Sustainable Society Index
SSI-2010

SSI, the compass to sustainability

Sustainable Society Index 2010

For all people who care about life on earth, today as well as in the near and distant future.

SSI, the compass to sustainability

A sustainable society is a society

- □ that meets the needs of the present generation,
- □ that does not compromise the ability of future generations to meet their own needs,
- □ in which each individual has the opportunity to develop himself in freedom, within a well-balanced society and in harmony with its surroundings.

The earth offers enough for everyone's need, not for everyone's greed.
Mahatma Gandhi

SSI-2010

Sustainable Society Index 2010

The SSI shows at a glance the level of sustainability in each of the 151 assessed countries.

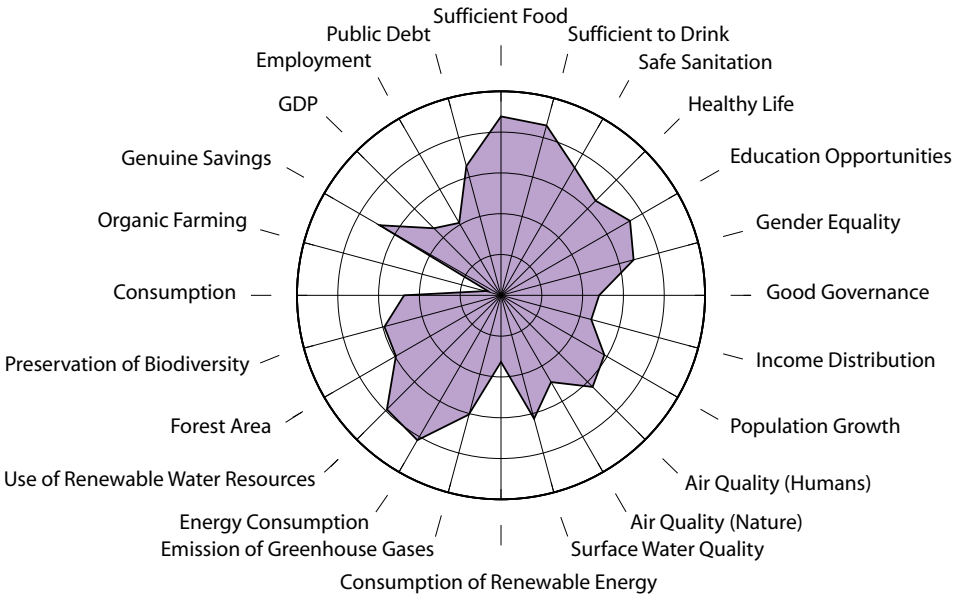
Geurt van de Kerk

Arthur Manuel

with a foreword by
Herman Wijffels Ph.D.
Former Executive Director of the World Bank

Sustainable Society Foundation

Sustainable Society Index 2010 - World



The spider web shows the level of sustainability. The outer circle expresses full sustainability, a score of 10; the centre of the web expresses no sustainability at all, a score of 0. The target for each indicator is the outer circle, a sustainable 10.

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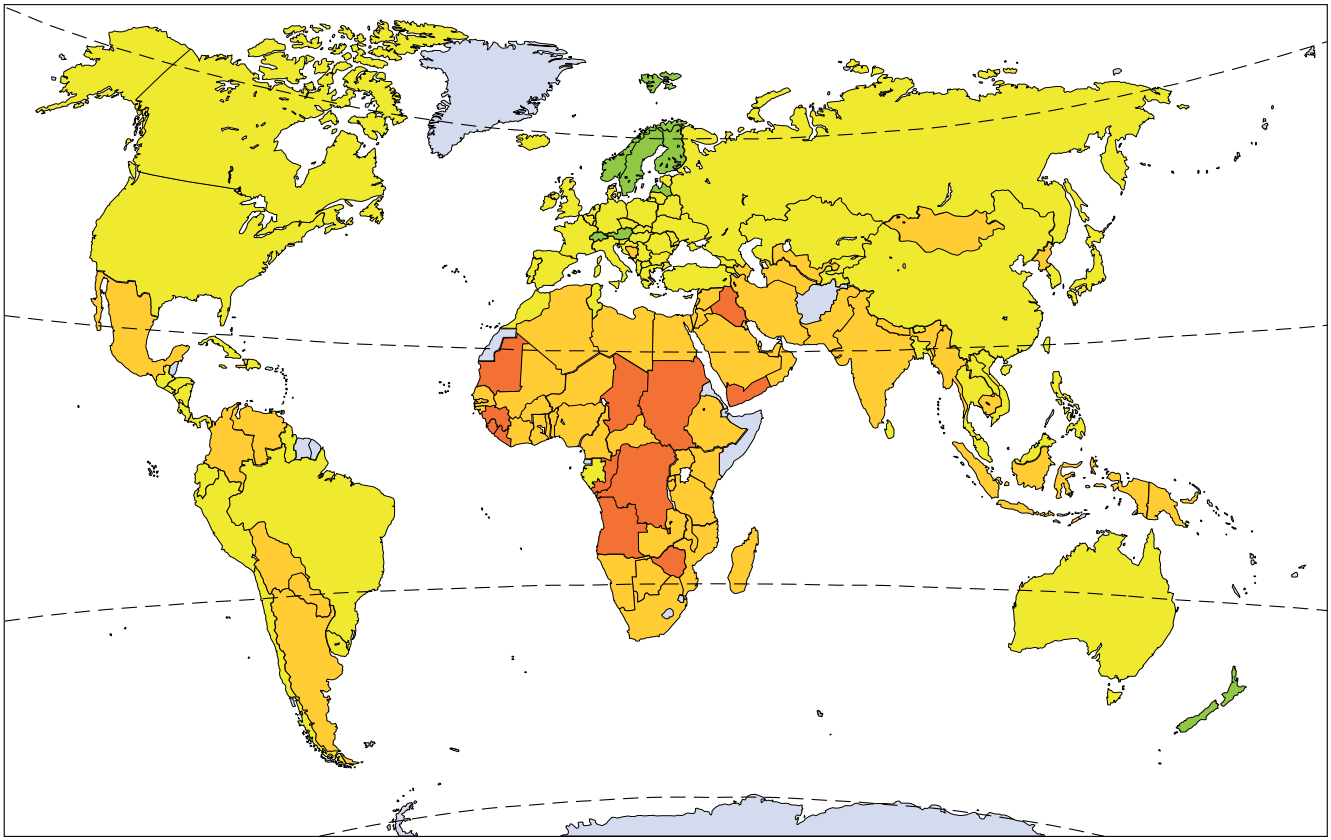
Contents

Legend

The colours used in the various graphs, facilitate a quick assessment of the actual situation. Each colour corresponds with a score range:

- 8 or higher
- 7 to 8
- 6 to 7
- 5 to 6
- 4 to 5
- 4 or lower

SSI-2010 - World



Summary

The results of the SSI-2010, presented in this third edition of the SSI, are not very reassuring. Or should we say the results are 'challenging'? It appears that the world at large is hardly making any progress on the way towards a sustainable society. Since the data, used for the SSI-2010, are largely of the pre-economy crisis years, one would have presumed a better performance. Particularly so, since there is a growing awareness as to both the impact of climate change and the importance of sustainability at large.

To prepare the new update, the SSI has been evaluated. This has resulted in a redesign of the original framework. The redesigned framework of the SSI more explicitly includes Human, Environmental and Economic Wellbeing. The SSI now comprises 24 indicators, clustered into 8 categories.

Current situation

SSI 5.9

The world at large has a score of 5.9 on a scale of 0 to 10 – just over halfway towards a sustainable world. This score is the unweighted average score of 151 countries.

Organic Farming 0.7, Consumption of Renewable Energy 3.2

Two indicators show alarmingly low figures: Organic Farming showing a score of 0.7 and Consumption of Renewable Energy showing a score of 3.2, in spite of all attention and well-meant intentions.
Concerning Renewable Energy, high and upper middle income countries score way below average: 1.1 and 2.7 respectively, while lower middle and low income countries score way above average: 5.4 and 7.5 respectively.

Category Basic Needs scores highest, but…

The scores of the 8 categories vary a lot. Basic Needs scores highest of all categories. However, the score of 8.2 – unweighted for a country's population size – reflects that 18% of the world population still lacks adequate basic needs. The more accurate figure, weighted for population size, is even more alarming: 21.5%, i.e. 1.5 billion people.

Economic Wellbeing scores lowest

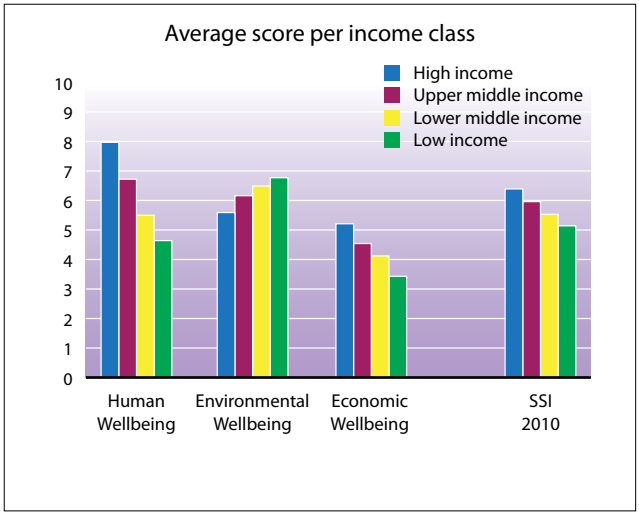
The score of Economic Wellbeing (4.6), is lagging behind the other two dimensions of wellbeing. Environmental Wellbeing (6.1) and Human Wellbeing (6.7) are performing better, although they are still way below full sustainability.

N & W Europe highest score (6.9), Sub Saharan Africa lowest score (5.3)

North & Western Europe shows the highest SSI score of all regions, 6.9, whereas Sub Saharan Africa has the lowest score of 5.3. For all regions but one, the score of Human Wellbeing is highest and Economic Wellbeing lowest, while Environmental Wellbeing scores in between. For Sub Saharan Africa the score of Environmental Wellbeing is higher than for Human and Economic Wellbeing.

Switzerland ranks 1, Sudan ranks 151

Zooming in on the 151 countries shows that the European Nordic countries and Switzerland (the highest score of 7.6) and Austria are topping the ranking list. Many an African country brings up the rear, with the lowest score for Sudan, 4.5.



The importance of income for the development of people is widely recognized. It also appears that there is a substantial impact of income on the development towards sustainability. The graph suggests there is – on average – a trade-off between Human Wellbeing and Environmental Wellbeing as well as between Environmental Wellbeing and Economic Wellbeing.

Progress

160 years…

The overall figure of the SSI increased slightly, from 5.8 in 2006 to 5.9 in 2010, or to be more exact, from 5.76 to 5.94. However, the accuracy of the underlying data is inadequate to justify more than one decimal. At this pace, it would take 160 years to achieve full sustainability.

Most progress for Basic Needs and Personal Development

Many indicators show progress over the past 4 years, above all those expressing Basic Needs and Personal Development. However, Gender Equality, important for stimulating personal development, has been in decline.

Climate & Energy in decline

In spite of the widely felt urgency for improvement, the score of Climate & Energy decreased over the period 2006 to 2010.

Human and Environmental Wellbeing up, Economic Wellbeing down

All changes combined have resulted in a slightly positive development of Human and Environmental Wellbeing. Economic Wellbeing made progress over 2006-2008, but has been in decline since 2008 and can be expected to be even more so in the next period 2010-2012.

Few changes in ranking

Changes in ranking over the years 2006 to 2010 are small for the Top-10 countries. Luxembourg and Denmark have risen 7 positions, Finland 3 positions. The changes in ranking position for the Bottom-10 are also rather small, except for Zimbabwe, which fell down 22 positions and Guinea, which fell down 16 positions.

Conclusions

The figures provide a solid basis for the feelings of many people, who are worrying about the future of mankind and all living beings on the one and only planet we inhabit. Another 160 years to achieve a sustainable world will be far too long. Moreover, the question is whether we will ever be able to achieve a sustainable world. Many people fear the consequences of the rapid development of emerging countries. While achieving a level of consumption much closer to that of the rich countries, they may also be depleting natural resources to a comparable extent. Planet Earth is being spoilt in the effort to achieve the highest possible level of Human Wellbeing. In the long run this just does not make sense.

A fundamental change is required.

Foreword

This SSI-2010 is already the third edition of the Sustainable Society Index, the SSI, since the first publication in 2006. The index was designed to raise awareness among politicians and the public at large with respect to sustainability.

The recent financial crisis and the subsequent economic downturn have further slowed down the already modest progress towards sustainability of our societies. Governmental efforts are now predominantly directed towards restoring the economic growth we have become addicted to in the past. Thus the opportunity the crisis offered to make a fundamental change, seems to get lost. We should not accept this situation.

I am not a pessimist. On the contrary. But it has now been convincingly argued by many experts that we are no longer living within the limits of Planet Earth. The world faces many challenges, in a wide range of different issues, many of these being strongly interrelated. Such issues range from climate change to renewable energy, depletion of resources, loss of biodiversity and natural disasters. But above all it concerns human disasters: not enough food, no drinking water, no shelter for hundreds of millions of people. A continued focus on economic development in its narrow, traditional sense will only worsen this situation.

Why do we hesitate to take the appropriate measures? Or should we say, why do we refuse to do so? There is no longer any doubt that postponing taking proper measures will increase the costs. We now need a much stronger focus on development towards sustainability, above all in the rich countries and of course in all other countries as well.

The index presented in this booklet provides a valuable tool to monitor the current situation as well as the progress towards a sustainable society. Further issues of the SSI in the years to come will bring progress in clearer focus and can stimulate societies in their efforts to achieve a higher level of sustainability. Sustainability should become the guide as well as the touchstone for the policy of our governments, and for all of us.

Herman Wijffels
Former Executive Director of the World Bank

Preface

In 2006 we presented the SSI for the first time. Now it is four years and two more editions of the SSI later. Has the world become more sustainable in the past four years? That was at least the idea behind the development of the SSI: to stimulate progress on the way towards sustainability. However, the world has hardly made any progress in these four years. One needs a magnifying glass and two decimals to notice the increase in the average overall SSI-score of the world: from 5.76 in 2006 to 5.92 in 2008 and 5.94 in 2010. And it will not be hard to prophesy that the 2012-scores will be in decline, due to the damaging effects of the actual economic crisis.

What does this tell us? That the SSI doesn't help to support development towards sustainability? Or does it mean that a tool like the SSI is very necessary, now more than ever? We tend to the latter. Therefore we will continue our work, with the support of many experts all over the world.

Since the previous edition in 2008, we have thoroughly evaluated the original set-up of the SSI. This resulted in a redesign of the framework, which is now even more balanced and transparent than the first set-up.

One would believe that making an update will be easier than making the first edition. Anyway, we believed so. However, we experienced that updating is even more difficult. An update enables comparisons over time. Very often one is confronted with irregularities in the time series of data,

> The Commission notes the important progress in statistical measurement that has occurred in recent years, and urges continued efforts to improve our statistical data base and the indicators that are constructed from this data base.
>
> *Stiglitz-Sen-Fitoussi report*
> September 2009

which provokes the question which data are correct? Or one notices that recent data are not yet or even no longer available. Or that the basis of an indicator has been changed and another basis must be found. We have tried to solve these problems in the best possible way. And we look forward to improved data for the 2012 edition.

We sincerely hope the SSI will support your efforts to contribute to achieve a sustainable society for all of us, now and in the near and distant future.

Geurt van de Kerk
President Sustainable Society Foundation

Part I

Introduction

The objective of developing a new index and set of indicators was to have an easy and transparent instrument at hand to measure the level of sustainability of a country and to monitor progress to sustainability. This index, the Sustainable Society Index – SSI, is presented in 2006. In 2008 the first of the two-yearly updates was published.

Human Wellbeing	Environmental Wellbeing	Economic Wellbeing

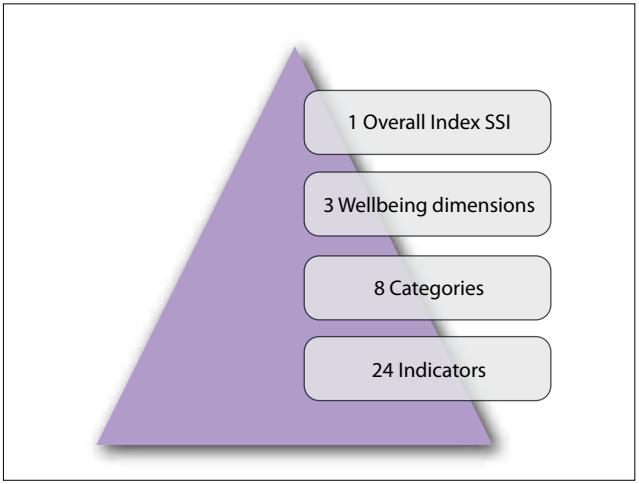
The SSI integrates **Human Wellbeing** and **Environmental Wellbeing**. That is the proper way to look at development to a sustainable world. Human and Environmental Wellbeing are the goals we are aiming at. Human Wellbeing without Environmental Wellbeing is a dead end, Environmental Wellbeing without Human Wellbeing makes no sense, at least not from an anthropocentric point of view. **Economic Wellbeing** is not a goal in itself. It is integrated as a condition to achieve Human and Environmental Wellbeing. It can be considered as a safeguard to wellbeing.

The SSI is based on a solid definition of sustainability, the well-known and worldwide respected definition of the Brundtland Commission (WCED, 1987). To make explicitly clear that sustainability includes Human Wellbeing as well as Environmental Wellbeing, we have extended the definition of Brundtland with a third sentence, so it runs as follows:

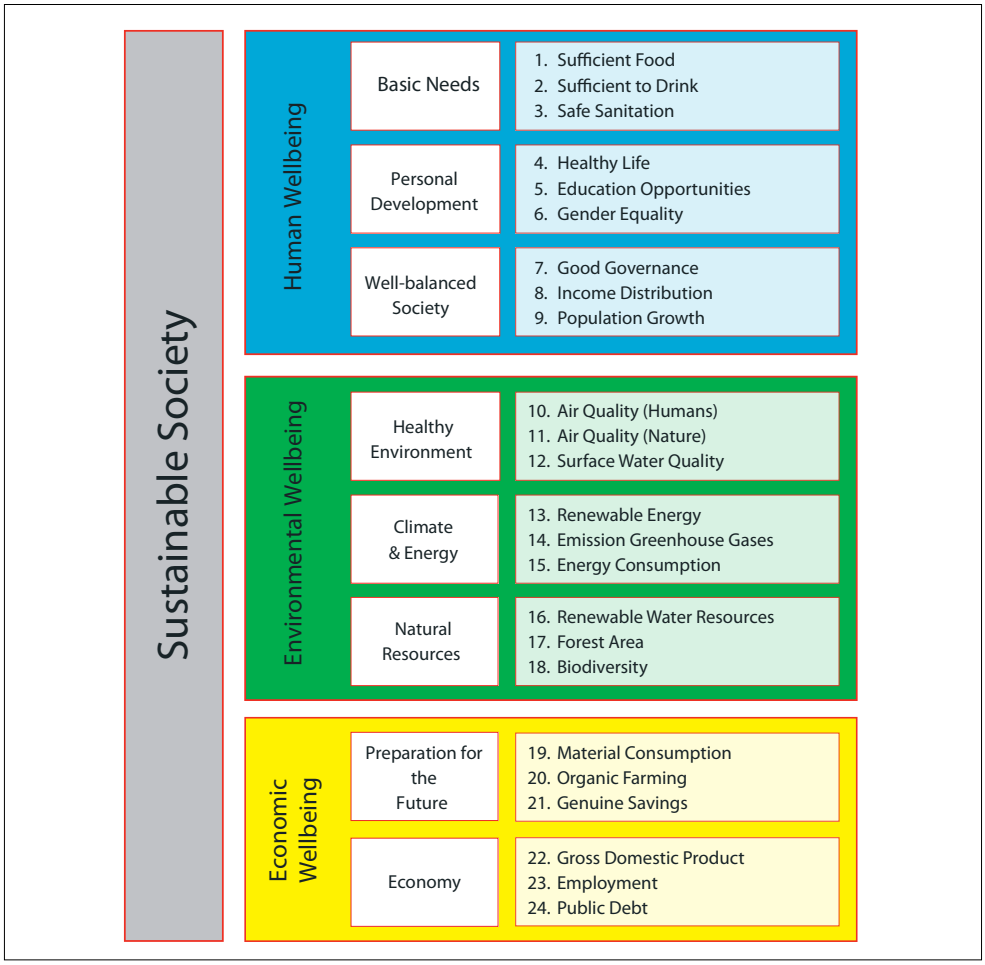
A sustainable society is a society

- *that meets the needs of the present generation.,*
- *that does not compromise the ability of future generations to meet their own needs,*
- *in which each human being has the opportunity to develop itself in freedom. within a well-balanced society and in harmony with its surroundings.*

The first two editions of the SSI, in 2006 and 2008, were based on a framework of 22 indicators. In the process of preparing the 2010 update we have thoroughly evaluated the structure of the SSI. (See Annex C – Evaluation and redesign of the SSI) This resulted in a new framework, even more balanced and transparent than the previous one.
The SSI comprises four levels:



The previous editions of the SSI, SSI-2006 and SSI-2008, have been recalculated according to this new framework. This enables comparisons over time, be it over a relatively short time period.



Chapter 2 gives an overview of the main results of the SSI-2010.
In chapter 3 we take a look at the correlations between Human Wellbeing and Environmental Wellbeing.
Chapter 4 gives a brief overview of the possibilities one has to use the SSI.
The many acknowledgements have been listed in chapter 5.

Part II presents the results in more detail: indicators, categories, wellbeing dimensions and SSI-2010.

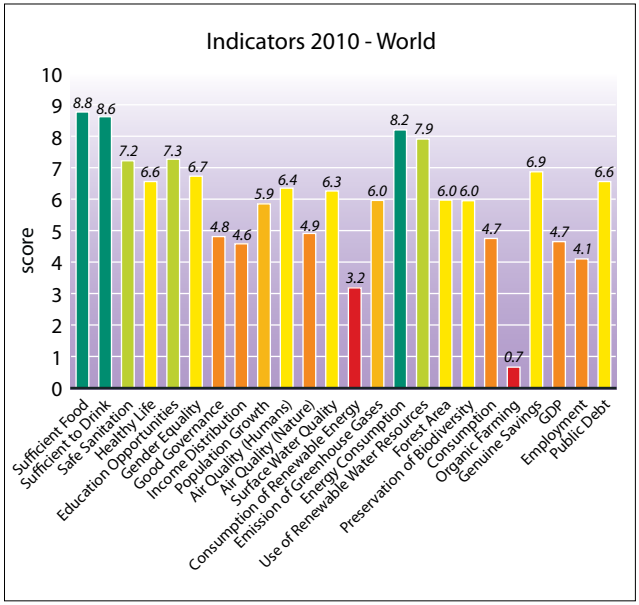
Further information, including all data of the three editions of the SSI, can be found on the website www.ssfindex.com.

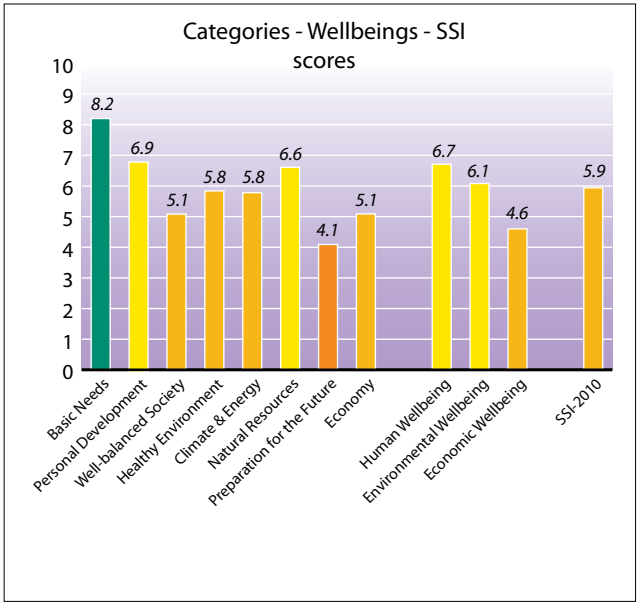
This third edition of the SSI shows that the world at large is still way behind sustainability. The average score of all 151 countries is 5.9, on a scale of 0 to 10. That is 41% below the required level. Moreover the world makes little progress over the past four years since the first edition of the SSI: the overall SSI-score increased from 5.8 in 2006 to 5.9 in 2010. At this pace, it would take 160 years to achieve full sustainability.

1. The world at large is – with a score of 5.9 on a scale of 0 to 10 – only just over halfway towards a sustainable world.
2. Two indicators show alarmingly low figures: Consumption of Renewable Energy has a score of 3.2 and Organic Farming an even lower score of 0.7.
3. Concerning Renewable Energy, high and upper middle income countries score way below average: 1.1 and 2.7 respectively, where lower and low income countries score way above average: 5.4 and 7.5 respectively.

