	40.2
88 Iceland	2d	81.8	6.9	6.5	40.2
89 Slovakia	7b	75.4	6.1	4.7	40.1
90 Singapore	6b	81.1	6.5	6.1	39.8
91 Egypt	3a	73.2	3.9	2.1	39.6
92 Czech Republic	7b	77.7	6.2	5.3	39.4
93 Uruguay	1b	77.0	6.1	5.1	39.3
94 Ethiopia	4b	59.3	4.4	1.1	39.2
95 Turkmenistan	7a	65.0	6.6	4.0	39.1
96 Namibia	4a	62.5	4.9	2.0	38.9
97 Portugal	2e	79.5	4.9	4.1	38.7
98 Kenya	4b	57.1	4.3	0.9	38.0
99 Zambia	4a	49.0	5.3	0.8	37.7
100 Ukraine	7c	68.5	5.1	3.2	37.6
101 Sudan	4b	61.5	4.4	1.6	37.6
102 Hong Kong	6b	82.8	5.6	5.8	37.5
103 Belarus	7c	70.3	5.5	4.0	37.4
104 Hungary	7b	74.4	4.7	3.6	37.4
105 United States of America	2b	78.5	7.2	7.2	37.3
106 Djibouti	4b	57.9	5.0	1.8	37.2
107 Belgium	2c	80.0	6.9	7.1	37.1
108 Rwanda	4b	55.4	4.0	0.7	36.9
109 Afghanistan	3b	48.7	4.8	0.5	36.8
110 Denmark	2d	78.8	7.8	8.3	36.6
111 Mauritius	4a	73.4	5.5	4.6	36.6
112 Comoros	4a	61.1	3.9	1.3	36.5
113 Cote d'Ivoire	4c	55.4	4.2	1.0	35.9
114 Mozambique	4a	50.2	4.7	0.8	35.7
115 Zimbabwe	4a	51.4	4.8	1.2	35.3
116 Liberia	4c	56.8	4.2	1.3	35.2
117 Estonia	7b	74.8	5.1	4.7	34.9
118 Latvia	7b	73.3	4.7	4.0	34.9
119 Kazakhstan	7a	67.0	5.5	4.1	34.7
120 Lithuania	7b	72.2	5.1	4.4	34.6
121 Congo	4a	57.4	3.8	1.1	34.5
122 Russia	7c	68.8	5.5	4.4	34.5
123 Bulgaria	7b	73.4	4.2	3.6	34.1
124 Cameroon	4c	51.6	4.4	1.1	33.7
125 Nigeria	4c	51.9	4.8	1.4	33.6
126 Senegal	4c	59.3	3.8	1.5	33.3
127 Angola	4a	51.1	4.2	0.9	33.2
128 Mauritania	4c	58.6	5.0	2.9	32.3
129 Burkina Faso	4c	55.4	4.0	1.5	31.8
130 United Arab Emirates	3b	76.5	7.2	8.9	31.8
131 Uganda	4b	54.1	4.2	1.6	31.5
132 Benin	4c	56.1	3.7	1.4	31.1
133 Tanzania	4b	58.2	3.2	1.2	30.7
134 Congo, Dem. Rep. of the	4a	48.4	4.0	0.8	30.5
135 Burundi	4b	50.4	3.8	0.8	30.5
136 Trinidad and Tobago	1a	70.1	6.7	7.6	30.3
137 Guinea	4c	54.1	4.0	1.7	30.0
138 Luxembourg	2c	80.0	7.1	10.7	29.0
139 Sierra Leone	4c	47.8	4.1	1.1	28.8
140 Macedonia	7b	74.8	4.2	5.4	28.3
141 Togo	4c	57.1	2.8	1.0	28.2
142 South Africa	4a	52.8	4.7	2.6	28.2
143 Kuwait	3b	74.6	6.6	9.7	27.1
144 Niger	4c	54.7	4.1	2.6	26.8
145 Mongolia	7a	68.5	4.6	5.5	26.8
146 Bahrain	3b	75.1	4.5	6.6	26.6
147 Mali	4c	51.4	3.8	1.9	26.0
148 Central African Republic	4a	48.4	3.6	1.4	25.3
149 Qatar	3b	78.4	6.6	11.7	25.2
150 Chad	4b	49.6	3.7	1.9	24.7
151 Botswana	4a	53.2	3.6	2.8	22.6


HPI colour key:

- All three components good
- Two components good, one middling
- One component good, and two middling
- Three components middling
- Any with one component poor
- Two components poor, or "deep red" footprint

Region Codes

1a	Central America, Mexico, Caribbean
1b	South America
2a	Australia and NZ
2b	North America
2c	Western Europe
2d	Nordic Europe
2e	Southern Europe
3a	North Africa
3b	Middle East / South West Asia
4a	Southern and Central Africa
4b	East Africa
4c	West Africa
5a	South Asia
6a	China
6b	Wealthy East Asia
6c	South East Asia
7a	Central Asia and Caucasus
7b	Central and Eastern Europe
7c	Russia, Ukraine and Belarus

Lack of comparable data has meant that we are unable to calculate an HPI for Bhutan, a nation which has achieved great deals in terms of measuring progress differently. See www.grossnationalhappiness.com for more on Bhutan's approach.



The HPI is produced by the Centre for Well-being at **nef** (the new economics foundation). **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.

Written by: Saamah Abdallah, Juliet Michaelson, Sagar Shah, Laura Stoll and Nic Marks

With contributions, advice and support from our colleagues at nef including Carys Afoko, Ross Haig, Ricarda Hammer, Tim Jenkins, Victoria Johnson, SORCHA Mahony, Eleanor Moody, Charles Seaford, Andrew Simms and Dan Vockins

HPI devised by: Nic Marks

Thanks to: The AIM Foundation, Halloran Philanthropies, Global Footprint Network (Mathis Wackernagel, Joy Larson & Nina Brooks), Gallup (Cynthia English & Joe Daly) and the OECD (Romina Boarini & Guillaume Cohen)

www.happyplanetindex.org

Edited by: Mary Murphy

Design by: the Argument by Design – www.tabd.co.uk

new economics foundation

3 Jonathan Street

London SE11 5NH

United Kingdom

Telephone: +44 (0)20 7820 6300

Facsimile: +44 (0)20 7820 6301

E-mail: info@neweconomics.org

Website: www.neweconomics.org

Registered charity number 1055254

© June 2012 **nef** (the new economics foundation)

ISBN 978 1 908506 17 7