2.1 Current situation

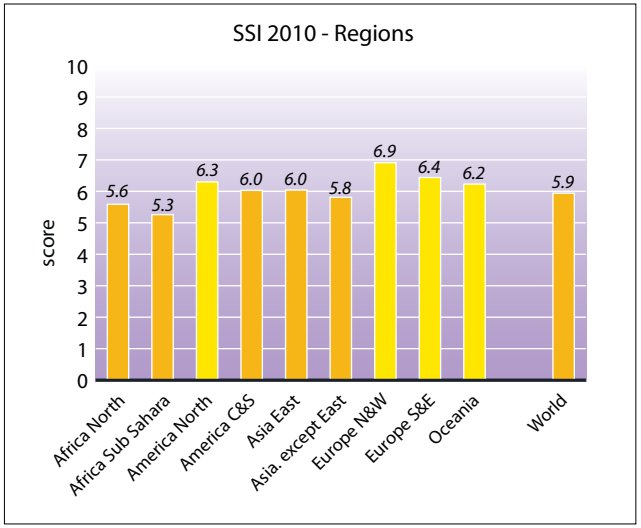
World



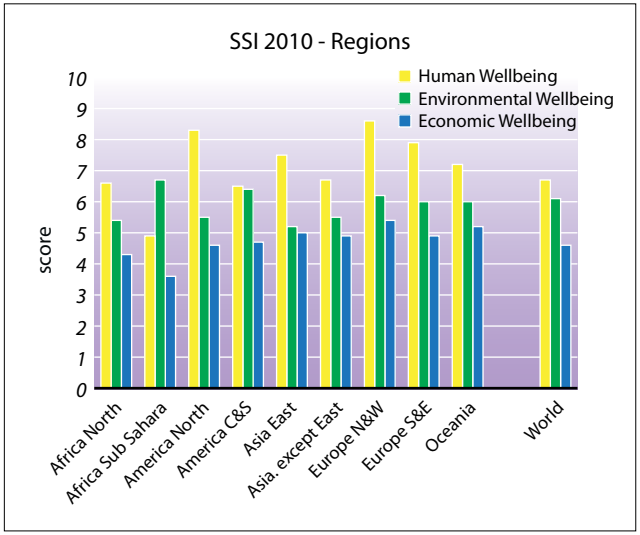


4. The scores of the 8 categories vary a lot. The lowest score is only half of the highest one. Basic Needs scores highest of all categories. However, the score of 8.2 – not taking a country's population size into account – reflects that 18% of the world population, i.e. over 1.2 billion people, still lacks adequate basic needs. The more justified figure, weighted for population size, is even more alarming: 21.5%, i.e. 1.5 billion people.
5. The variation in scores for the three wellbeing dimensions is smaller than for the categories. That is not surprisingly since they are further aggregations and thus further levelled out. Economic Wellbeing, which reflects not just GDP but economy in much broader sense as well as transition towards a sustainable society, is lagging behind the other two dimensions of wellbeing. Economic Wellbeing only scores 4.6. Environmental Wellbeing (6.1) and Human Wellbeing (6.7) are performing better, although they are still below full sustainability.

Regions

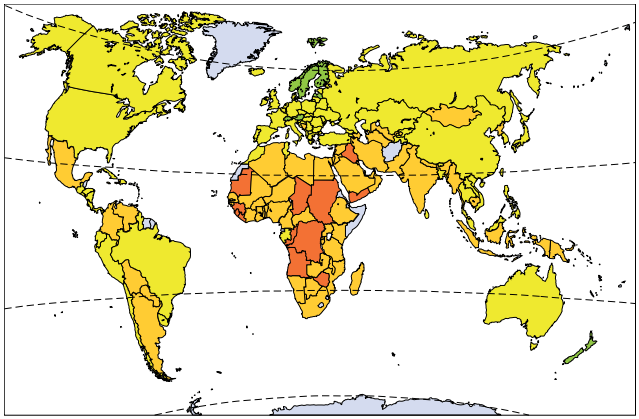


6. North & Western Europe show the highest SSI score of all regions, 6.9, whereas Sub Saharan Africa has the lowest score of 5.3.

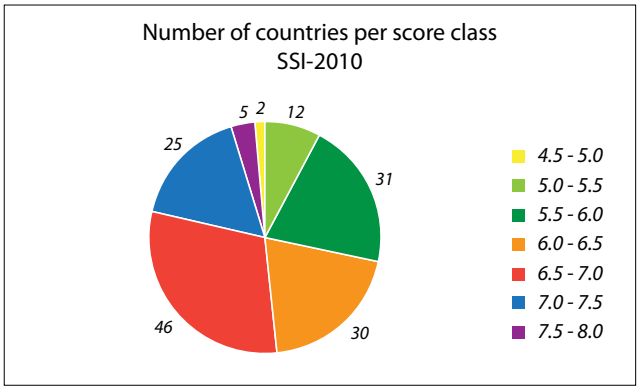


7. For all regions but one, the score of Human Wellbeing is highest and Economic Wellbeing lowest, while Environmental Wellbeing scores in between. For Sub Saharan Africa the score of Environmental Wellbeing is higher than for Human and Economic Wellbeing.
8. The variation in scores is largest for Human Wellbeing, varying from 4.9 (Africa Sub Sahara) to 8.6 (Europe N&W). Environmental Wellbeing varies from 5.2 (Asia East) to 6.7 (Africa Sub Sahara); Economic Wellbeing varies from 3.6 (Africa Sub Sahara) to 5.4 (Europe N&W).

Countries



9. The world map hardly shows any green countries. And even the green ones are only light green, meaning a score between 7 and 8 (on the scale of 0 to 10). No more than 7 countries score above 7. The complete distribution of the scores is presented in the next graph.



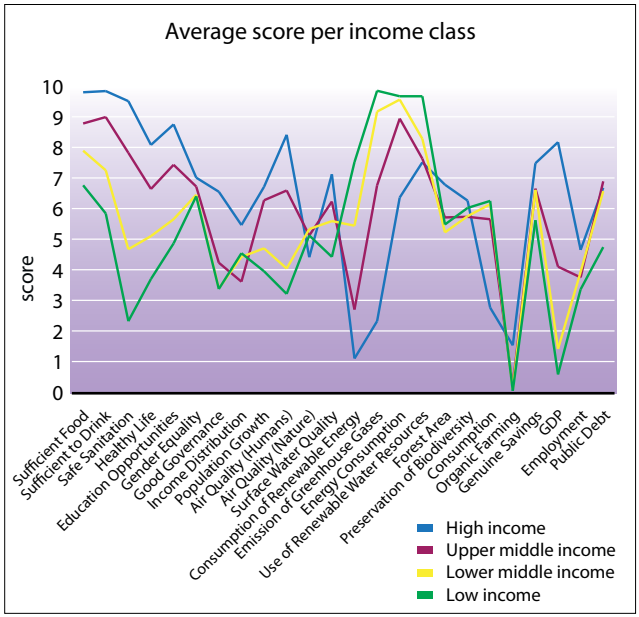
10. Again, like in previous years, the European Nordic countries and Switzerland and Austria are topping the ranking list. Many an African country brings up the rear. The complete ranking list is given in Annex A.

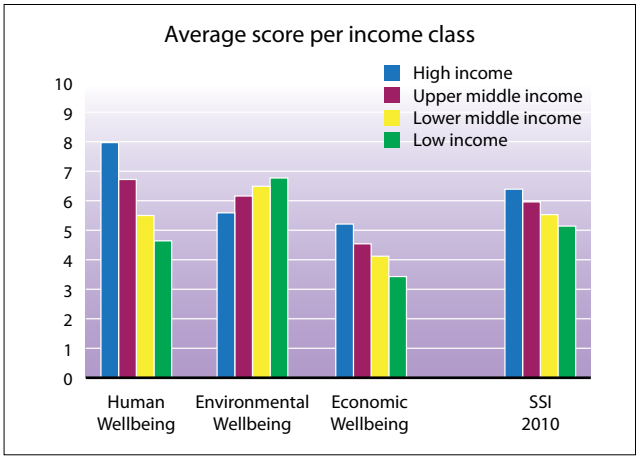
Top 10 - SSI-2010				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Switzerland	7.5	7.6	7.6
2	Sweden	7.3	7.5	7.5
3	Austria	7.4	7.5	7.4
4	Norway	7.2	7.3	7.4
5	Finland	7.0	7.1	7.1
6	Latvia	7.1	7.2	7.1
7	New Zealand	7.1	7.0	7.1
8	Slovenia	7.0	7.1	7.0
9	Luxembourg	6.7	6.8	7.0
10	Denmark	6.7	6.9	6.9

Bottom 10 - SSI-2010				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Angola	4.7	4.9	5.0
143	Iraq	4.7	4.9	5.0
144	Mauritania	4.5	4.9	4.9
145	Congo	4.7	4.9	4.9
146	Zimbabwe	5.1	4.8	4.8
147	Yemen	4.7	4.8	4.8
148	Chad	4.4	4.5	4.7
149	Guinea	4.9	4.7	4.7
150	Congo. Dem. Rep.	4.5	4.6	4.6
151	Sudan	4.4	4.4	4.5

Income

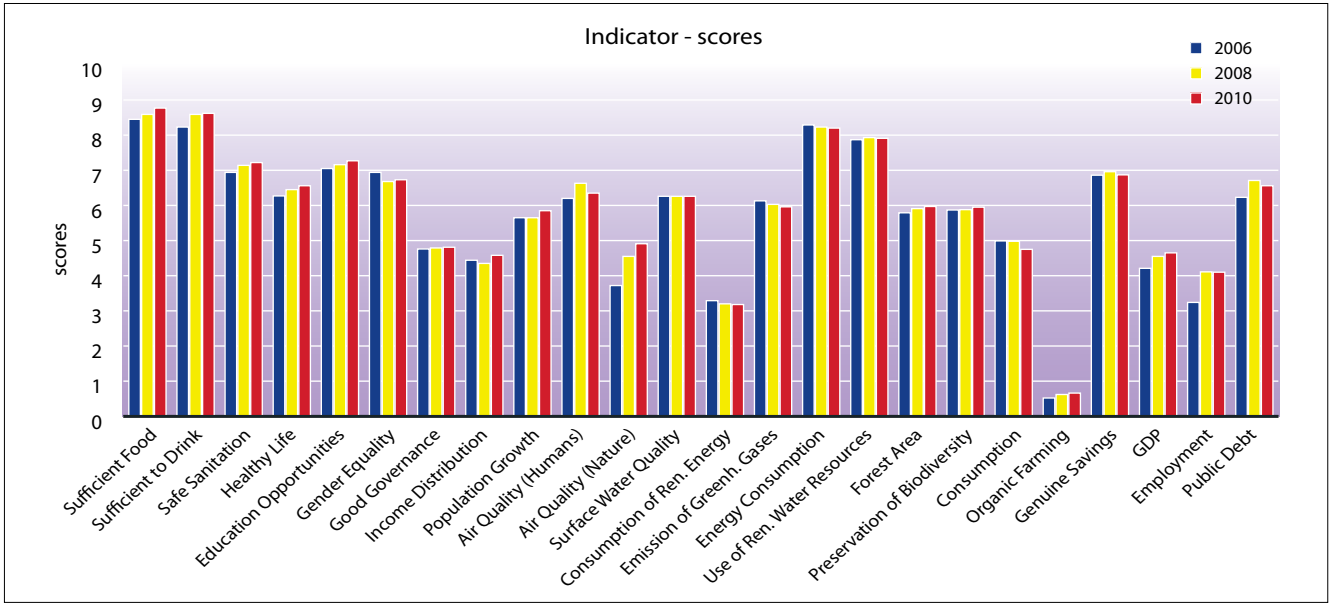
11. The importance of income for the development of people is widely recognized. It also appears that there is a substantial influence of income on the development towards sustainability. The correlation between income class of countries and indicator score, as presented in the next picture, requires careful study. More easy to read is the graph showing the wellbeing and SSI scores per income class.



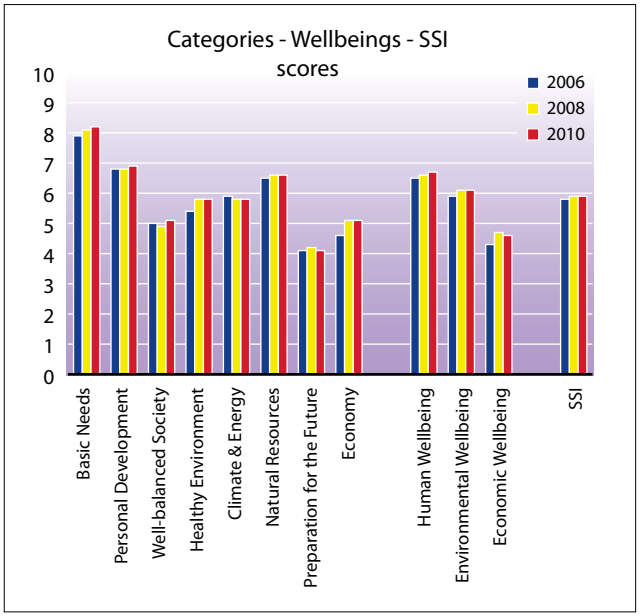


12. The graph suggests there is a trade-off between Human Wellbeing and Environmental Wellbeing as well as between Environmental Wellbeing and Economic Wellbeing. These correlations are elaborated in some detail in Chapter 3.

2.2 Progress 2006 to 2010



13. Many indicators show progress over the past 4 years, above all those expressing Basic Needs and Personal Development. Gender Equality is the only one of the latter 6 indicators which is in decline.
14. Air Quality (nature) improved steadily, Air Quality (humans) is quite volatile, as well as many of the further indicators, especially those for Economic Wellbeing.



15. Three categories show significant progress: Basic Needs, Healthy Environment and Economy, though the latter slightly decreased over 2008-2010.
16. In spite of the widely felt urgency for improvement, the score of Climate & Energy was in decline over the period 2006 to 2010.
17. All changes combined resulted in a slightly positive development of Human and Environmental Well-being. Economic Wellbeing made progress over 2006-2008, but has been in decline since then and can be expected to be even more so in the next period.
18. The progress of the overall figure of the SSI is very small, from 5.8 in 2006 to 5.9 in 2010, or to be more exact, from 5.76 to 5.94. However, the accuracy of the underlying data is too inadequate to justify more than one decimal.

Changes in ranking position 2006 to 2010			
Top 10		Bottom 10	
Tajikistan	68	Zimbabwe	-22
Honduras	43	Cote d'Ivoire	-23
Kazakhstan	42	Gambia	-25
Bhutan	38	Cyprus	-28
Malawi	31	Bosnia-Herzegovina	-28
Romania	30	Trinidad and Tobago	-29
Armenia	29	Iceland	-31
Kyrgyz Republic	27	Rwanda	-37
Laos	26	Ghana	-50
Moldova	24	Kenya	-53

19. Changes in ranking over the years 2006 to 2010 are small for the Top-10 countries. Luxembourg and Denmark have risen 7 positions, Finland 3 positions.
20. The changes in ranking position for the Bottom-10 also are rather small, except for Zimbabwe, which fell down 22 positions and Guinea, which fell down 16 positions.
21. 3 countries haven't changed their rank since 2006: Switzerland (rank 1), Norway (rank 4) and Sudan (rank 151).

2.3 Conclusions

The figures provide a solid basis for the feelings of many people, who are worrying about the future of mankind and all living beings on the one and only planet we inhabit. Another 160 years to achieve a sustainable world will be far too long. Moreover, the question is whether we will ever be able to achieve a sustainable world. Many people fear the consequences of the rapid development of emerging countries. While achieving a level of consumption much closer to that of the rich countries, they may also be depleting natural resources to a comparable extent.

Planet Earth is being spoilt in the effort to achieve the highest possible level of Human Wellbeing. In the long run this just does not make sense. A fundamental change is required.

Since none of the 24 indicators has achieved the level of full sustainability, i.e. a score of 10, all indicators need adequate attention and have to be improved, especially Renewable Energy and Organic Farming.

The Assault on Sustainability in 2010

Reading the news has not been easy for champions of sustainability in recent times, at least in the Western World. Let's review the situation.

First, the new UK government axed the Sustainable Development Commission. This Commission has been an extraordinary source of innovative thinking and clear-sighted critique for the past decade. Its impact on the UK has been very important … but its impact has also been global. And as a "cost-cutting" measure, dismantling it is wrong-headed. The Commission was costing the UK government roughly 3 million pounds per year, but by following (some of) its advice on energy conservation and the like, the UK government was already saving many times that amount — and could have saved a lot more.

Across the pond in the USA, energy and climate change legislation died in the Senate. Barring a political miracle, the Senate may have wasted the best historical opportunity to get something serious into US law, and it has at least wasted precious time.

Crossing the Atlantic again, France has earned positive headlines for its recent legislative commitment to sustainability. But at the same time actual money for sustainability programs has been drastically cut; and according to the French papers, the new national strategy lacks "any detail … on how the necessary investments for the realization of its objectives are to be financed."

Meanwhile, the news on the state of the planet has not been heart-warming, either. A recent global report on biodiversity carries the scary title "Dead Planet, Living Planet" — a glass-half-empty message if ever there was one. Ironically, we are losing to fight to retain biodiversity, even as we get better at figuring out how much life on Earth is actually worth to us in cold, hard cash — somewhere between 21 and 72 trillion dollars per year, according to the United Nations Environment Program's new report on The Economics of Ecosystems and Biodiversity. That's roughly equivalent to the entire annual Gross World Product ($58 trillion in 2008).

Meanwhile (again), a new NOAA (National Oceanic and Atmospheric Administration) report is out on climate change, and US and UK scientists are using words like "undeniable" and "glaringly obvious." Even Russia's President Medvedev is talking like a climate activist these days, as his country swelters in record-breaking heat waves.

So … what's a sustainability optimist to do, in the face of such pessimistic news?

Veteran planet-watcher Lester Brown, lecturing in Stockholm, was asked how he maintained optimism in the face of the gathering gloominess. "I get that question a lot, and I have a one-word answer, action." And not just any action: strategic action, designed to create the most powerful impacts possible, in the shortest amount of time.

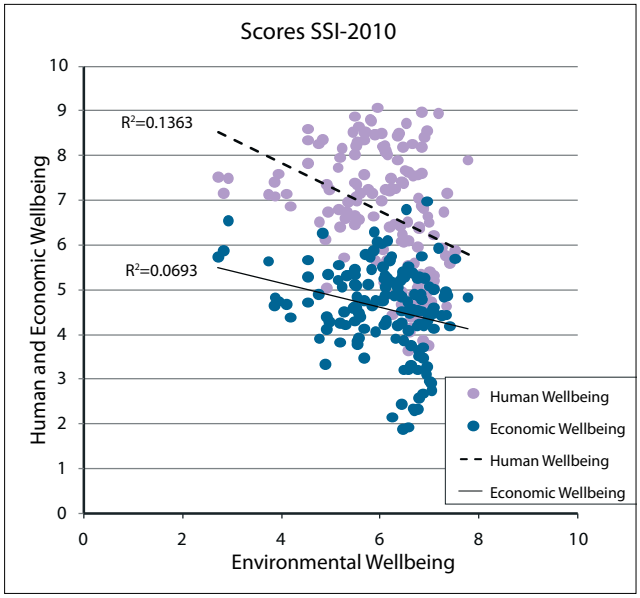
Positive change in difficult times is what we need. Now more than ever.

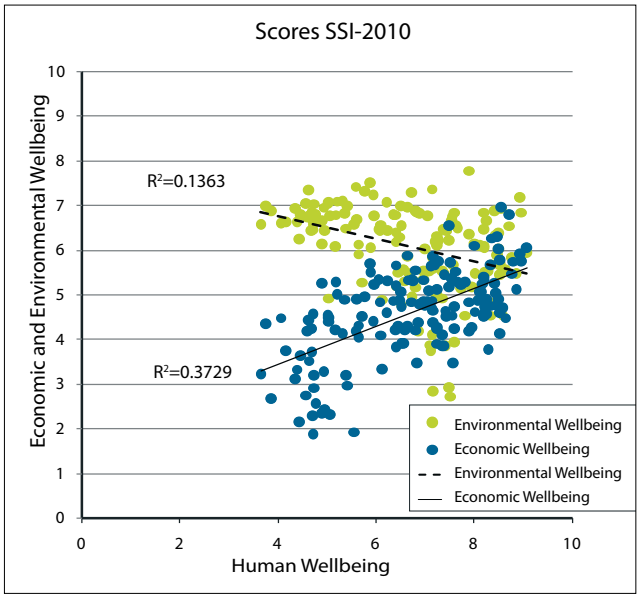
Alan AtKisson
President AtKisson Group
www.atkisson.com

Correlations between wellbeing dimensions

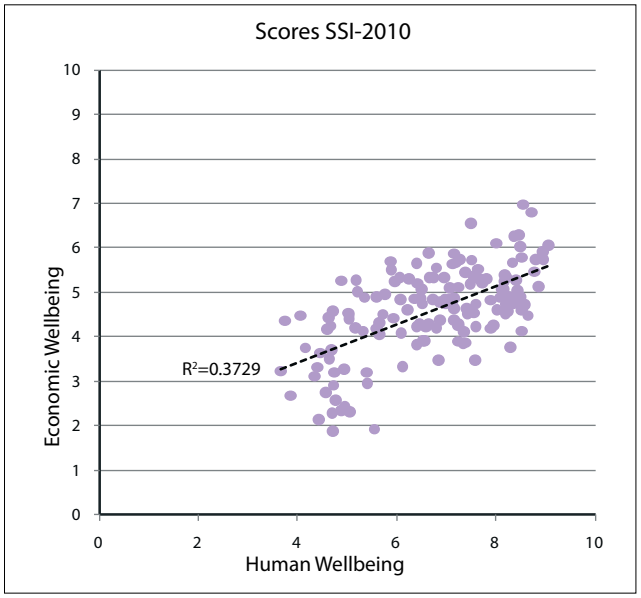
In the opinion of many people it is more or less useless to put efforts in development towards sustainability. "Imagine what will happen when China achieves the same wealth, the same consumption level as people in the very rich countries," one often asks themselves. It is assumed that Human Wellbeing and Economic Wellbeing on the one hand are unavoidably at collision course with Environmental Wellbeing on the other hand. "So why bother? It will not help us from the disasters that may come. The only solution can be found in technology. Fortunately people are very clever." So the common opinion of many of us.

The SSI data of no less than 151 countries offer the opportunity to study the correlations between the three dimensions of wellbeing.

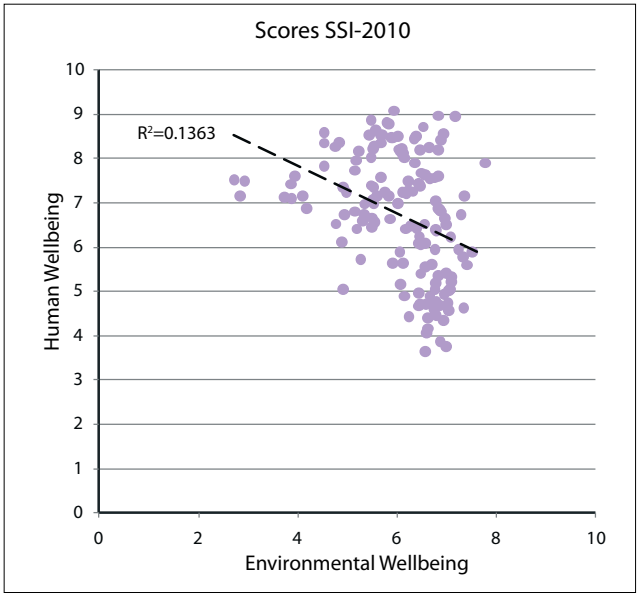




The overall conclusion, as outlined briefly below, is that no unambiguous and unavoidable correlations can be found. Many countries appear to perform not in conformity with the pattern, that seems to emerge from the graphs. Further research is required to be able to define the underlying reasons why one country performs so differently from another.

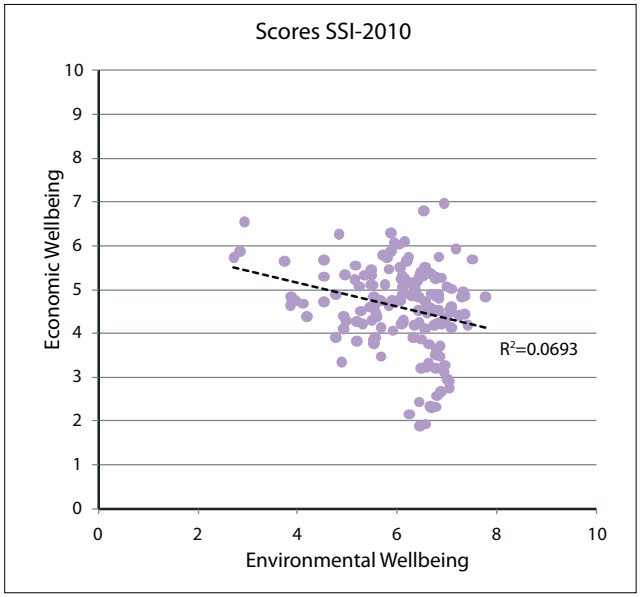


1. The statistical correlations between Human, Environmental and Economic Wellbeing are weak to very weak. However, they are statistically relevant, which means that it is unlikely these correlations occur by chance.
2. In view of the weakness of the statistical correlations, it cannot be surprising that a large majority of the 151 countries show results that are not in conformity with the trend lines.
3. The pattern of the correlation between Human and Economic Wellbeing seems to indicate a positive correlation between the two variables: higher Economic Wellbeing goes hand in hand with higher Human Wellbeing and vice versa.
4. However, it is remarked that only 42 of 151 countries score above the average performance of both Human and Economic Wellbeing (e.g. Finland, Austria, Switzerland), whereas 53 countries (e.g. Congo Dem. Rep., Sudan, Guinea) score below average on both Human and Economic Wellbeing (average = the average weighted by population size).



5. Focusing on Environmental Wellbeing there appears to be a clear trade-off between Human Wellbeing on the one hand and Environmental Wellbeing on the other.

6. Again, it should be noted that many countries do not perform in conformity with this pattern. The data show that only 48 countries score above the weighted average for Human Wellbeing and below Environmental Wellbeing (e.g. United Arab Emirates, Kuwait, Qatar), which is in conformity with the mentioned trade-off. But even more countries, 56 to be exact (e.g. Niger, Chad, Central African Republic), perform the other way round.



7. Also, there appears to be a trade-off between Economic Wellbeing and Environmental Wellbeing, though less outstanding than between Human and Environmental Wellbeing.
8. However, again there is a large variance in performance of the 151 countries. No more than 24 countries (e.g. Kuwait, Qatar, United Arab Emirates) perform in conformity with the apparent trend, i.e. score above average for Economic Wellbeing and below for Environmental Wellbeing. For no less than 66 countries it is the other way round (e.g. Guinea, Gambia, Zimbabwe).

9. Data clearly show that a significant number of countries show relatively high scores for Human and Economic Wellbeing while at the same time have relatively low scores for Environmental Wellbeing. This at least suggests a statistical significant correlation.

10. The shown trade-offs are a strong reminder of the danger of aggregation, which may compensate the degradation of one variable by the improvement of another variable. This stresses the necessity to always look not only at the aggregated values but also at the underlying figures. The SSI presents all data: the aggregated data as well as all underlying data.

Gender and Sustainability

Reversing the gender gap is the fastest route to sustainability on a global scale. Richer countries need more women in the labour force to counter declining populations and pension funds. Family-friendly policies and childcare is the most effective way to increase both birth rates and working women. OECD economies would also be on a sounder footing if women were in charge of managing the money. A lack of corporate responsibility among financial institutions, built on the ambitions and perspectives of men, has brought global economic collapse. Women, who are more risk-adverse and socially conscious than men, cannot reach the pinnacles of economic power owing to institutional discrimination. Yet firms with more women in leadership and management positions show better performance and higher profits.

In poorer countries, focusing on women can achieve more rapid and pro-poor economic growth than leveraging the men. Gender equality and the empowerment of women are at the heart of the Millennium Development Goals and are preconditions for overcoming poverty, hunger and disease. The share of educated women -- who have fewer children, invest in small income-earning activities and assure household welfare -- is the best predictor of levels of economic development. More aid should be devoted to female initiatives based on traditional roles in the home, nutrition, health services and agriculture. The Gender Gap Index of the World Economic Forum, which correlates gender equity and wealth, shows that countries cannot advance if they leave their women behind.

Women in all countries have different aptitudes, attitudes and sensibilities than men. At present, it is the male perspective which is driving economies, societies and environments in unsustainable directions. Women are more concerned about the widening income gaps in both developed and developing countries, which is a result of capitalist excesses and corruption. Women are far more likely than men to purchase eco-labelled, recyclable and energy-efficient products. While men support technical solutions to climate change and environmental problems, women favour behavioural changes and more forceful government interventions through carbon taxes and regulations. Yet women do not have a sufficiently powerful voice in environmental policy-making or political life to be able to influence sustainable outcomes.

Gender gaps are extracting high economic costs and leading to social inequities and environmental degradation around the world. It has been proven that better use of women would lead to increased economic growth, lower poverty levels, enhanced business performance, long-term social stability and less environmental degradation. Sustainable development is a gender issue and is unachievable without mobilizing the full contributions of women.

Candice Steven, consultant on the economics of sustainable development,
former Sustainable Development Advisor of the OECD.

For more information, see Are Women the Key to Sustainable Development?
http://www.bu.edu/pardee/publications/sdi-003-women/

Using the SSI

One may use the information of the SSI in various ways, depending on one's role and position in society, and of course depending on one's interest, time and ambitions. Some possibilities are briefly outlined in this chapter.

Policymakers, government officials

1. Use this information to show the public the actual situation concerning sustainability, not in a impressive but overwhelming report, but just at a glance, very transparent and easy to understand.
2. Use the 24 indicators – maybe completed by additional indicators you may require for your specific situation – to set the policy with respect to sustainability. For instance, at national level, each indicator can be assigned to a specific ministry. This ministry will be responsible for the development towards sustainability with respect to this indicator. The SSI can monitor the results of projects and programmes with respect to the contribution to sustainability. For example, what is the current progress towards sustainability? Will the targets set by the government be met in time? This will be an input for the revision of projects and for the revision of strategies.
3. Use the SSI as a benchmark instrument for comparing countries and regions, and thus stimulating each other to make progress on the way towards sustainability.

Individuals

1. See how your own country performs with respect to development towards sustainability, where are the best possibilities for improvement, where is the necessity most urgent etc.?
2. Compare your country with neighbouring countries and see on which aspects these are performing better or worse than your own country. Why is this, what can you learn by this information?
3. Use the information to urge yourself and your community to take measures to speed up progress towards sustainability.
4. Tell your representatives and politicians what you expect them to do to enhance the level of sustainability, on short term as well as in the long run.

Education institutes

1. Include sustainability and development towards sustainability in the curricula at all levels, in schools as well as at university level. Use the information from the SSI to illustrate what is happening in the world around us.
2. Assign further research projects, using the information from the SSI, to pupils in secondary schools and students in high schools and universities.
3. Set up specific research programmes for subjects you're interested in.

NGOs

1. Evaluate your sustainability strategy using the SSI-information and adjust this if necessary. Communicate this new strategy to the public.
2. Monitor the development and implementation of the national sustainability policies using the SSI and hold politicians responsible in case of underperformance.

Industry

1. Use the SSI-information to increase your own awareness of the current level of sustainability in countries where your firm is operating.
2. Improve your own performance with respect to sustainability and corporate social responsibility.
3. Introduce further innovations. An example is the development of a tailor-made sustainability index for greenhouse cultures in the Netherlands, based on the concept of the SSI. This new index is already operational.

Indicators for Development towards Sustainability

We in Finland are very keen on measuring our performance with respect to sustainability. From our own experience we have learned the importance of the use of sustainable development indicators for defining and monitoring our national sustainable development strategies. The recommendations in the Stiglitz-Sen-Fitoussi report of last year underline this approach: 'The time is ripe for our measurement system to shift emphasis from measuring economic production to measuring people's wellbeing. And measures of wellbeing should be put in a context of sustainability.'

We were pleased to learn about the Sustainable Society Index, SSI, when it was presented in 2006, even though it ranked Finland only on position 8 in 2006 and now on rank 5. We realized that, especially after the recent redesign of the SSI, it might be a valuable tool for monitoring developments towards sustainability.

As far as I know, the SSI is the only index, which includes the three dimensions of Wellbeing – Human, Environmental and Economic Wellbeing – and which is updated regularly. So we are happy to be able to cooperate in further developing the Sustainable Society Index. The SSI is very faithful to the core idea of sustainable development and is based on sound theory on sustainability.

The results of the new update clearly show which indicators need most attention in the coming years. That will help politicians in each country to formulate a sustainable development strategy and to set new and realistic targets for each indicator. Thus, Sustainable Development policy and strategy processes can be supported by this easy and transparent measurement and monitoring tool, nationally, regionally and globally. I do hope, that those responsible for Sustainable Development policy processes make use of this index and support its further development.

Sauli Rouhinen
Secretary General National Commission on Sustainable Development, Finland

5 Acknowledgements

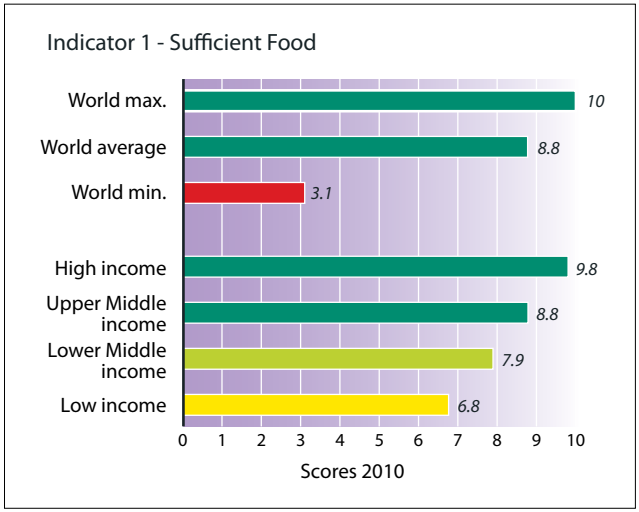
For this edition of the SSI, again many people have contributed to our work. In various ways: by supplying data, by being a sparring partner, by offering suggestions, by making comments, by examining drafts, by stimulating us to keep on going. All in different ways, in different measures, but all important to make the update successful. For all this we are thankful to

Alan AtKisson, Aldert Hanemaaijer, Alex de Sherbinin, Bob Goudzwaard, Brent Bleys, Candice Stevens, Caroline van Bers, Charles Besancon, Ciprian Popovici, David Moore, Diana Kraft, FRA Secretariat, Giovanni Ruta, Glenn-Marie Lange, Hélène Connor, Helga Willer, Henk Simons, Jochen Jesinghaus, John van Aardenne, Jon Hall, Kelly Hodgson, Lex van Deursen, Michaela Saisana, Peter van Sluijs, Reka Soos, Robert Hoft, Sabrina Barker, Sarah Humphrey, Sauli Rouhinen, Siobhan Kenney, Tanja Srebotnjak, Viktoria Bolla.

However, our contributors cannot be held responsible for the results, for opinions nor for mistakes in this publication. The responsibility for these lies solely with the authors.

Part II

Indicator 1 - Sufficient Food

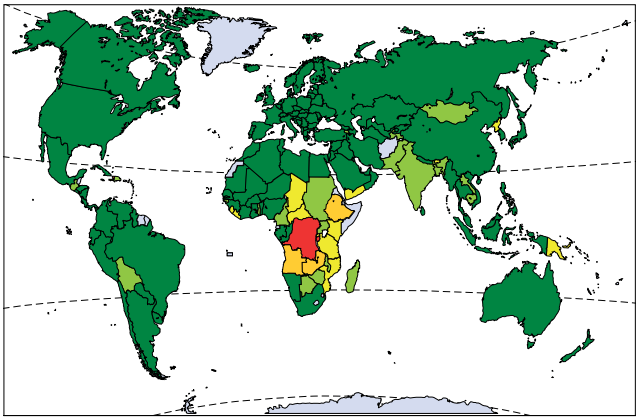


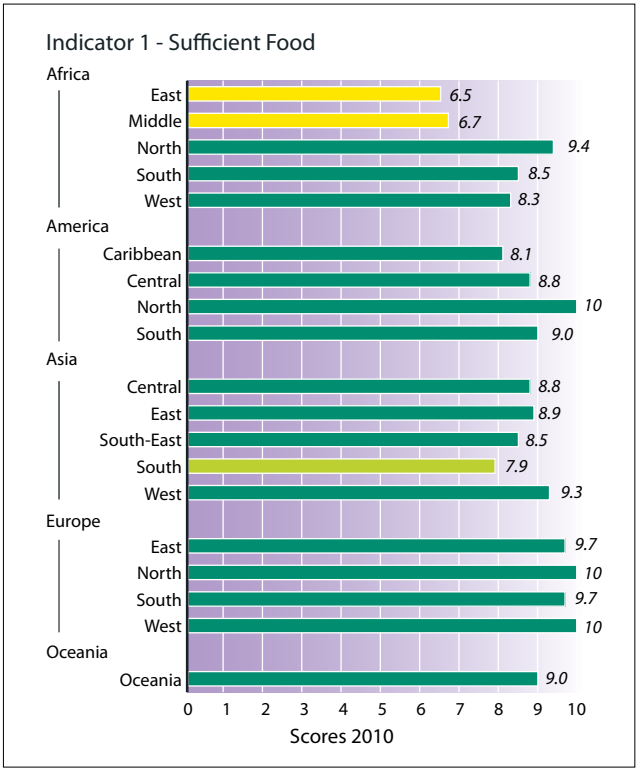
Indicator: number of undernourished people in % of total population

Source: FAO

Year of data: 2005 – 2007

Target: 0% undernourished people

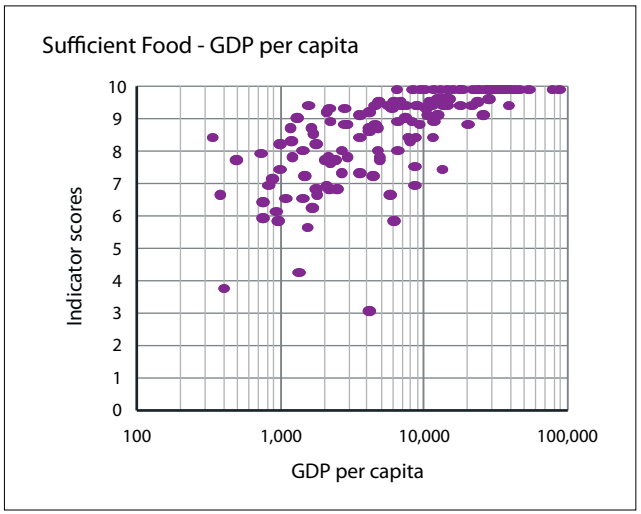


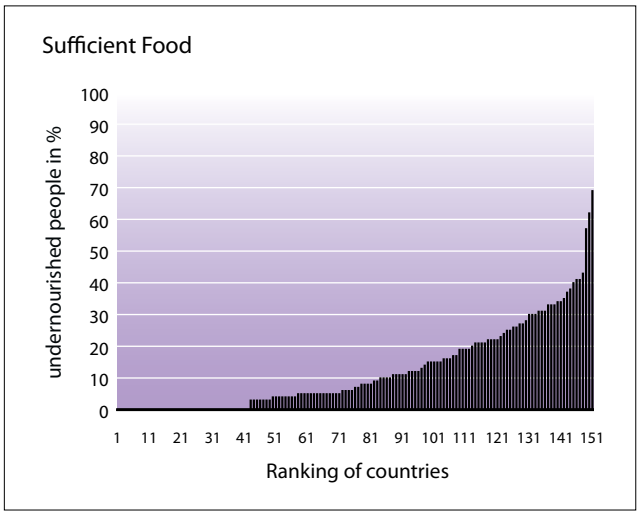


Sufficient food is defined as the availability of at least the minimum level of dietary energy for each person. It is one of the very basic conditions for people for proper development.

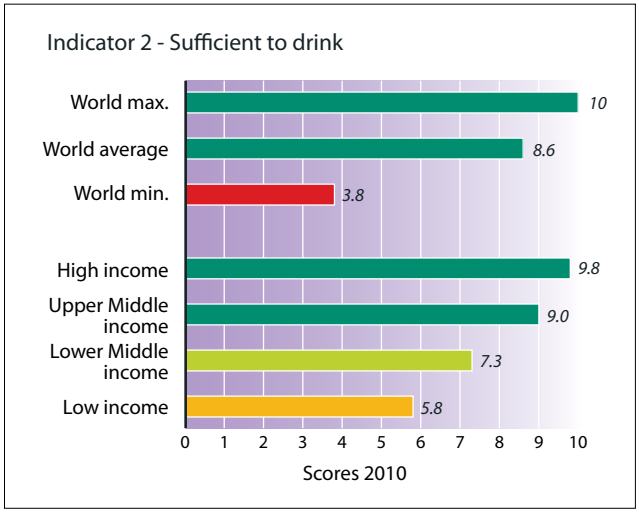
Top 10 - Sufficient Food				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Australia	10.0	10.0	10.0
2	Austria	10.0	10.0	10.0
3	Belgium	10.0	10.0	10.0
4	Canada	10.0	10.0	10.0
5	Cuba	9.7	10.0	10.0
6	Cyprus	9.4	10.0	10.0
7	Czech Republic	9.8	10.0	10.0
8	Denmark	10.0	10.0	10.0
9	Estonia	9.5	10.0	10.0
10	Finland	10.0	10.0	10.0

Bottom 10 - Sufficient Food				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Sierra Leone	5.0	4.9	6.5
143	Chad	6.6	6.5	6.3
144	Mozambique	5.3	5.6	6.2
145	Centr. Afr. Rep.	5.7	5.6	6.0
146	Angola	6.0	6.5	5.9
147	Ethiopia	5.4	5.4	5.9
148	Zambia	5.1	5.4	5.7
149	Haiti	5.3	5.4	4.3
150	Burundi	3.2	3.4	3.8
151	Congo. Dem. Rep.	2.9	2.6	3.1





Indicator 2 - Sufficient to Drink

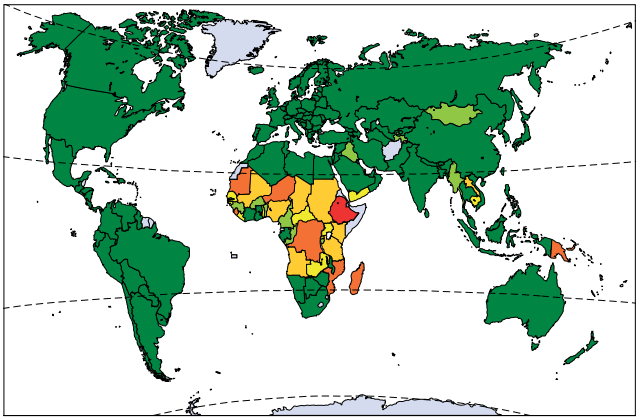


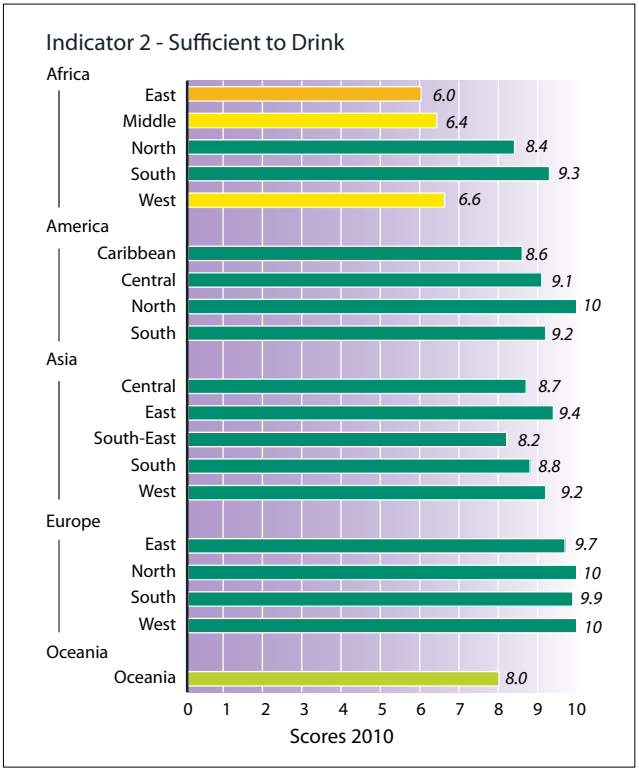
Indicator: number of people as % of the total population, with sustainable access to an improved water source.

Source: WHO-Unicef Joint Monitoring Programme

Year of data: 2008

Target: 100%



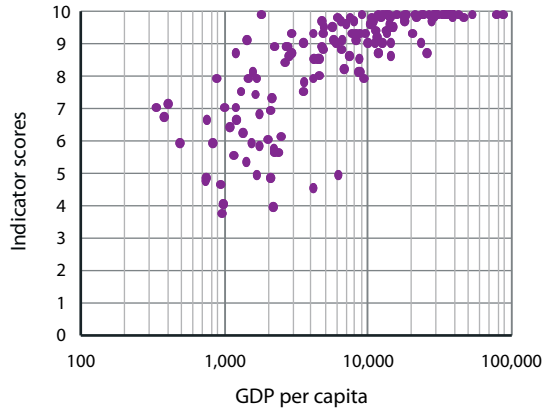


According to the definition of WHO, access to an improved water source means that at least 20 litres of safe drinking water per person per day should be available within one kilometre of a user's dwelling. An improved water source includes: household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collection.

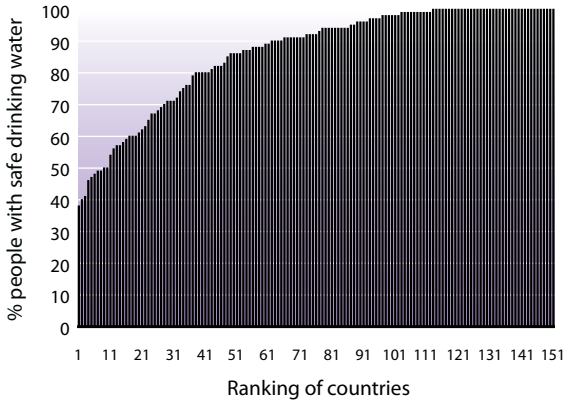
Top 10 - Sufficient to Drink				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Australia	10.0	10.0	10.0
2	Austria	10.0	10.0	10.0
3	Belarus	10.0	10.0	10.0
4	Belgium	10.0	10.0	10.0
5	Bulgaria	10.0	9.9	10.0
6	Canada	10.0	10.0	10.0
7	Cyprus	10.0	10.0	10.0
8	Czech Republic	9.3	10.0	10.0
9	Denmark	10.0	10.0	10.0
10	Finland	10.0	10.0	10.0

Bottom 10 - Sufficient to Drink				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Angola	5.0	5.1	5.0
143	Chad	3.4	4.8	5.0
144	Mauritania	5.6	6.0	4.9
145	Sierra Leone	5.7	5.3	4.9
146	Niger	4.6	4.2	4.8
147	Mozambique	4.2	4.2	4.7
148	Congo. Dem. Rep.	4.6	4.6	4.6
149	Madagascar	4.5	4.7	4.1
150	Papua New Guinea	3.9	4.0	4.0
151	Ethiopia	2.2	4.2	3.8

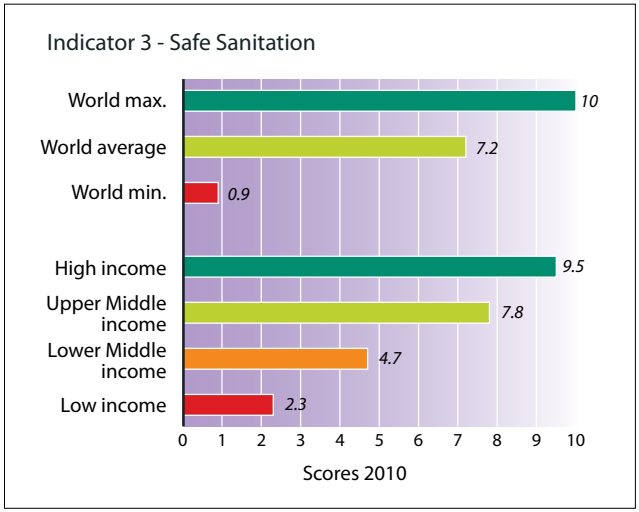
Sufficient to Drink - GDP per capita



Sufficient to Drink



Indicator 3 - Safe Sanitation

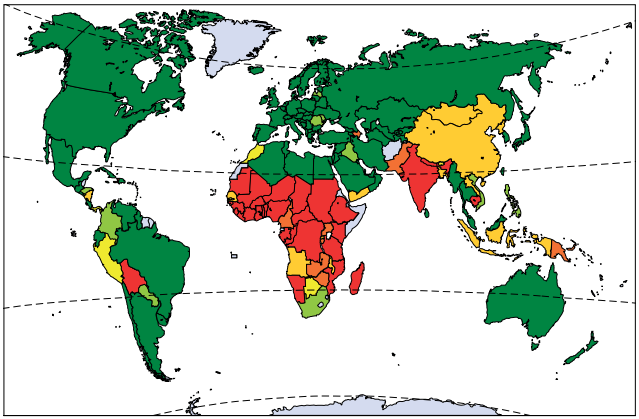


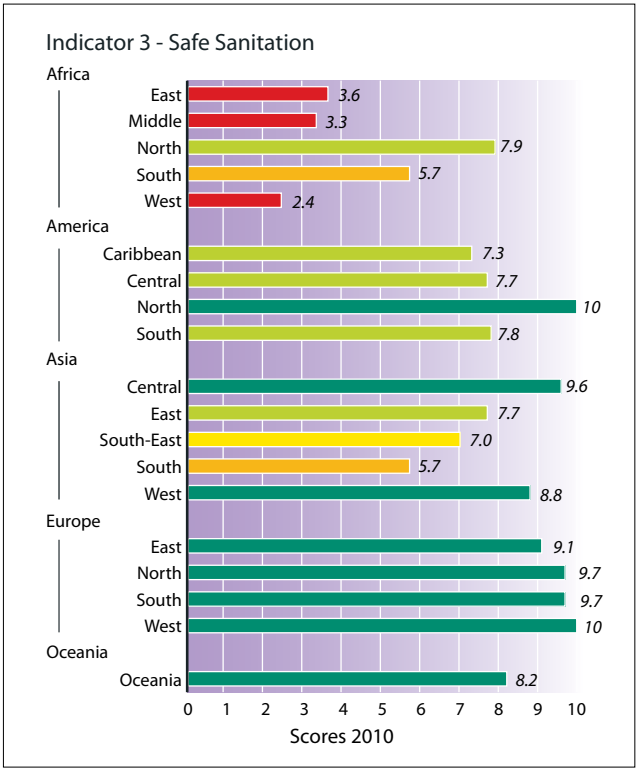
Indicator: number of people in % of total population, with sustainable access to improved sanitation

Source: WHO–Unicef Joint Monitoring Programme

Year of data: 2008

Target: 100%

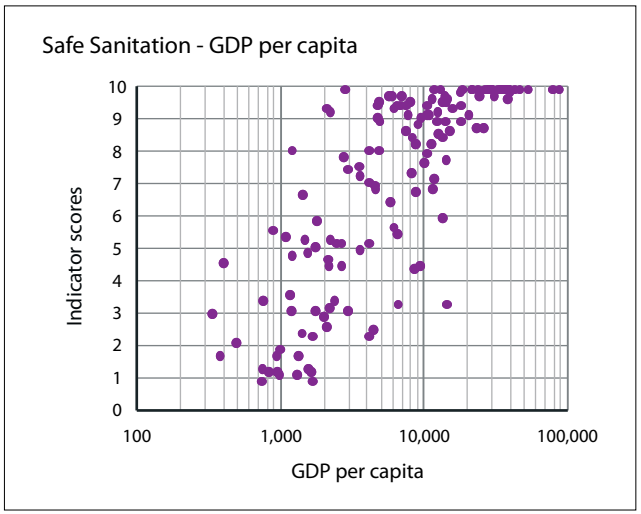


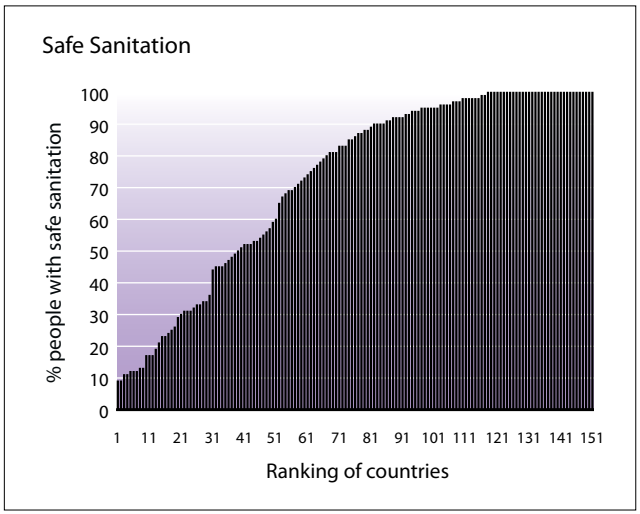


According to the definition of WHO, access to an improved water source means that at least 20 litres of safe drinking water per person per day should be available within one kilometre of a user's dwelling. An improved water source includes: household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collection.

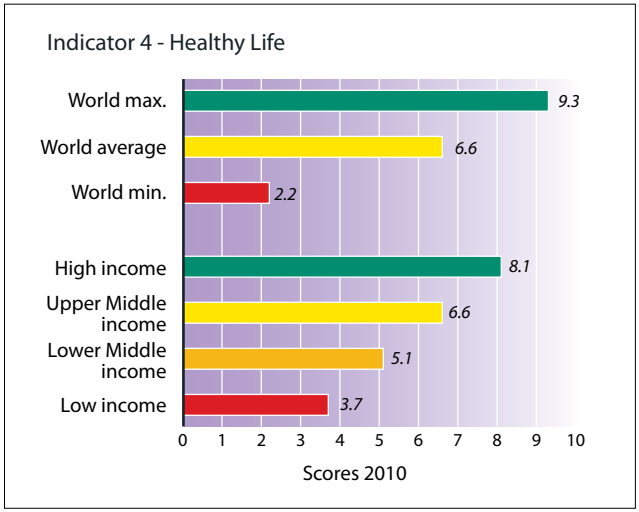
Top 10 - Safe Sanitation				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Australia	10.0	10.0	10.0
2	Austria	10.0	10.0	10.0
3	Belgium	10.0	10.0	10.0
4	Bulgaria	10.0	9.9	10.0
5	Canada	10.0	10.0	10.0
6	Cyprus	10.0	10.0	10.0
7	Denmark	10.0	10.0	10.0
8	Finland	10.0	10.0	10.0
9	France	10.0	10.0	10.0
10	Germany	10.0	10.0	10.0

Bottom 10 - Safe Sanitation				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Mozambique	2.7	3.1	1.7
143	Ghana	5.8	1.0	1.3
144	Sierra Leone	3.9	1.1	1.3
145	Benin	3.2	3.0	1.2
146	Ethiopia	0.6	1.1	1.2
147	Togo	3.4	1.2	1.2
148	Burkina Faso	1.2	1.3	1.1
149	Madagascar	3.3	1.2	1.1
150	Chad	0.8	0.9	0.9
151	Niger	1.2	0.7	0.9





Indicator 4 - Healthy Life

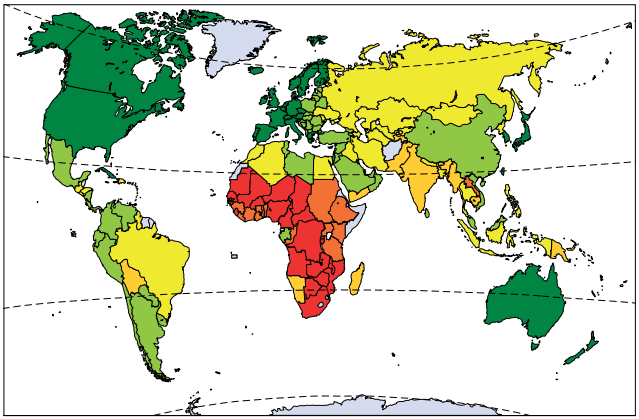


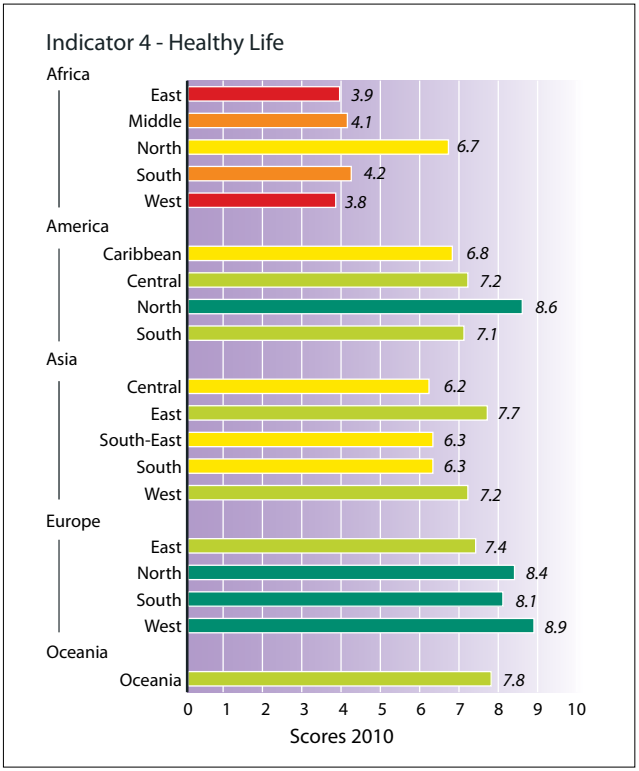
Indicator: Life expectancy at birth in number of healthy life years (HALE – Health Adjusted Life Expectancy)

Source: WHO and UN Population Division

Year of data: 2008

Target: the actual maximum

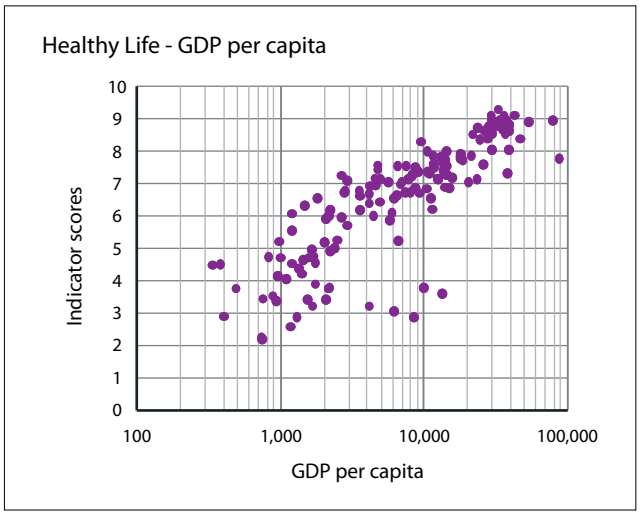


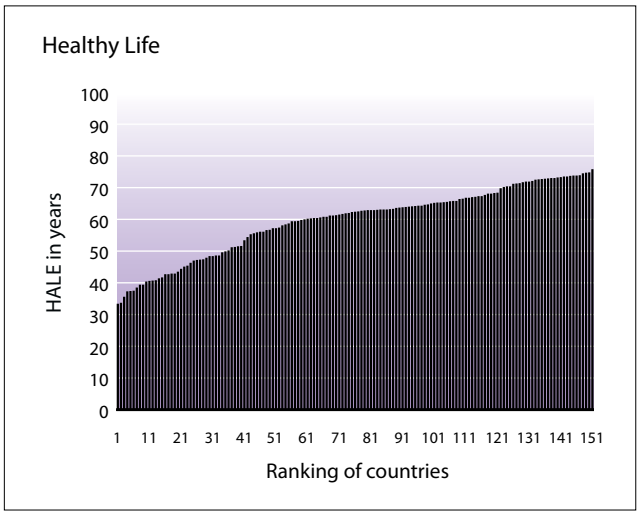


Commonly, life expectancy at birth is used as a measure for the level of a country's health care. However, WHO has refined this measure in 2002, resulting in the Health Adjusted Life Expectancy (HALE). This is the number of years that a newborn is expected to live minus the number of years spent in poor health. HALE thus not only takes into account the average number of years people are living, but also their health. After the presentation of the HALE figures in 2002, there has been no update, so an estimate has been made for more actual HALE values.

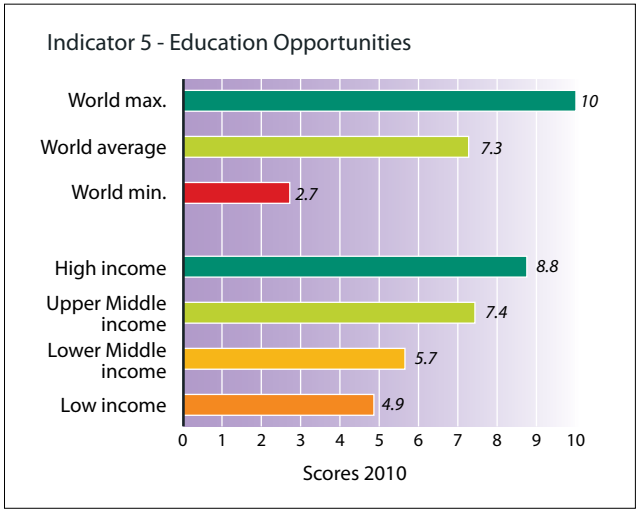
Top 10 - Healthy Life				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Japan	9.2	9.3	9.3
2	Switzerland	8.9	9.0	9.1
3	Italy	8.8	8.9	9.1
4	Sweden	8.9	9.0	9.1
5	France	8.7	8.8	9.0
6	Luxembourg	8.6	8.7	8.9
7	Spain	8.8	8.9	8.9
8	Australia	8.8	8.9	8.9
9	Iceland	8.8	8.9	8.9
10	Norway	8.7	8.8	8.9

Bottom 10 - Healthy Life				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Mozambique	2.8	2.6	3.4
143	Chad	3.5	3.5	3.2
144	Congo. Dem. Rep.	2.9	3.1	3.2
145	Angola	2.2	2.5	3.0
146	Burundi	2.5	2.8	2.9
147	Burkina Faso	2.6	2.8	2.9
148	Zimbabwe	2.3	2.8	2.9
149	Mali	3.0	3.3	2.6
150	Niger	2.6	2.8	2.2
151	Sierra Leone	1.4	1.6	2.2





Indicator 5 - Education Opportunities

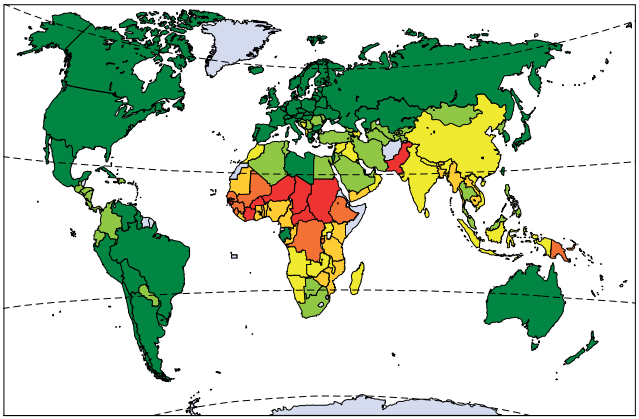


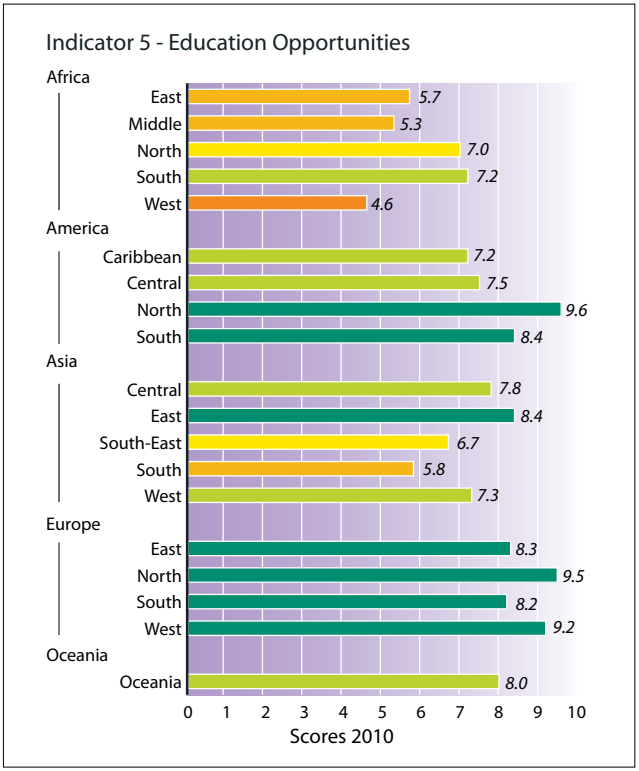
Indicator: combined gross enrolment ratio for primary, secondary and tertiary schools

Source: Unesco

Year of data: 2008 or MRYA

Target: 100%



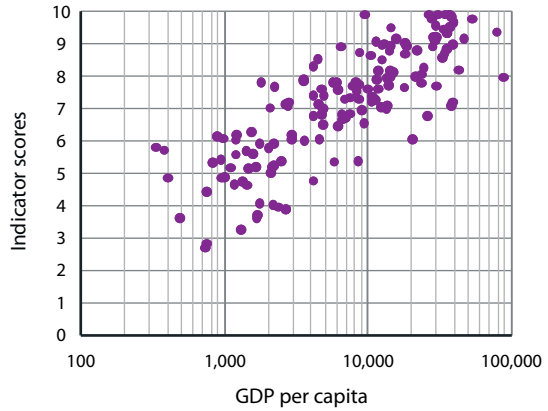


The combined Gross enrolment ratio expresses the number of students enrolled in primary, secondary and tertiary levels of education, regardless of age, as a percentage of the population of official school age for the three levels. Since all students are included, regardless of age, the ratio can be more than 100%. This happens when students younger or older than the official school age are enrolled.

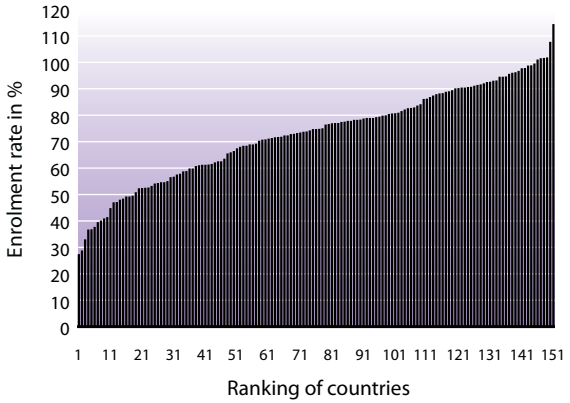
Top 10 - Education Oppotunities				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Australia	10.0	10.0	10.0
2	Cuba	8.0	8.8	10.0
3	Denmark	10.0	10.0	10.0
4	Finland	10.0	10.0	10.0
5	Greece	9.2	9.9	10.0
6	New Zealand	10.0	10.0	10.0
7	Canada	9.4	9.9	9.9
8	Norway	10.0	9.9	9.9
9	Korea. South	9.3	9.6	9.9
10	Ireland	9.3	10.0	9.8

Bottom 10 - Education Opportunities				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Senegal	4.0	4.0	4.1
143	Papua New Guinea	4.1	4.1	4.1
144	Sudan	3.8	3.7	4.0
145	Pakistan	3.5	4.0	3.9
146	Cote D'ivoire	4.2	4.0	3.8
147	Guinea-Bissau	3.7	3.7	3.7
148	Chad	3.8	3.8	3.7
149	Burkina Faso	2.4	2.9	3.3
150	Centr. Afr. Republic	3.1	3.0	2.9
151	Niger	2.1	2.3	2.7

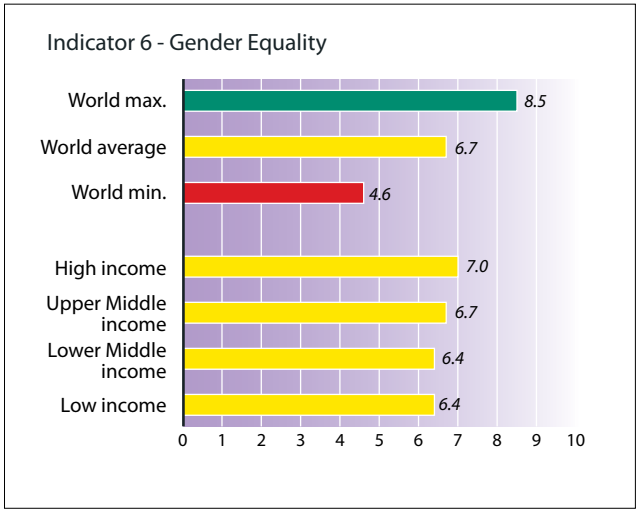
Education Opportunities - GDP per capita



Education Opportunities



Indicator 6 - Gender Equality

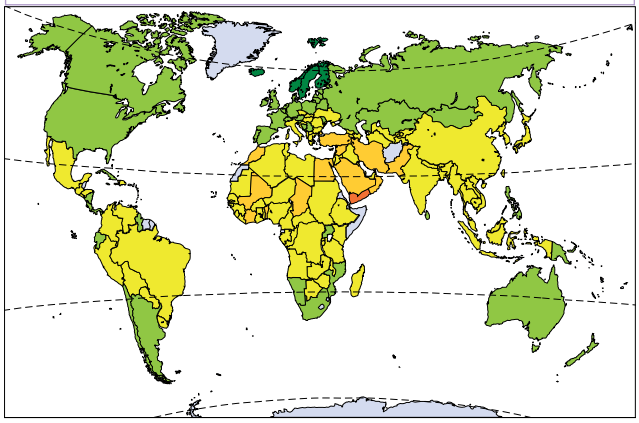


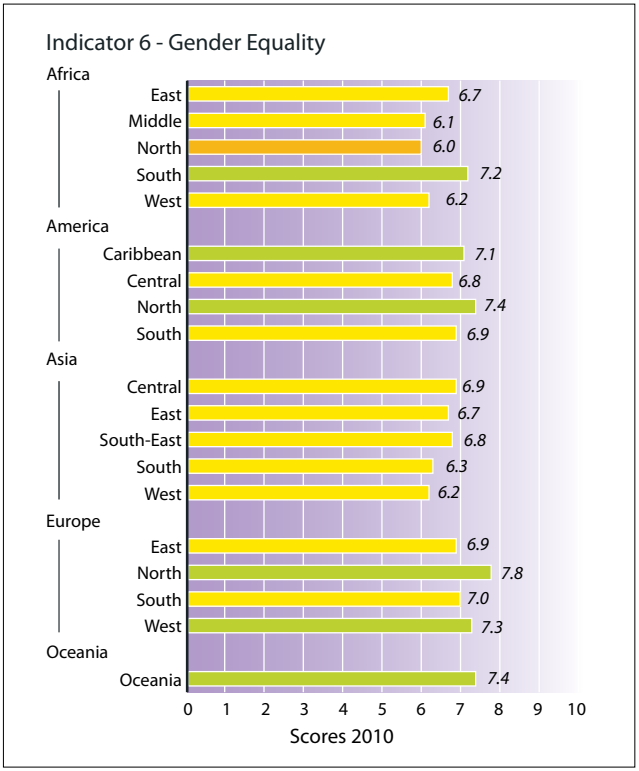
Indicator: Gender Gap Index

Source: World Economic Forum

Year of data: 2009 or MRYA

Target: 1, on a scale of 0 to 1

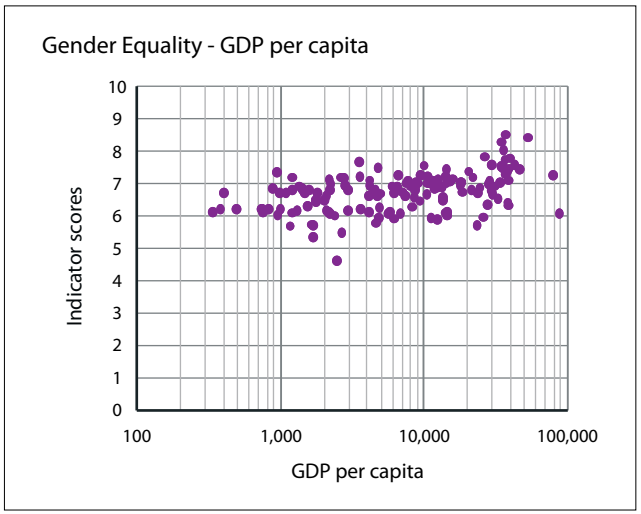


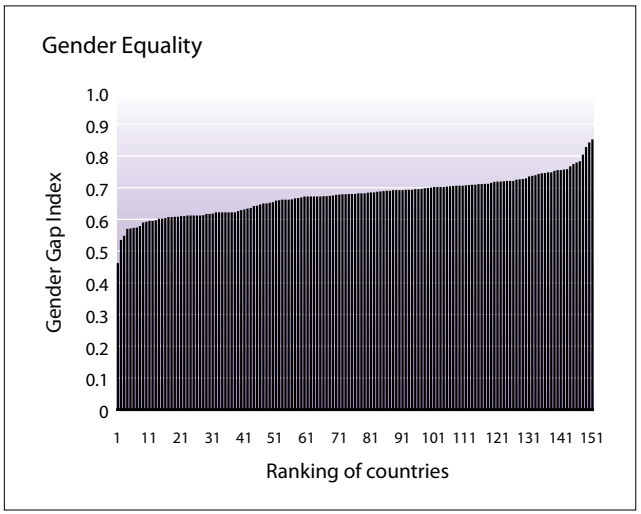


The most recent Human Development Report, HDR 2010, doesn't publish the Gender Related Development Index, GDI, any more. In order to be able to show developments over time, we now have used for this indicator the Gender Gap Index, yearly published by World Economic Forum. The scores of the SSI-2006 and SSI-2008 are also based now on the Gender Gap Index.

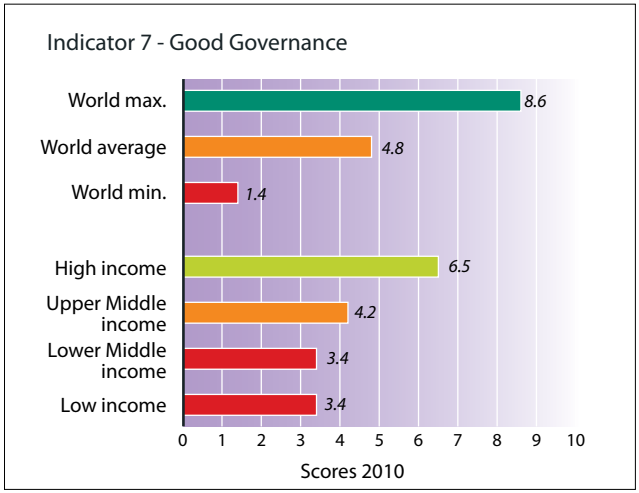
Top 10 - Gender Equality				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Iceland	7.8	8.0	8.5
2	Norway	8.0	8.2	8.4
3	Finland	8.0	8.2	8.3
4	Sweden	8.1	8.1	8.0
5	New Zealand	7.5	7.9	7.8
6	Ireland	7.3	7.5	7.8
7	Denmark	7.5	7.5	7.7
8	Philippines	7.5	7.6	7.7
9	Switzerland	7.0	7.4	7.6
10	Spain	7.3	7.3	7.6

Bottom 10 - Gender Equality				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Egypt	5.8	5.8	5.9
143	Turkey	5.9	5.9	5.9
144	Morocco	5.8	5.8	5.8
145	Benin	5.8	5.6	5.7
146	Saudi Arabia	5.2	5.5	5.7
147	Cote d'Ivoire	5.7	5.7	5.7
148	Mali	6.0	6.1	5.7
149	Pakistan	5.4	5.5	5.5
150	Chad	5.2	5.3	5.3
151	Yemen	4.6	4.7	4.6





Indicator 7 - Good Governance

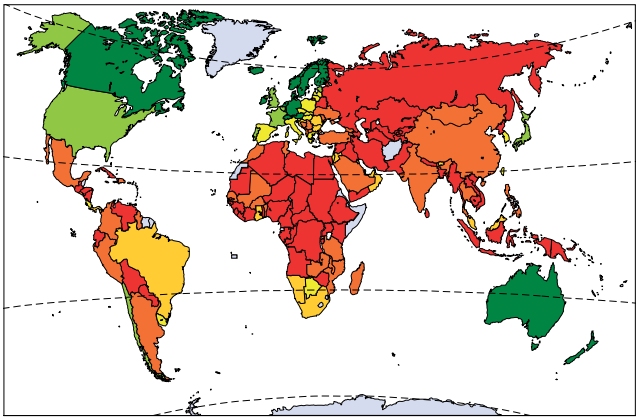


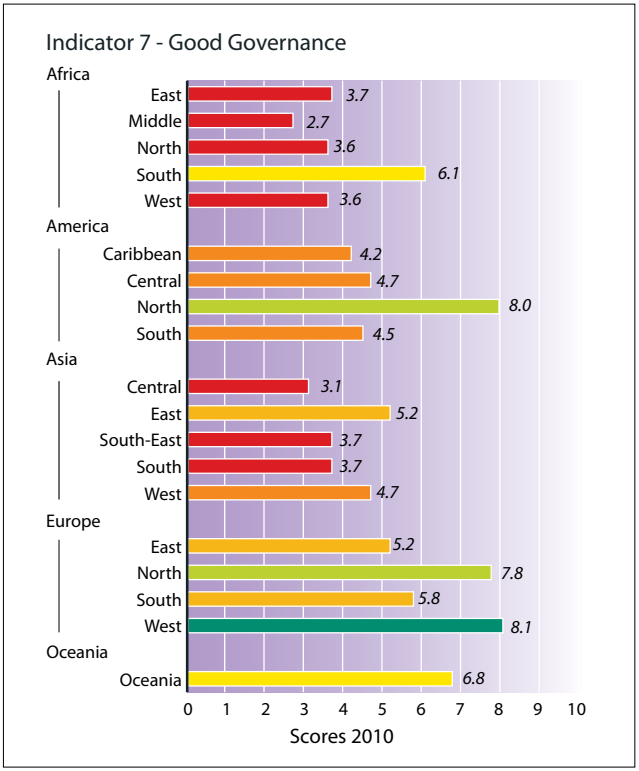
Indicator: the average of values of the six Governance Indicators of the World Bank

Source: World Bank

Year of data: 2008

Target: the maximum score corresponds with 15, on the World Bank scale of -15 to +15





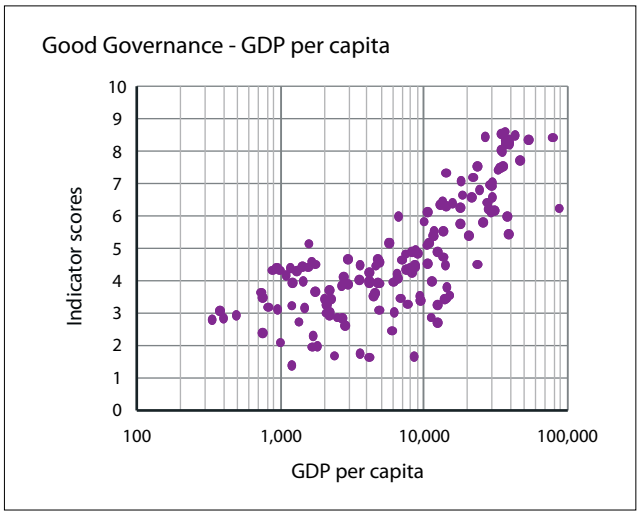
Yearly the World Bank publishes the level of Good Governance, based on the assessment of six major issues:

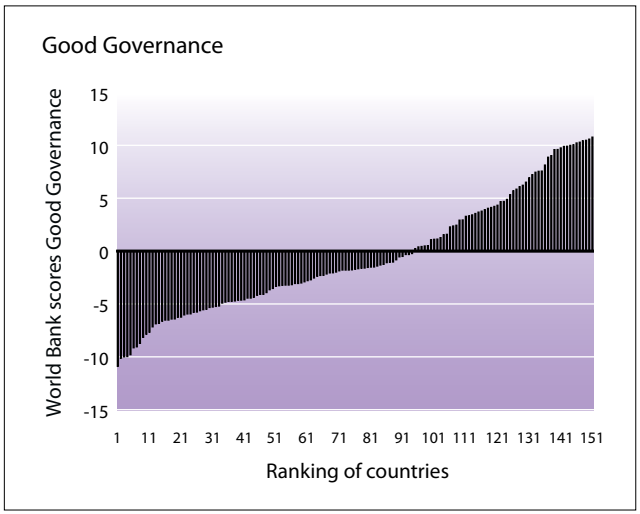
- Voice and Accountability,
- Political Stability,
- Government Effectiveness,
- Regulatory Quality,
- Rule of Law and
- Control of Corruption.

The World Bank uses a scale of +2.5 to -2.5 for each item, so by adding up one gets a scale of +15 to -15. For the SSI these six issues have been integrated into one indicator, expressing the level of Good Governance.

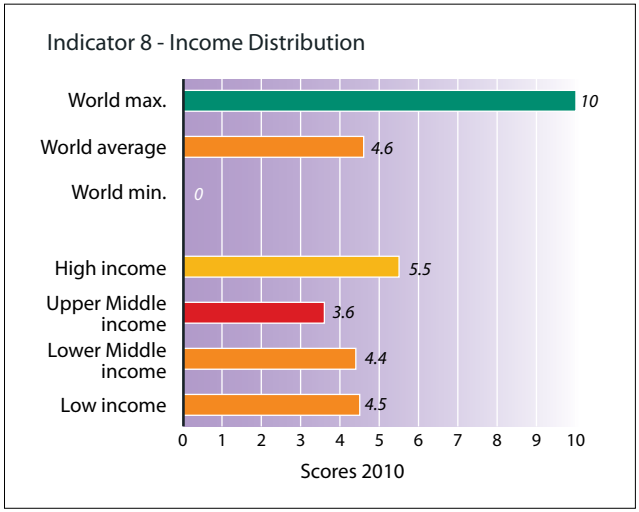
Top 10 - Good Governance				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Denmark	8.7	8.7	8.6
2	Finland	9.0	8.7	8.5
3	Sweden	8.6	8.6	8.5
4	Switzerland	8.6	8.7	8.5
5	New Zealand	8.8	8.5	8.4
6	Luxembourg	8.8	8.6	8.4
7	Netherlands	8.4	8.3	8.3
8	Norway	8.5	8.5	8.3
9	Australia	8.3	8.2	8.3
10	Canada	8.3	8.3	8.3

Bottom 10 - Good Governance				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Centr. African Republic	2.3	2.4	2.4
143	Cote d'Ivoire	2.3	2.2	2.3
144	Guinea	3.1	2.1	2.1
145	Korea. North	2.1	2.0	2.0
146	Chad	2.8	2.1	2.0
147	Iraq	1.3	1.5	1.7
148	Sudan	2.0	1.9	1.7
149	Zimbabwe	2.0	1.8	1.7
150	Congo. Dem. Rep.	1.6	1.8	1.6
151	Myanmar	1.6	1.6	1.4





Indicator 8 - Income Distribution

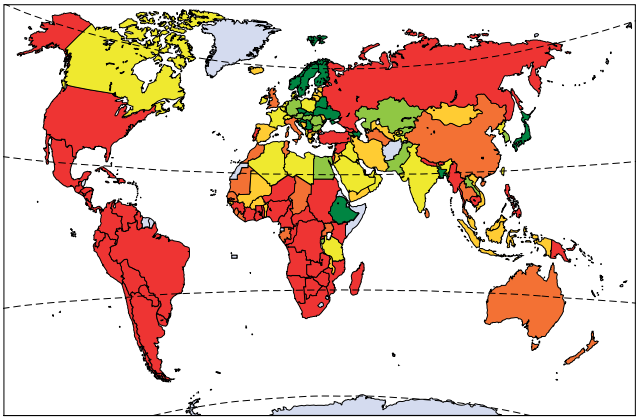


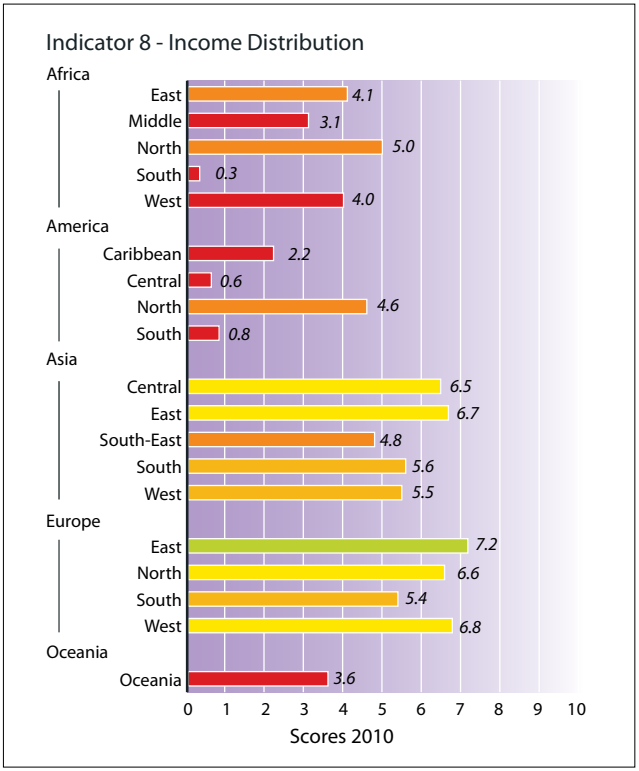
Indicator: ratio of income of the richest 10% to the poorest 10% of the people in a country

Source: World Bank

Year of data: 2008 or MRYA

Target: the actual maximum score, i.e. the lowest ratio.

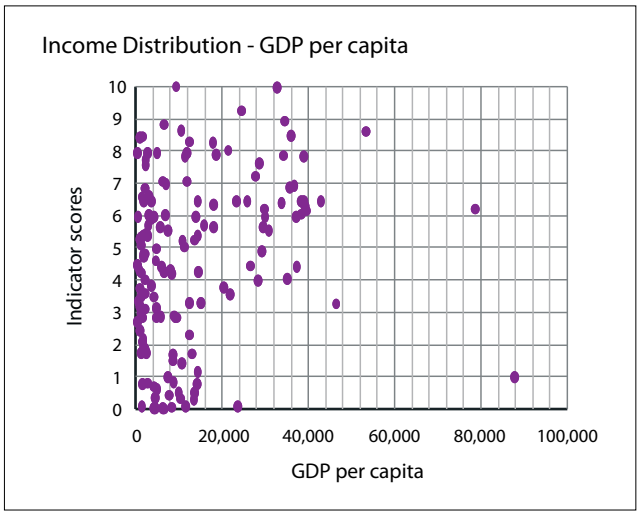


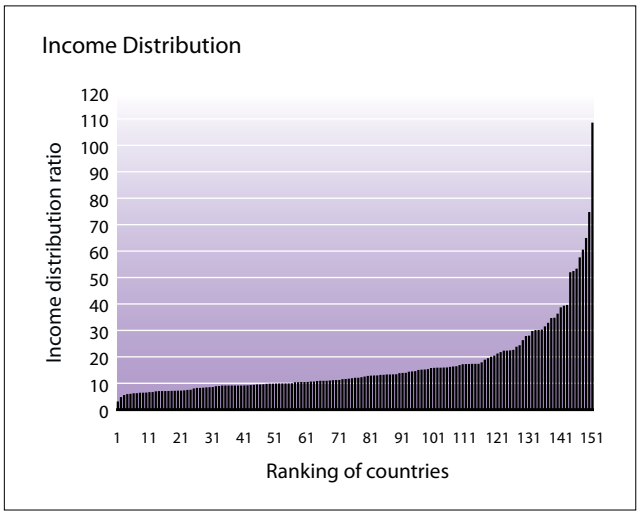


This indicator assesses the level of equality of the distribution of income of the richest 10% to the poorest 10% of the people in a country. A low level of inequality is supposed to contribute to a stable society, whereas a high level of inequality provokes unrest or worse in a society.

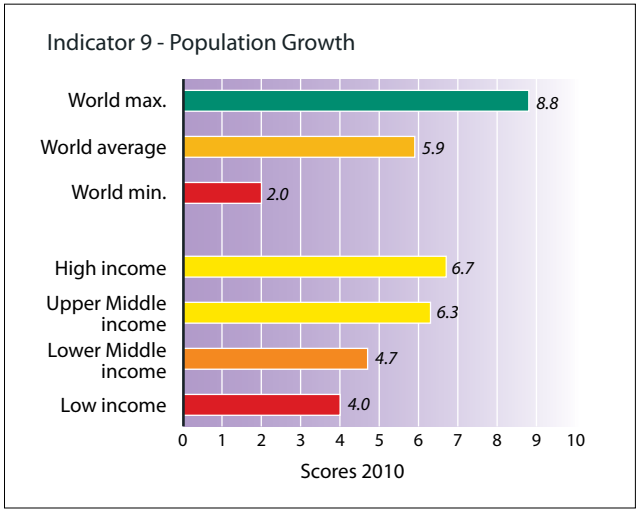
Top 10 - Income Distribution				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Azerbaijan	5.9	5.9	10.0
2	Japan	10.0	10.0	10.0
3	Czech Republic	9.3	9.3	9.3
4	Finland	9.0	9.0	8.9
5	Ukraine	8.3	8.7	8.8
6	Serbia	6.4	5.9	8.6
7	Norway	8.5	8.5	8.6
8	Sweden	8.5	8.4	8.5
9	Bangladesh	7.9	7.4	8.4
10	Ethiopia	8.1	8.1	8.4

Bottom 10 - Income Distribution				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Brazil	0.0	0.1	0.3
143	Botswana	0.0	0.2	0.3
144	Panama	0.0	0.0	0.1
145	Malta	0.1	0.1	0.1
146	Haiti	1.9	0.0	0.1
147	Colombia	0.0	0.0	0.1
148	Honduras	0.1	0.5	0.0
149	Bolivia	1.3	0.0	0.0
150	Angola	1.9	1.7	0.0
151	Namibia	0.0	0.0	0.0





Indicator 9 - Population Growth

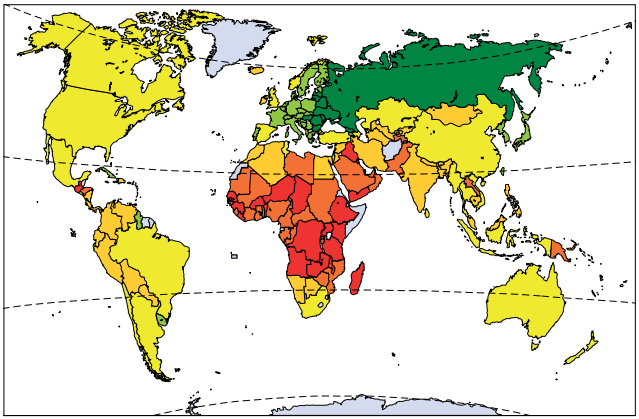


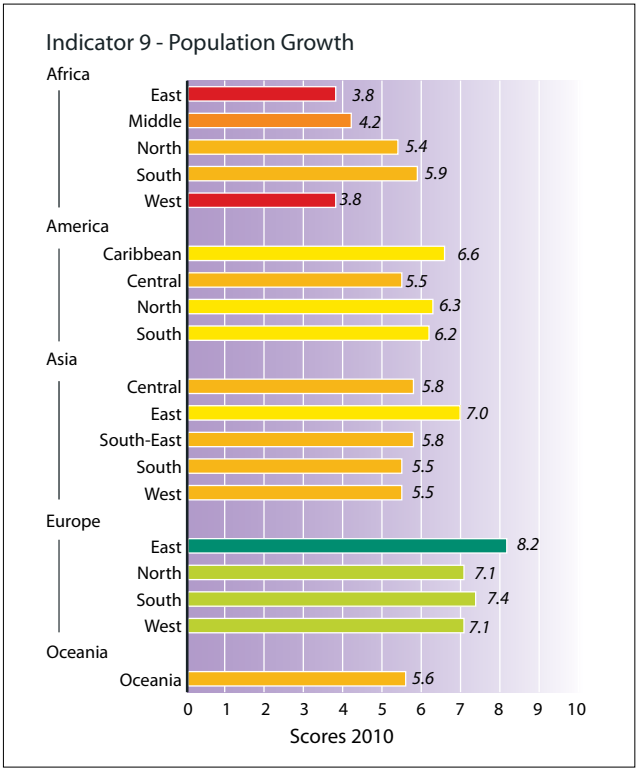
Indicator: average annual population growth, 2010 - 2015

Source: UN Population Division

Year of data: 2008 revision

Target: the actual minimum growth



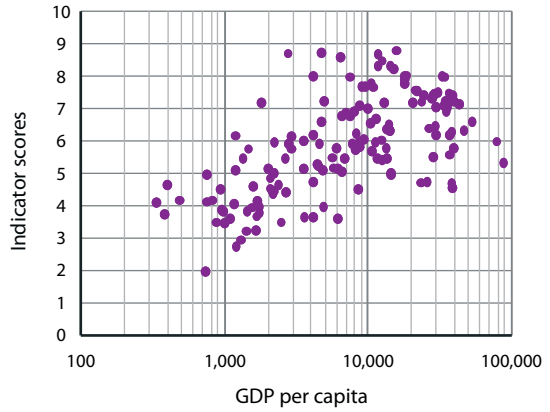


Population growth is expressed as the projected annual growth in % during the years 2010-2015. Though many politicians in industrialized countries are worrying about the demographic developments, particularly a decline in population, a worldwide continuous population growth cannot be sustainable. It would mean a growing demand for available space and other resources on our planet, many of them being finite and not renewable.

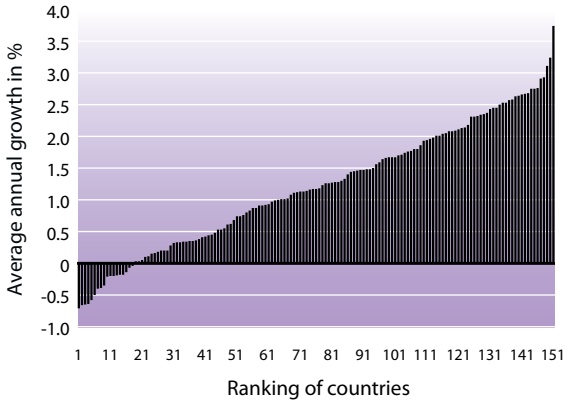
Top 10 - Population Growth				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Lithuania	8.6	8.5	8.8
2	Georgia	9.1	8.9	8.7
3	Moldova	7.8	9.1	8.7
4	Bulgaria	9.1	8.8	8.7
5	Ukraine	8.9	8.9	8.6
6	Belarus	8.5	8.5	8.4
7	Latvia	9.1	8.5	8.3
8	Romania	8.0	8.4	8.3
9	Russia	8.6	8.4	8.2
10	Hungary	8.5	8.1	8.0

Bottom 10 - Population Growth				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Angola	2.8	3.4	3.6
143	Rwanda	4.3	4.0	3.6
144	Yemen	2.3	3.1	3.5
145	Malawi	4.6	3.7	3.5
146	Guinea	5.2	4.4	3.5
147	Benin	3.5	3.0	3.2
148	Tanzania	4.8	3.8	3.2
149	Burkina Faso	3.1	3.2	2.9
150	Uganda	2.8	2.8	2.7
151	Niger	2.2	2.3	2.0

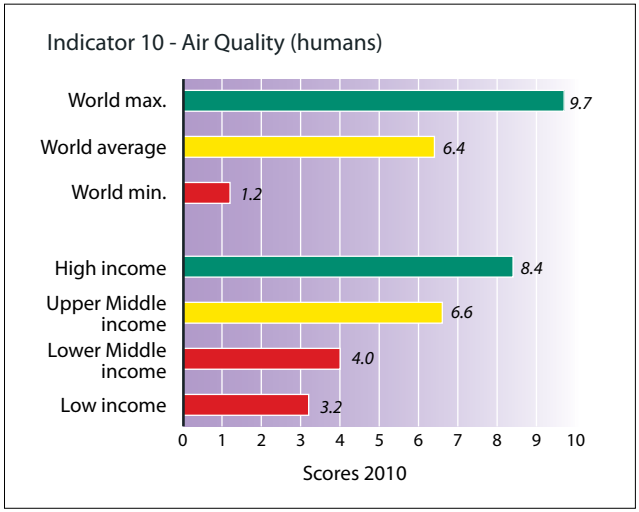
Population Growth - GDP per capita



Population Growth



Indicator 10 - Air Quality (humans)

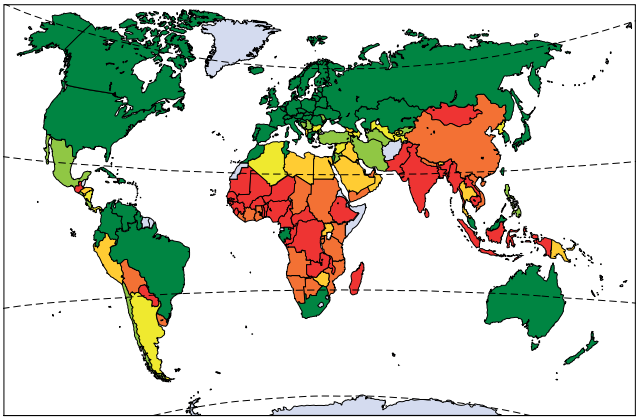


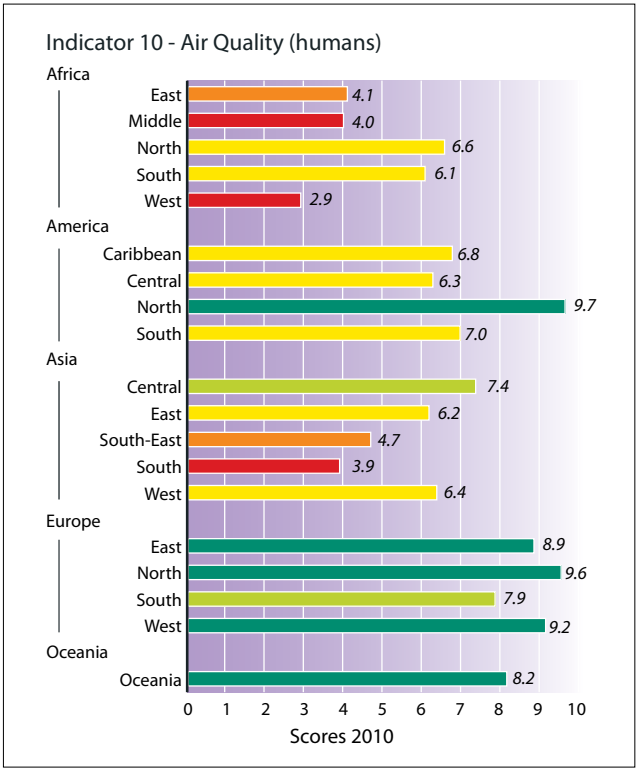
Indicator: Air pollution in its effects on humans

Source: Environmental Performance Index. EPI 2010

Year of data: 2007 or MRYA

Target: 100



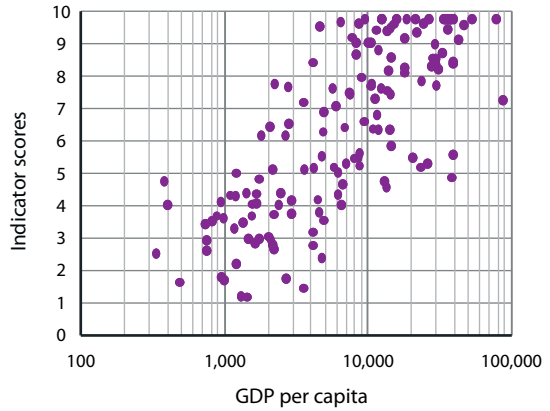


Air Quality (humans) is measured by indoor air pollution, caused by burning of solid fuel (defined as the household combustion of coal or biomass, such as dung, charcoal, wood, or crop residues), and urban particulate matters, PM_{10}. The EPI calculates its scores on a scale of 0 to 100.

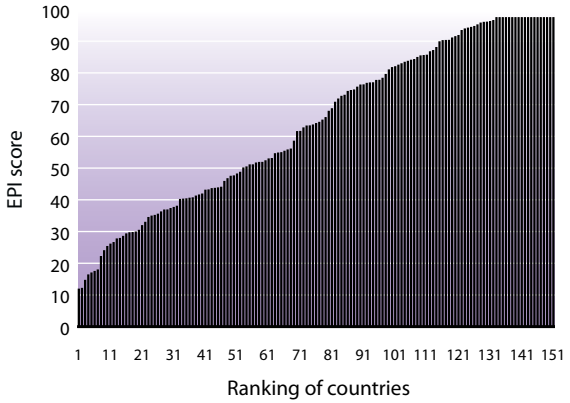
Top 10 - Air Quality (humans)				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Australia	9.7	9.7	9.7
2	Belarus	9.0	9.0	9.7
3	Canada	9.6	9.7	9.7
4	Cuba	7.4	9.7	9.7
5	Denmark	9.5	9.7	9.7
6	Finland	9.6	9.7	9.7
7	France	9.8	9.7	9.7
8	Germany	9.6	9.7	9.7
9	Hungary	8.8	9.7	9.7
10	Iceland	9.6	9.7	9.7

Bottom 10 - Air Quality (humans)				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Congo	2.1	2.8	2.5
143	Sri Lanka	2.6	2.9	2.4
144	Myanmar	2.2	2.9	2.2
145	Ethiopia	2.4	2.6	1.8
146	Pakistan	1.2	1.2	1.7
147	Guinea	3.0	2.9	1.7
148	Guinea-Bissau	2.5	2.6	1.6
149	Mongolia	4.5	5.3	1.5
150	Burkina Faso	1.7	1.9	1.2
151	Gambia	2.2	1.7	1.2

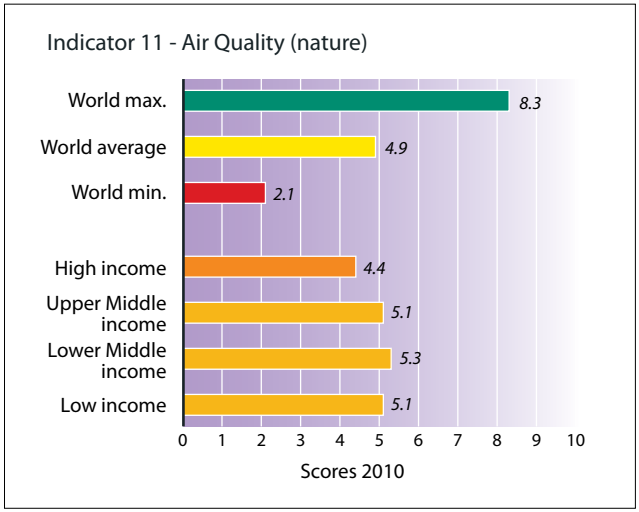
Air Quality (humans) - GDP per capita



Air Quality (humans)



Indicator 11 - Air Quality (nature)

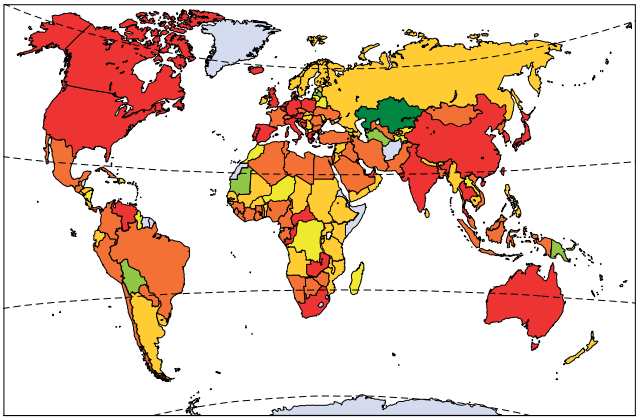


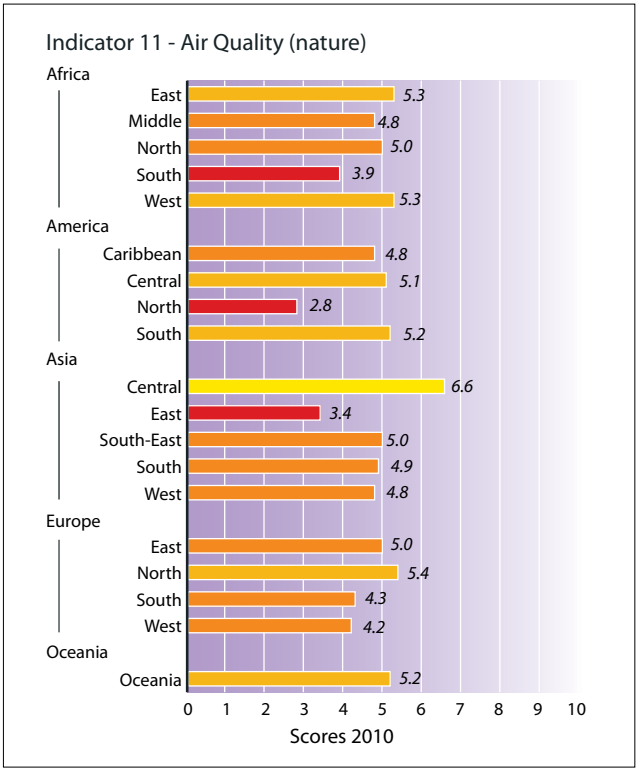
Indicator: Air Pollution in its effects on nature

Source: Environmental Performance Index, EPI 2010

Year of data: 2006 or MRYA

Target: 100



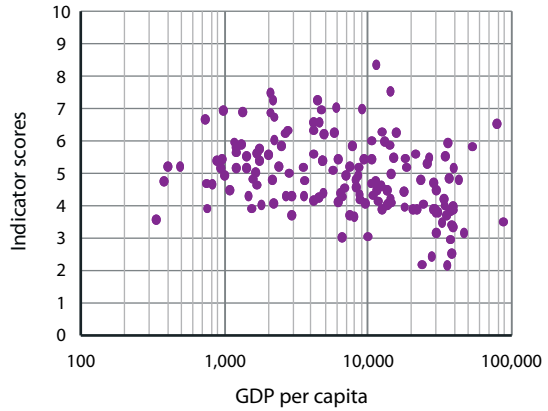


Air Pollution in its effects on nature is expressed by the levels of SO_2, NO_x and NMVOC (Non-methane volatile organic compounds) emissions per populated land area and concentration of regional ozone.

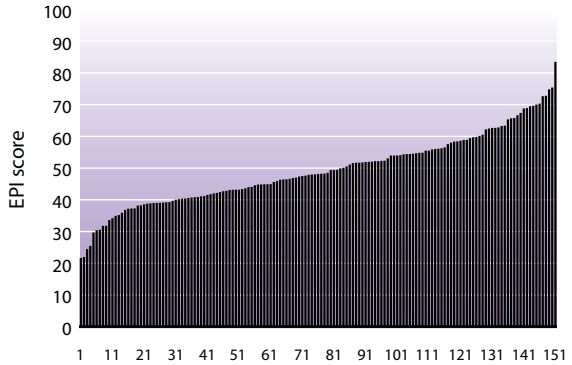
Top 10 - Air Quality (nature)				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Kazakhstan	3.2	5.8	8.3
2	Latvia	2.9	5.2	7.5
3	Mauritania	3.5	5.5	7.5
4	Papua New Guinea	6.3	6.8	7.3
5	Bolivia	4.6	5.9	7.2
6	Turkmenistan	0.6	3.8	7.0
7	Macedonia	2.9	5.0	7.0
8	Georgia	2.9	4.9	6.9
9	Madagascar	7.6	7.2	6.9
10	Haiti	1.0	3.9	6.9

Bottom 10 - Air Quality (nature)				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Kuwait	2.9	3.1	3.3
143	Taiwan	3.2	3.2	3.2
144	United States	0.0	1.6	3.2
145	South Africa	6.7	4.9	3.0
146	China	0.0	1.5	3.0
147	Australia	0.0	1.5	2.9
148	Canada	2.1	2.3	2.5
149	Korea. South	1.7	2.1	2.4
150	Malta	2.6	2.4	2.2
151	Belgium	3.1	2.6	2.1

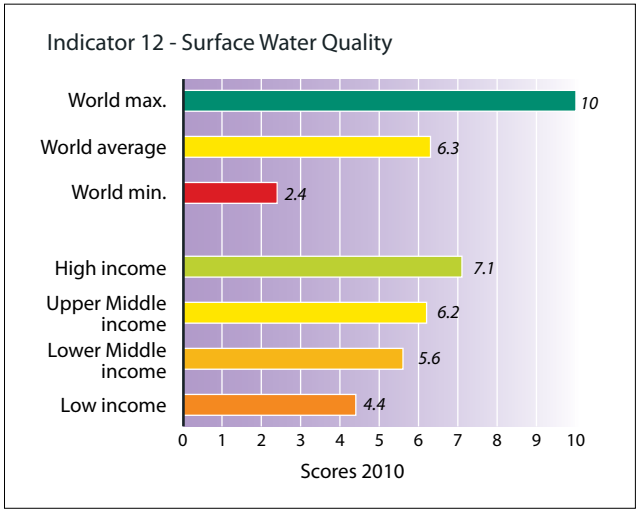
Air Quality (nature) - GDP per capita



Air Quality (nature)



Indicator 12 - Surface Water Quality

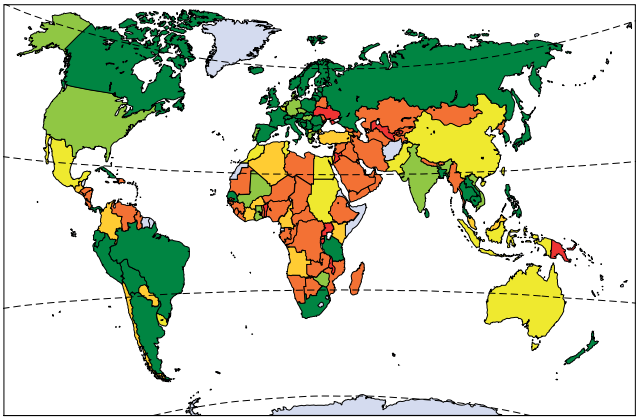


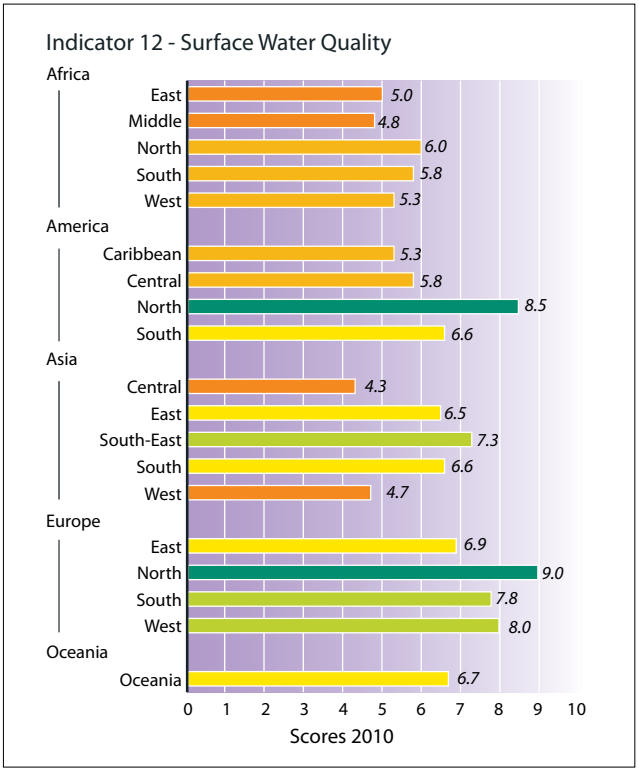
Indicator: surface water quality based on dissolved oxygen concentration, pH, electrical conductivity, total nitrogen, total phosphorus

Source: Environmental Performance Index, EPI 2010

Year of data: 2008 or MRYA

Target: 100





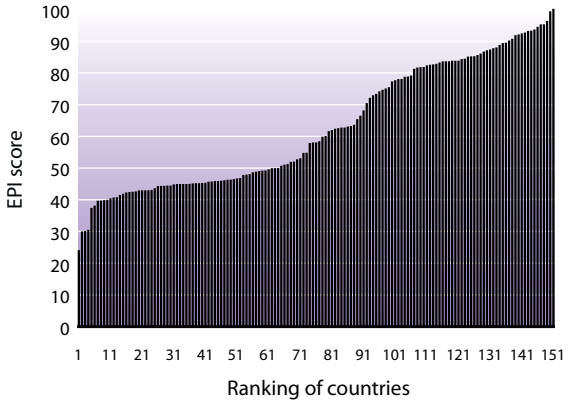
The measuring and calculation methodology of Surface Water Quality by EPI has evolved over the last few years, as well with respect to the number of variables as to the calculation methodology. The latest edition of EPI, the EPI 2010, has monitored dissolved oxygen concentration, pH, electrical conductivity. total nitrogen and total phosphorus. For the SSI-2010 we have used the most recent data of the EPI-2010. Since these data are hardly comparable with previous data, no progress over time can be reported so far.

Top 10 - Surface Water Quality				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Iceland	10.0	10.0	10.0
2	New Zealand	9.9	9.9	9.9
3	Sweden	9.6	9.6	9.6
4	Austria	9.5	9.5	9.5
5	Norway	9.5	9.5	9.5
6	Estonia	9.4	9.4	9.4
7	Bosnia-Herzegovina	9.3	9.3	9.3
8	Canada	9.3	9.3	9.3
9	Slovenia	9.3	9.3	9.3
10	Croatia	9.2	9.2	9.2

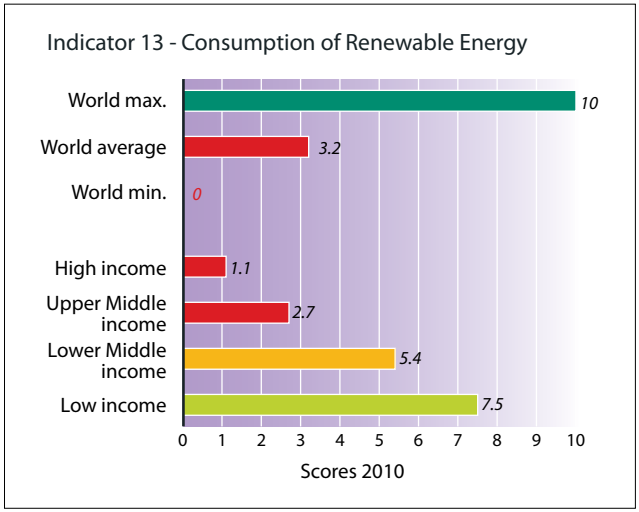
Bottom 10 - Surface Water Quality				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Burundi	4.0	4.0	4.0
143	Haiti	4.0	4.0	4.0
144	Papua New Guinea	4.0	4.0	4.0
145	Uganda	4.0	4.0	4.0
146	Uzbekistan	3.8	3.8	3.8
147	Benin	3.7	3.7	3.7
148	Malawi	3.0	3.0	3.0
149	Jordan	3.0	3.0	3.0
150	Ukraine	3.0	3.0	3.0
151	Malta	2.4	2.4	2.4

Surface Water Quality - GDP per capita

Surface Water Quality



Indicator 13 - Consumption of Renewable Energy

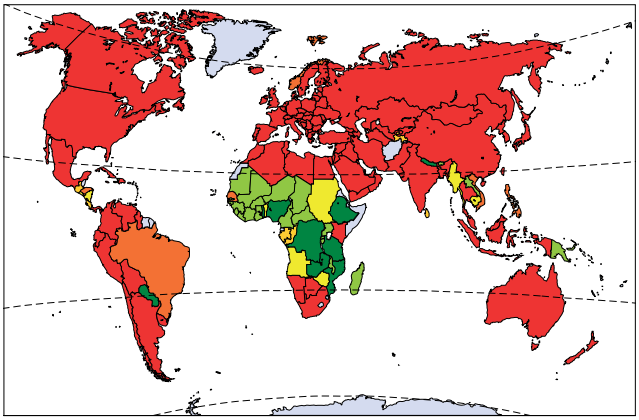


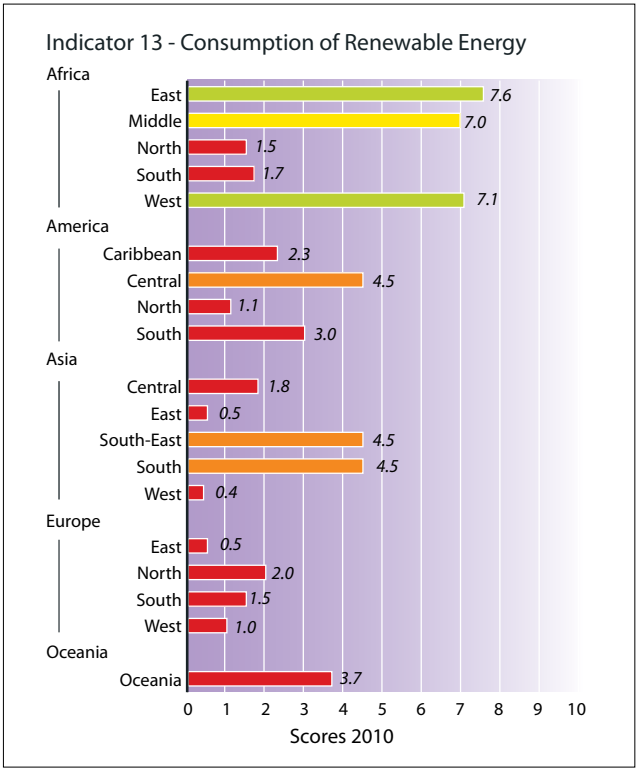
Indicator: consumption of renewable energy as % of total energy consumption

Source: IEA

Year of data: 2008

Target: 100%



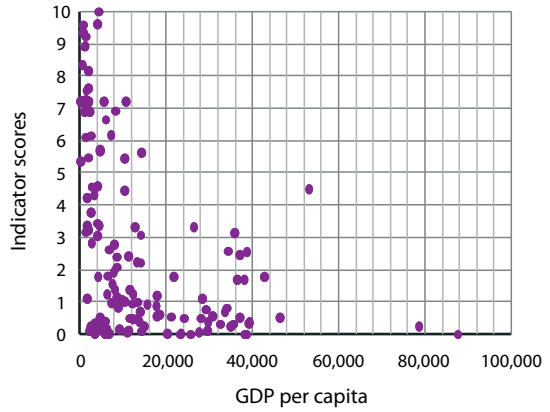


Consumption of renewable energy expresses the share of energy produced by renewable sources in % of total energy (TPES, Total Primary Energy Supply). According to the definition used by IEA, renewable energy includes hydro, geothermal, solar photovoltaic, solar thermal, tide, wave, ocean, wind, solid biomass, gases from biomass, liquid biomass and renewable municipal waste.

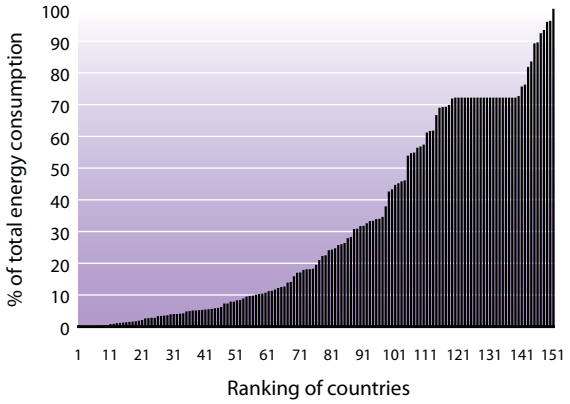
Top 10 - Consumption of Renewable Energy				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Paraguay	10.0	8.5	10.0
2	Congo. Dem. Rep.	9.6	9.6	9.6
3	Mozambique	9.8	9.7	9.6
4	Ethiopia	9.4	9.2	9.3
5	Zambia	9.2	8.9	9.2
6	Tanzania	9.3	9.3	8.9
7	Nepal	8.7	8.9	8.9
8	Togo	7.4	8.0	8.3
9	Nigeria	7.8	7.9	8.2
10	Cameroon	8.4	8.3	7.6

Bottom 10 - Consumption of Renewable Energy				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Algeria	0.0	0.0	0.0
143	Iraq	0.0	0.4	0.0
144	Malta	0.0	0.0	0.0
145	Trinidad and Tobago	0.0	0.0	0.0
146	Kuwait	0.0	0.0	0.0
147	Oman	0.0	0.0	0.0
148	Qatar	0.0	0.0	0.0
149	Saudi Arabia	0.0	0.0	0.0
150	Turkmenistan	0.0	0.0	0.0
151	United Arab Emirates	0.0	0.0	0.0

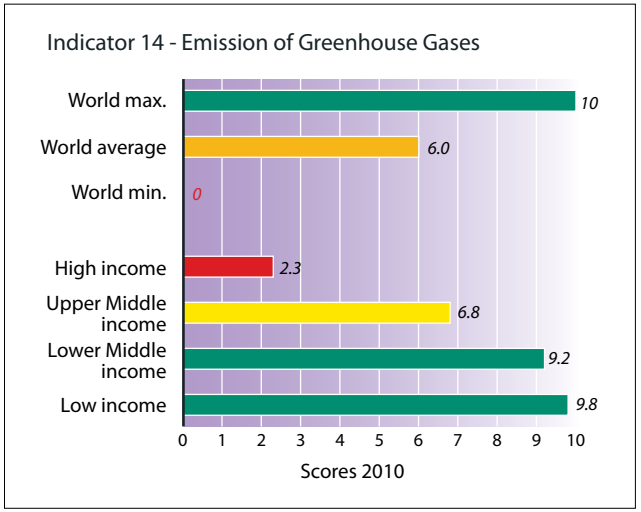
Consumption of Renewable Energy - GDP per capita



Consumption of Renewable Energy



Indicator 14 - Emission of Greenhouse Gases

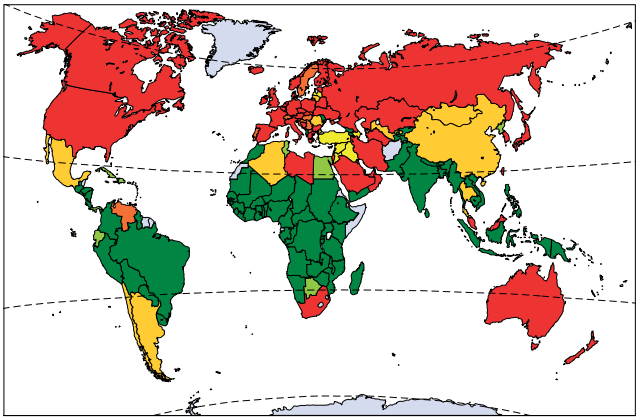


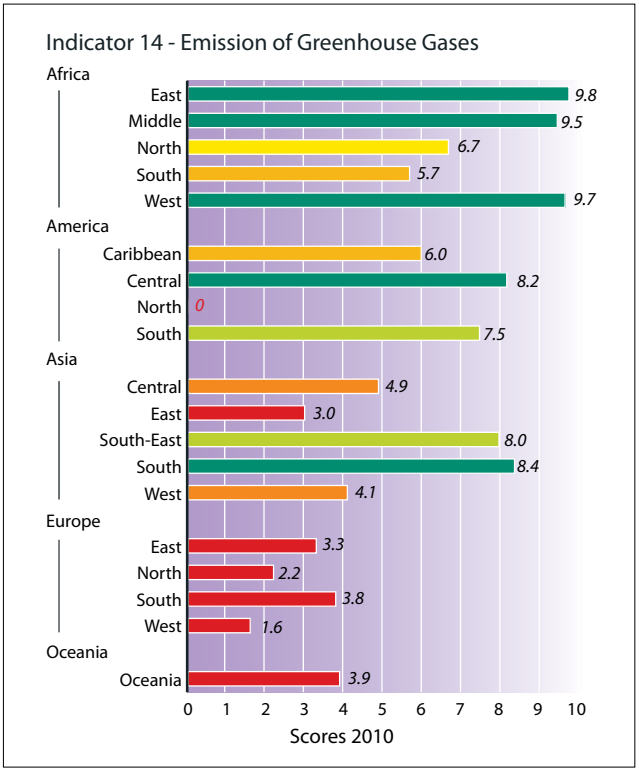
Indicator: CO_2 emissions per capita per year

Source: CDIAC and Millennium Indicators

Year of data: 2007

Target: ≤ 2 ton CO_2 per capita per year



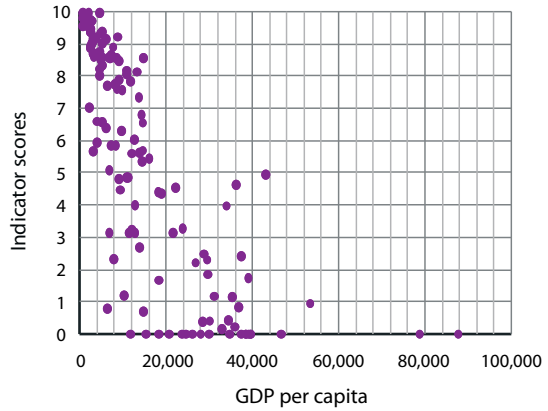


The common measure for Emission of Greenhouse Gases (GHG) is the amount of emitted CO_2. This SSI indicator also only includes CO_2 emissions, for which the most data are available. Thus other GHG emissions. like CH_4, N_2O, HFCs, PFCs and SF_6, are not included.

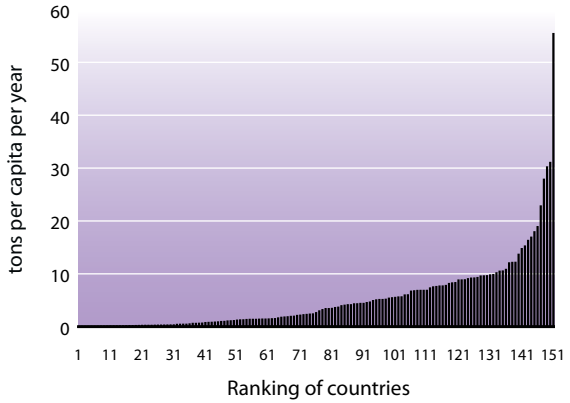
Top 10 - Emission of Greenhouse Gases				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Burundi	10.0	10.0	10.0
2	Chad	10.0	10.0	10.0
3	Congo. Dem. Rep.	10.0	10.0	10.0
4	Mali	9.9	10.0	10.0
5	Centr. Afr. Republic	9.9	9.9	9.9
6	Niger	9.9	9.9	9.9
7	Malawi	9.9	9.9	9.9
8	Rwanda	9.9	9.9	9.9
9	Ethiopia	9.9	9.9	9.9
10	Uganda	9.9	9.9	9.9

Bottom 10 - Emission of Greenhouse Gases				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Luxembourg	0.0	0.0	0.0
143	Netherlands	0.0	0.0	0.0
144	Oman	0.0	0.0	0.0
145	Qatar	0.0	0.0	0.0
146	Russia	0.1	0.0	0.0
147	Saudi Arabia	0.0	0.0	0.0
148	Taiwan	0.0	0.0	0.0
149	Trinidad and Tobago	0.0	0.0	0.0
150	United Arab Emirates	0.0	0.0	0.0
151	United States	0.0	0.0	0.0

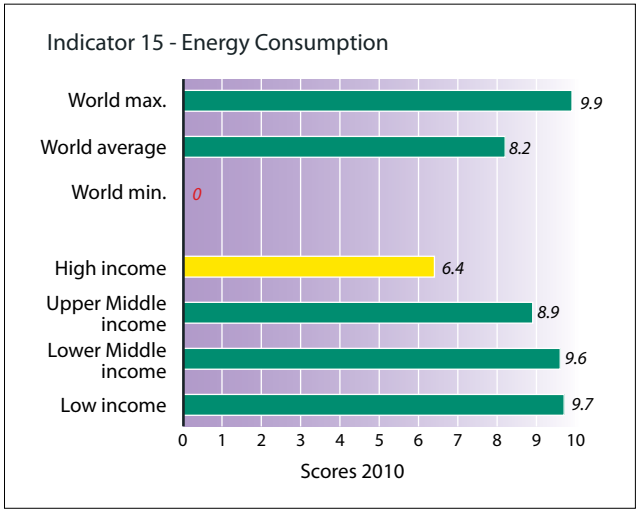
Emission of Greenhouse Gases - GDP per capita



Emission of Greenhouse Gases



Indicator 15 - Energy Consumption

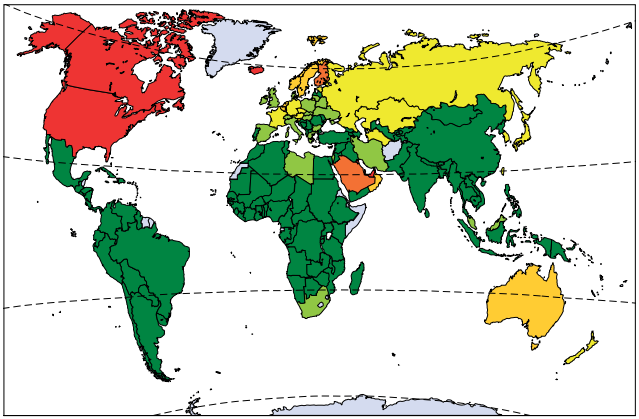


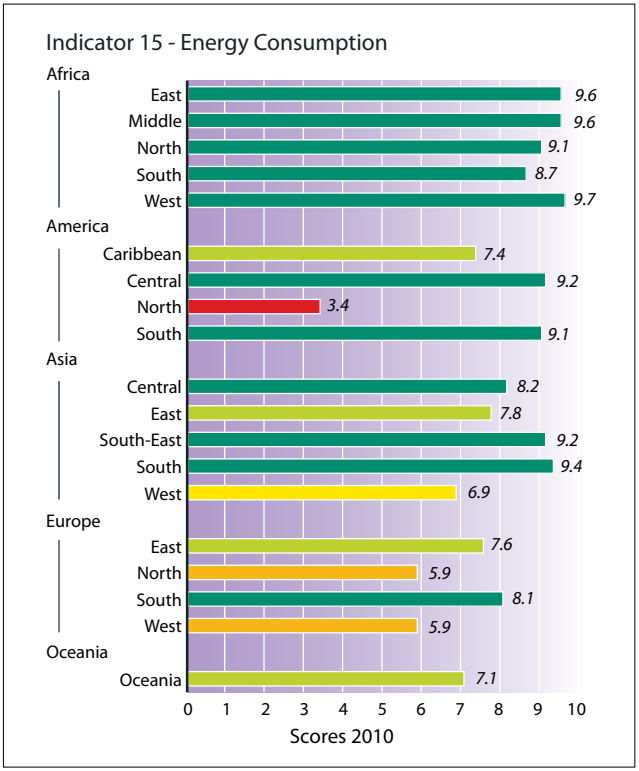
Indicator: energy consumption per capita

Source: IEA

Year of data: 2007

Target:



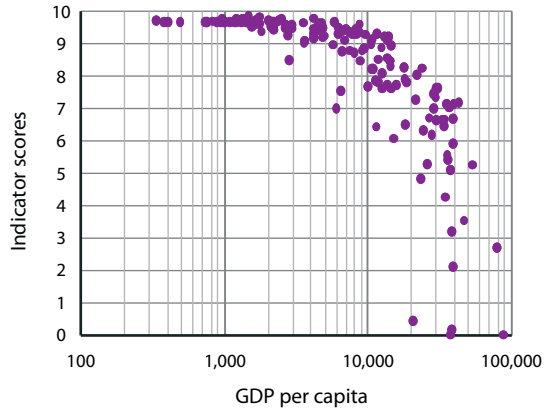


Energy Consumption is a new indicator in the SSI framework. It is relevant in view of the policy of many countries to largely reduce their energy consumption as a contribution to the planned reduction of greenhouse gases emissions. Energy consumption includes the use of primary energy before transformation to other end-use fuels, which is equal to indigenous production plus imports and stocks.

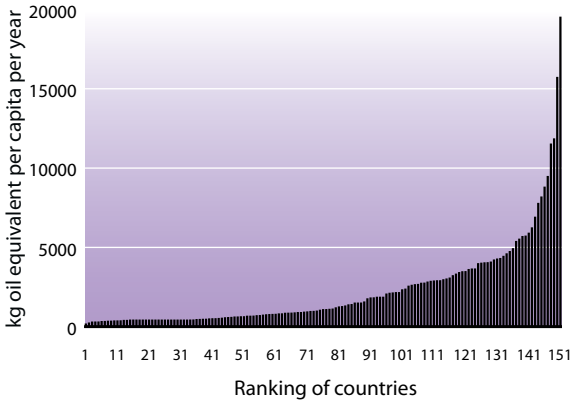
Top 10 - Energy Consumption				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Bangladesh	9.9	9.9	9.9
2	Senegal	9.8	9.8	9.8
3	Haiti	9.8	9.8	9.8
4	Congo. Dem. Rep.	9.8	9.8	9.8
5	Ethiopia	9.8	9.8	9.8
6	Myanmar	9.8	9.7	9.7
7	Yemen	9.8	9.7	9.7
8	Nepal	9.7	9.7	9.7
9	Benin	9.7	9.7	9.7
10	Congo	9.7	9.7	9.7

Bottom 10 - Energy Consumption				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Saudi Arabia	5.4	5.0	4.8
143	Finland	4.1	4.6	4.3
144	United States	3.5	3.4	3.5
145	Canada	3.1	3.0	3.2
146	Luxembourg	3.0	2.3	2.7
147	Kuwait	2.3	1.0	2.1
148	Trinidad and Tobago	2.9	2.0	0.4
149	United Arab Emirates	1.1	1.2	0.1
150	Iceland	0.6	0.2	0.0
151	Qatar	0.0	0.0	0.0

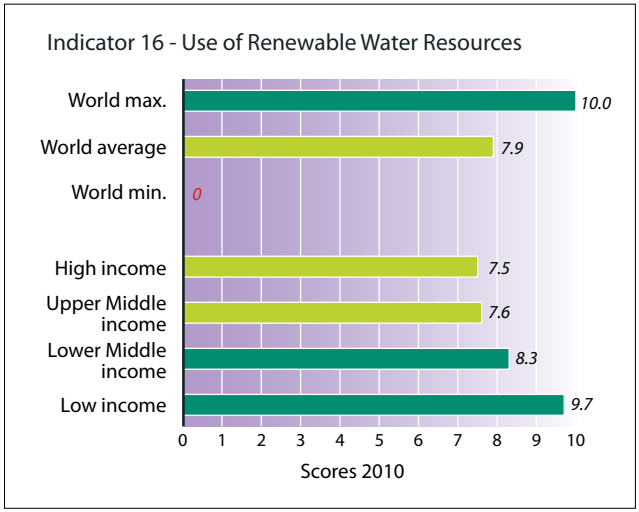
Energy Consumption - GDP per capita



Energy Consumption



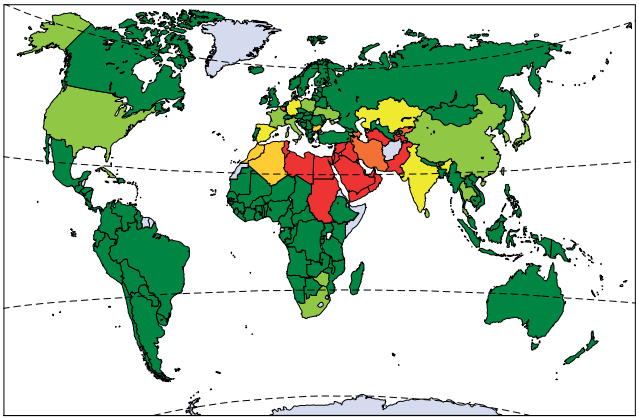
Indicator 16 - Use of Renewable Water Resources

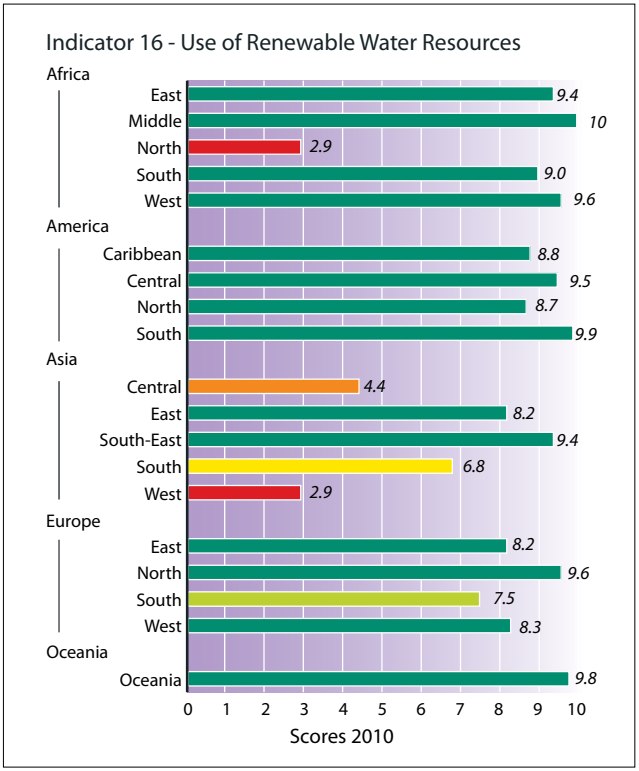


Indicator: annual water withdrawals (m^3 per capita) as % of renewable water resources

Source: WRI, Aquastat

Year of data: 2007 (renewable water resources), 2000 (water withdrawals)



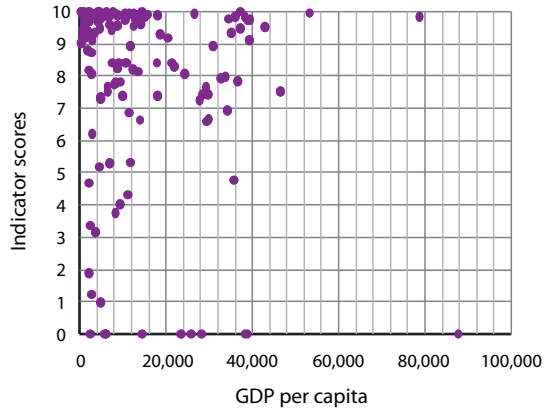


To monitor the sufficiency and the depletion of fresh water resources, the indicator Use of Renewable Water Resources expresses the water consumption per year as a percentage of total available renewable water resources. This total includes internal and external (flowing in from neighbouring countries) water resources.

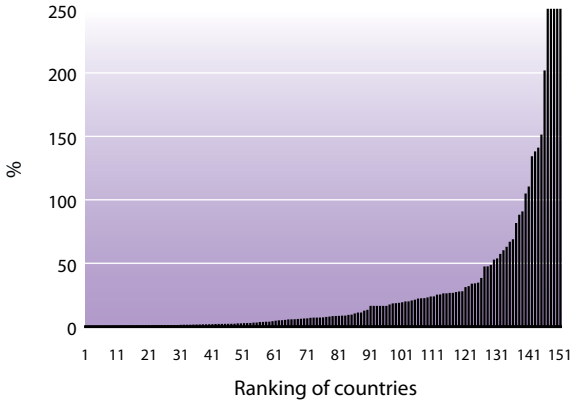
Top 10 - Use of Renewable Water Resources				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Angola	10.0	10.0	10.0
2	Congo	10.0	10.0	10.0
3	Papua New Guinea	10.0	10.0	10.0
4	Centr. Afr. Republic	10.0	10.0	10.0
5	Congo. Dem. Rep.	10.0	10.0	10.0
6	Liberia	10.0	10.0	10.0
7	Gabon	10.0	10.0	10.0
8	Iceland	10.0	10.0	10.0
9	Paraguay	10.0	10.0	10.0
10	Bolivia	10.0	10.0	10.0

Bottom 10 - Use of Renewable Water Resources				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Jordan	0.0	0.0	0.0
143	Kuwait	0.0	0.0	0.0
144	Libya	0.0	0.0	0.0
145	Malta	0.0	0.0	0.0
146	Oman	0.0	0.0	0.0
147	Qatar	0.0	0.0	0.0
148	Saudi Arabia	0.0	0.0	0.0
149	Turkmenistan	0.0	0.0	0.0
150	United Arab Emirates	0.0	0.0	0.0
151	Yemen	0.0	0.0	0.0

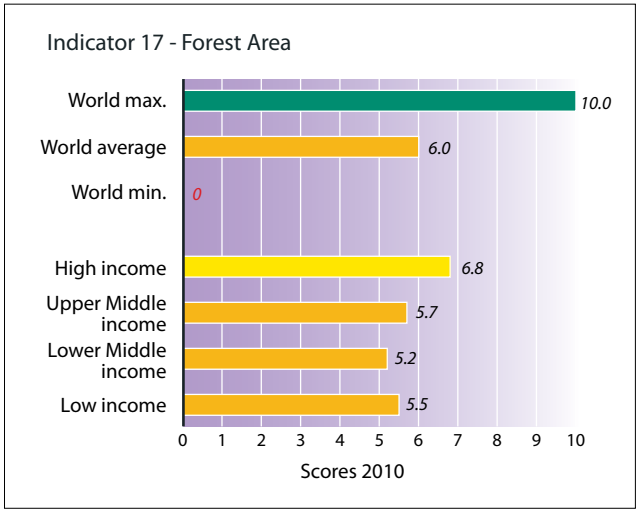
Use of renewable water resources - GDP per capita



Use of Renewable Water Resources



Indicator 17 - Forest Area

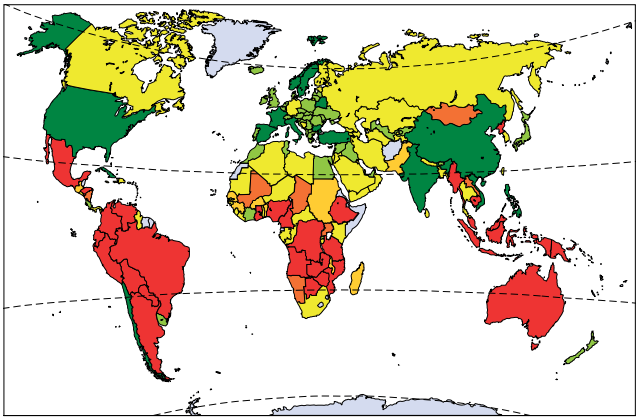


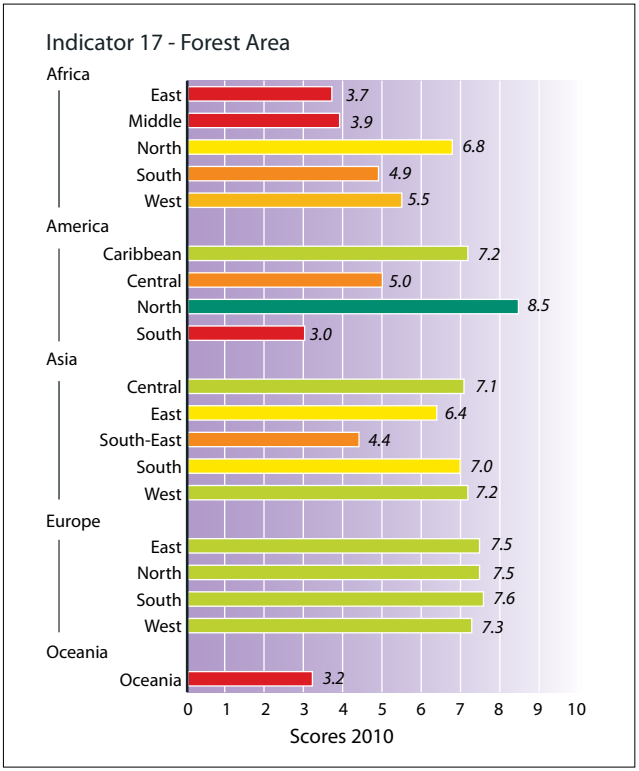
Indicator: change in forest area of a country in ‰ of world forest area over the period 2000 - 2010

Source: FAO

Year of data: 2010

Target: 0.4‰

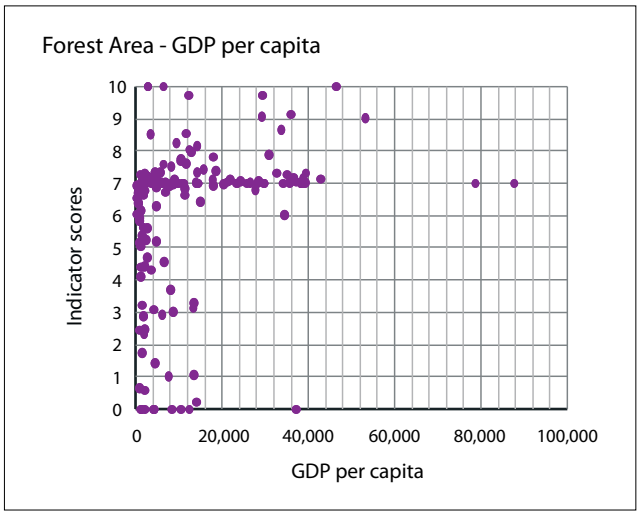


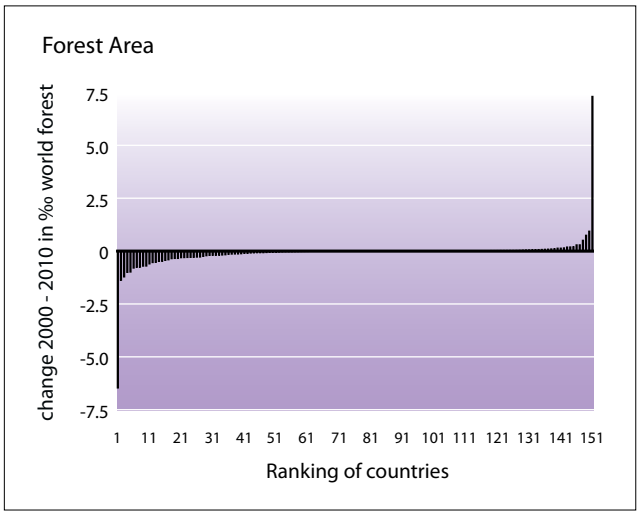


Forest Area is – regrettably – mostly about deforestation. We have expressed it as the change in forest area as a ‰ of world forest area, in order to make a fair comparison between countries, as well densely as sparsely forested countries.

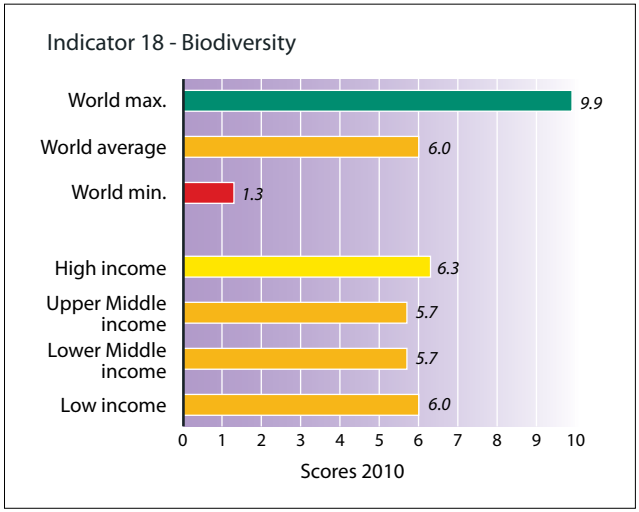
Top 10 - Forest Area				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	China	10.0	10.0	10.0
2	India	9.9	10.0	10.0
3	United States	10.0	10.0	10.0
4	Vietnam	10.0	10.0	10.0
5	Turkey	8.3	9.1	9.7
6	Spain	10.0	10.0	9.7
7	Sweden	7.3	9.2	9.1
8	Italy	9.0	9.0	9.1
9	Norway	7.5	8.3	9.0
10	France	9.1	9.0	8.7

Bottom 10 - Forest Area				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Australia	8.2	4.4	0.0
143	Bolivia	0.1	0.0	0.0
144	Brazil	0.0	0.0	0.0
145	Congo. Dem. Rep.	0.0	0.0	0.0
146	Indonesia	0.0	0.0	0.0
147	Myanmar	0.0	0.0	0.0
148	Nigeria	0.0	0.0	0.0
149	Tanzania	0.0	0.0	0.0
150	Venezuela	0.0	0.0	0.0
151	Zimbabwe	0.2	0.2	0.0

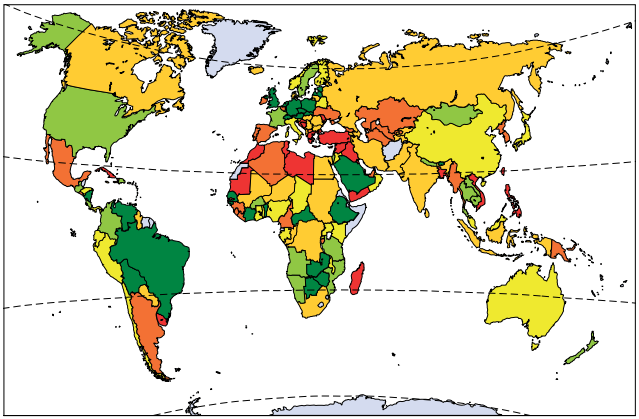


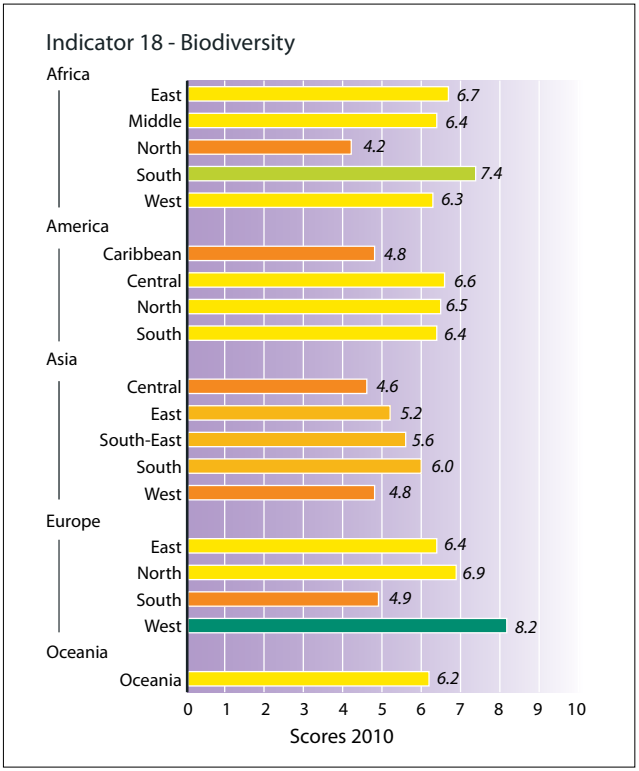


Indicator 18 - Biodiversity



Indicator: number of threatened species vertebrates (in % of number of species) and protected areas (in % of land area)
Source: IUCN (threatened species), UNEP-WCMC (protected areas)
Year of data: 2009
Target:

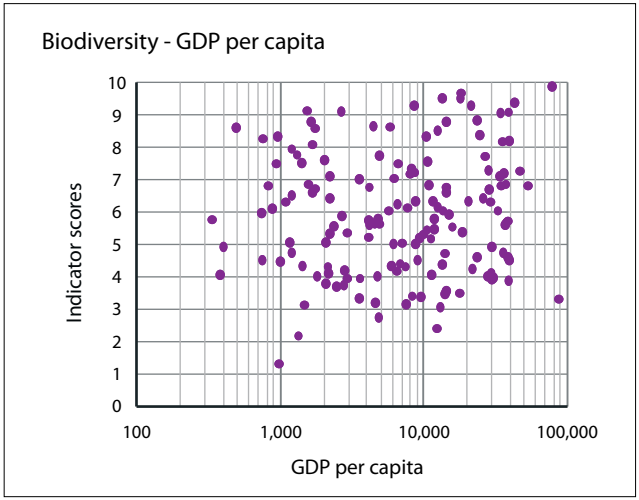


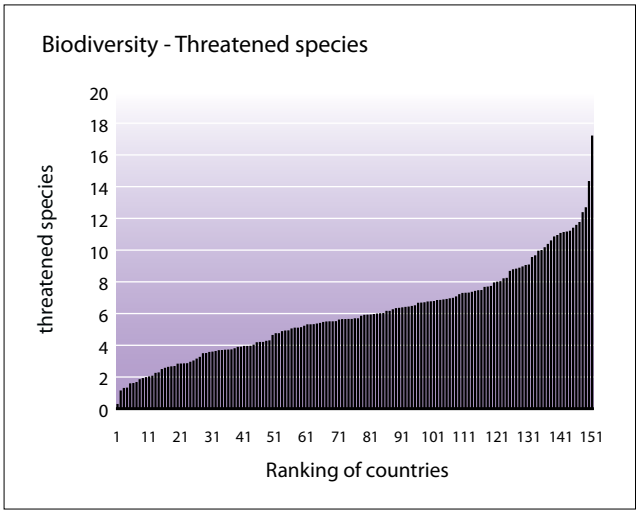


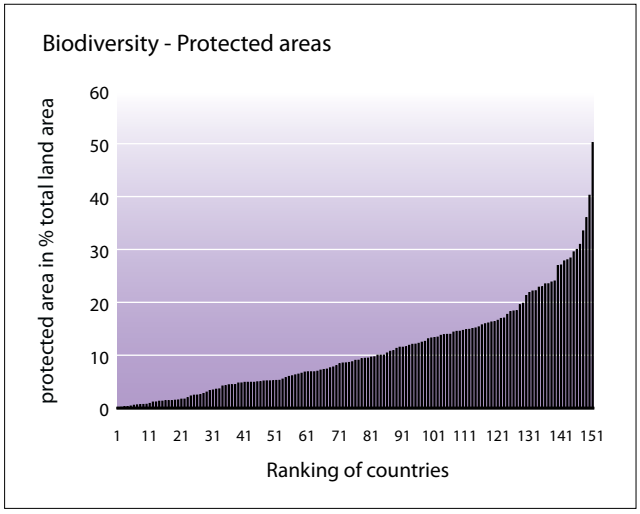
Biodiversity is expressed by two elements: the number of threatened species vertebrates (in % of total number of species vertebrates) and protected areas (in % of land area). The indicator score is the unweighted average of the scores of the underlying elements. Note that the two histograms below show the percentages per country for both elements. For Protected areas, the higher the percentage is, the better; for Threatened species it is the other way round.

Top 10 - Biodiversity				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Luxembourg	9.8	9.8	9.9
2	Estonia	9.4	9.4	9.7
3	Botswana	9.5	9.5	9.5
4	Poland	9.1	9.1	9.5
5	Switzerland	9.3	9.3	9.4
6	Zimbabwe	9.3	9.3	9.3
7	Slovak Republic	8.7	8.7	9.3
8	Zambia	9.3	9.3	9.1
9	Nicaragua	9.0	9.0	9.1
10	Austria	9.2	9.2	9.1

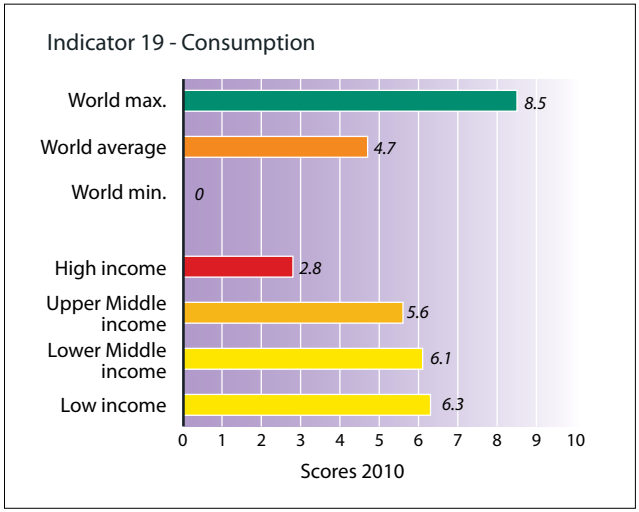
Bottom 10 - Biodiversity				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Philippines	3.1	3.1	3.3
143	Qatar	3.5	3.5	3.3
144	Morocco	3.3	3.3	3.2
145	Bosnia-Herzegovina	2.9	2.9	3.2
146	Bangladesh	3.0	3.0	3.1
147	Uruguay	2.8	2.8	3.1
148	Syria	2.9	2.9	2.8
149	Turkey	2.5	2.5	2.4
150	Haiti	1.7	1.7	2.2
151	Madagascar	1.6	1.6	1.3







Indicator 19 - Consumption

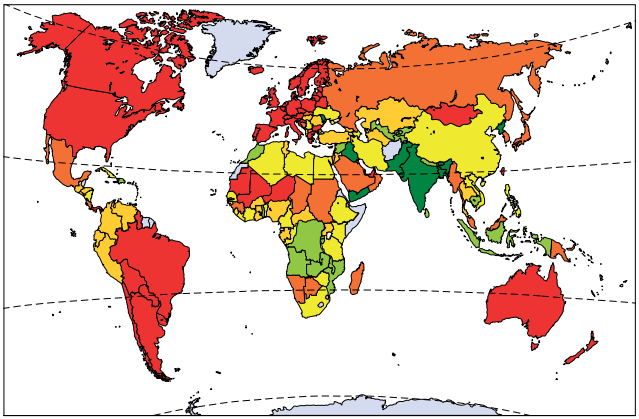


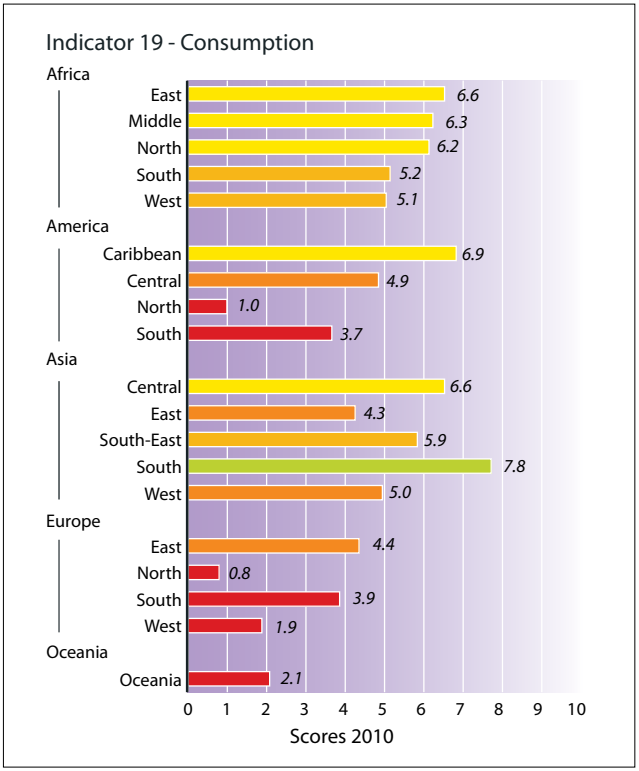
Indicator: Ecological Footprint minus Carbon Footprint

Source: Global Footprint Network

Year of data: 2007

Target: 0.9 gha (global hectares)



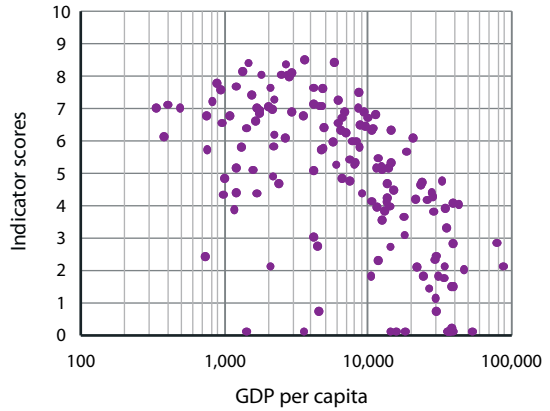


As a proxy for consumption the Ecological Footprint has been used minus the Carbon Footprint. The latter is already included in the SSI, by the indicator Emission of Greenhouse Gases.

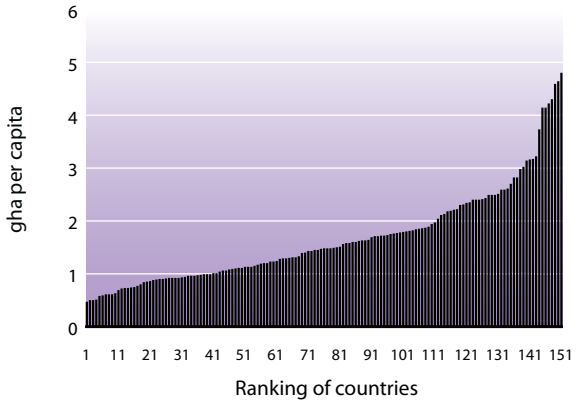
Top 10 - Consumption				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Iraq	8.0	8.3	8.5
2	Bhutan	8.3	8.3	8.4
3	Bangladesh	9.0	9.1	8.4
4	Pakistan	8.5	8.5	8.3
5	Haiti	8.4	8.5	8.1
6	India	8.4	8.5	8.1
7	Korea. North	7.9	8.0	8.0
8	Moldova	7.7	6.9	8.0
9	Yemen	8.0	8.1	8.0
10	Uzbekistan	8.2	8.2	7.9

Bottom 10 - Consumption				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Estonia	0.0	0.0	0.0
143	Gambia	6.2	6.4	0.0
144	Iceland	0.0	0.0	0.0
145	Latvia	0.0	0.0	0.0
146	Lithuania	2.8	2.8	0.0
147	Mongolia	0.0	0.0	0.0
148	Netherlands	2.1	3.3	0.0
149	Norway	0.0	2.1	0.0
150	Sweden	0.0	0.0	0.0
151	Uruguay	3.4	3.5	0.0

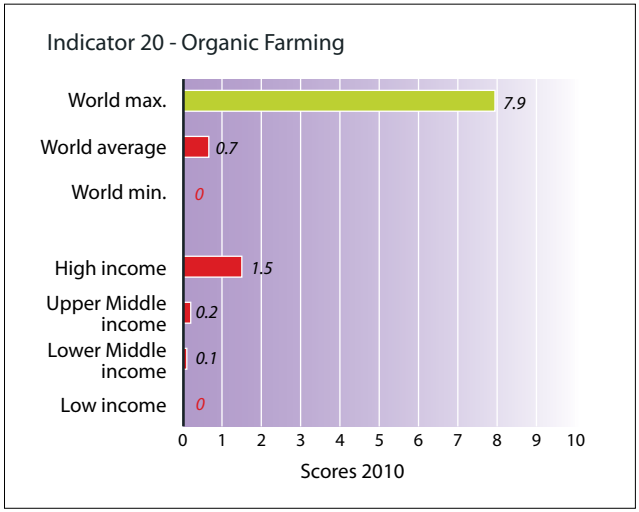
Consumption - GDP per capita



Consumption



Indicator 20 - Organic Farming

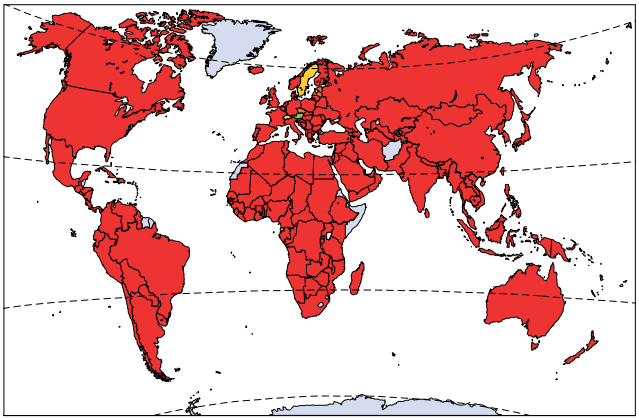


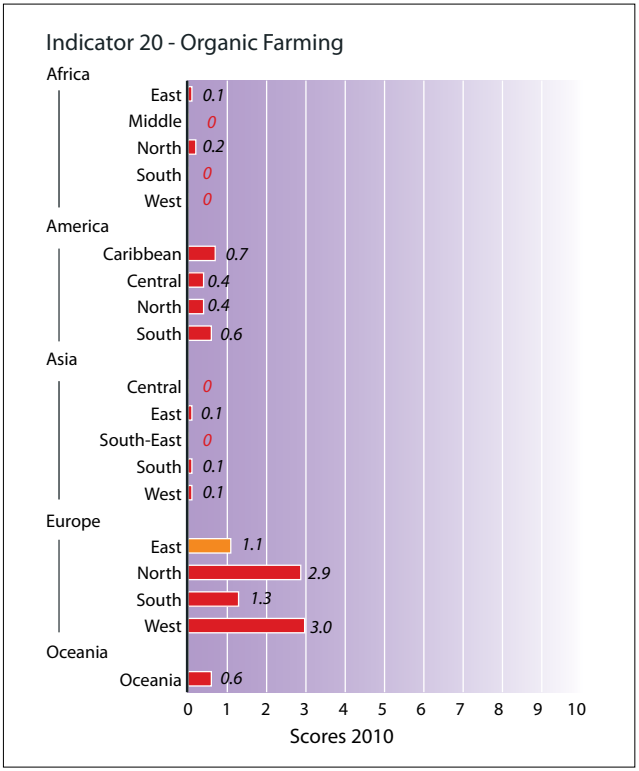
Indicator: area for organic farming in % of total agricultural area of a country

Source: FiBL

Year of data: 2008

Target: 20%



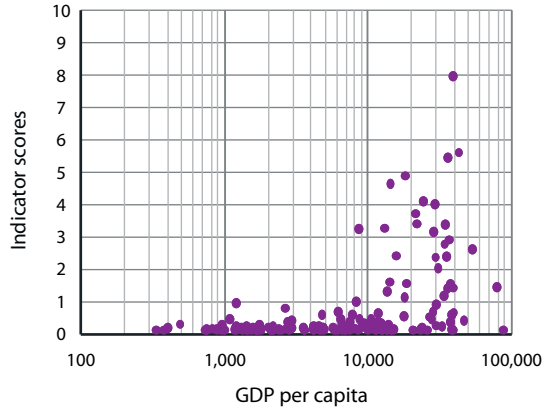


Organic Farming is expressed by the area of fully converted and in-conversion organically cultivated land as the percentage of total agricultural area.

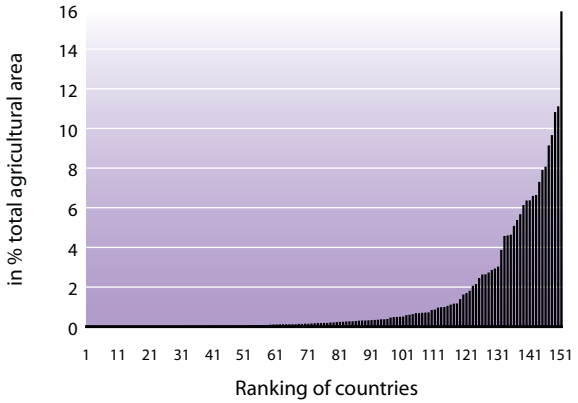
Top 10 - Organic Farming				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Austria	7.4	7.9	7.9
2	Switzerland	5.5	5.5	5.5
3	Sweden	3.5	4.9	5.4
4	Estonia	3.6	4.4	4.8
5	Latvia	3.1	4.2	4.6
6	Czech Republic	3.0	3.7	4.0
7	Italy	4.2	4.5	3.9
8	Slovak Republic	2.4	3.0	3.6
9	Portugal	2.9	3.3	3.3
10	Finland	3.3	3.2	3.3

Bottom 10 - Organic Farming				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Kuwait	0.0	0.0	0.0
143	Liberia	0.0	0.0	0.0
144	Libya	0.0	0.0	0.0
145	Mauritania	0.0	0.0	0.0
146	Mongolia	0.0	0.0	0.0
147	Myanmar	0.0	0.0	0.0
148	Qatar	0.0	0.0	0.0
149	Trinidad and Tobago	0.0	0.0	0.0
150	Turkmenistan	0.0	0.0	0.0
151	Yemen	0.0	0.0	0.0

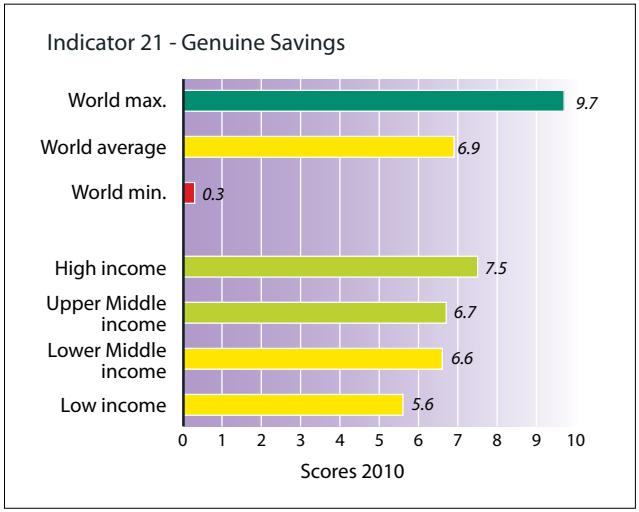
Organic Farming - GDP per capita



Organic Farming



Indicator 21 - Genuine Savings

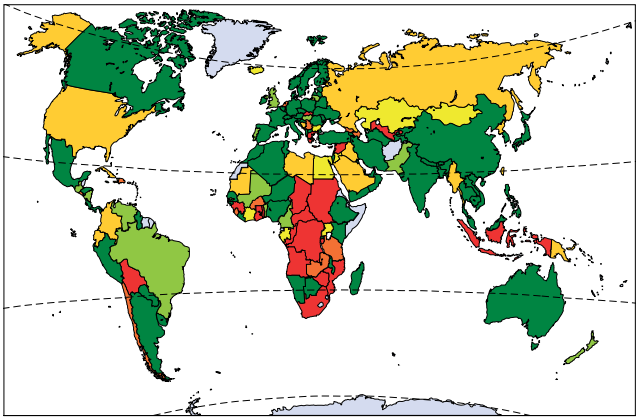


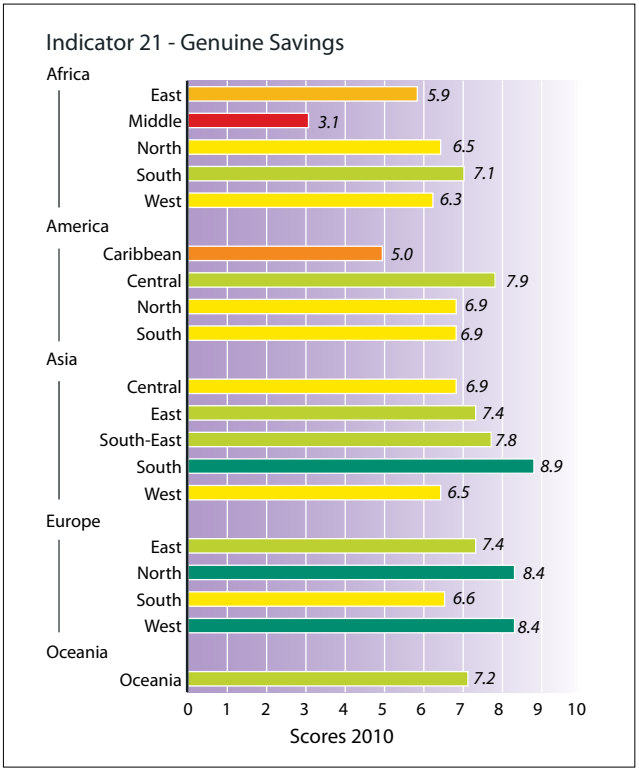
Indicator: Genuine Savings (Adjusted Net Savings) as % of Gross National Income (GNI)

Source: World Bank

Year of data: 2008

Target:

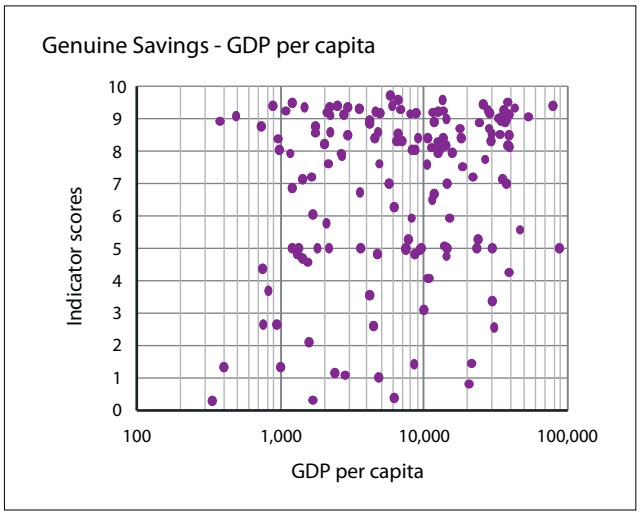


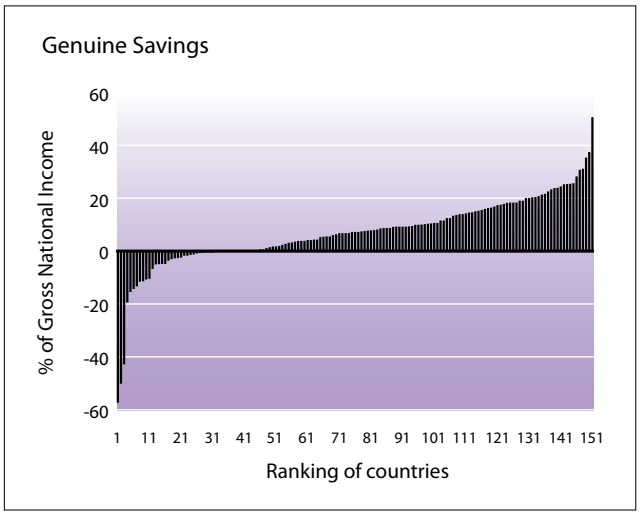


Genuine Savings (= Adjusted Net Savings) measures the true rate of savings in an economy after taking into account investments in human capital, depletion of natural resources and damage caused by pollution. The used data are including particulate emission damage.

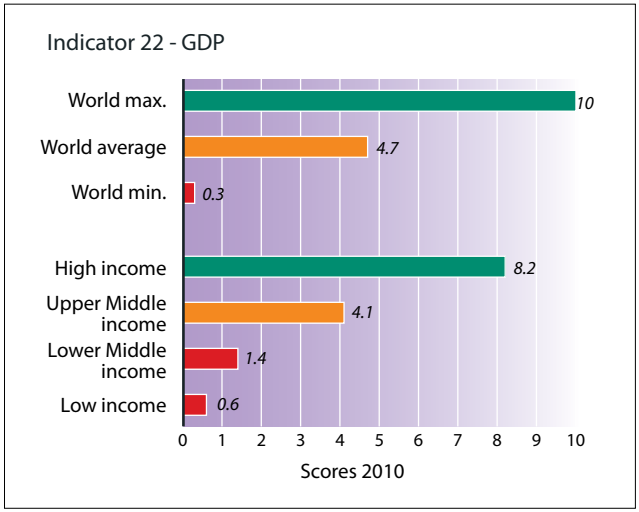
Top 10 - Genuine Savings				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Bhutan	9.5	9.7	9.7
2	Botswana	9.7	9.6	9.6
3	China	9.5	9.6	9.5
4	United Arab Emirates	9.5	9.5	9.5
5	Nepal	9.2	9.1	9.5
6	Oman	9.4	9.4	9.4
7	Turkmenistan	9.4	9.4	9.4
8	Yemen	9.4	9.4	9.4
9	Malawi	4.5	7.3	9.4
10	Luxembourg	9.4	9.4	9.4

Bottom 10 - Genuine Savings				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Zimbabwe	1.4	1.4	1.4
143	Burundi	1.2	1.3	1.3
144	Guinea	2.4	2.5	1.3
145	Sudan	1.6	1.2	1.2
146	Uzbekistan	0.5	2.2	1.1
147	Syria	1.0	1.5	1.0
148	Trinidad and Tobago	1.0	0.7	0.8
149	Angola	0.5	0.4	0.4
150	Chad	0.5	0.7	0.3
151	Congo	0.5	0.7	0.3





Indicator 22 - GDP

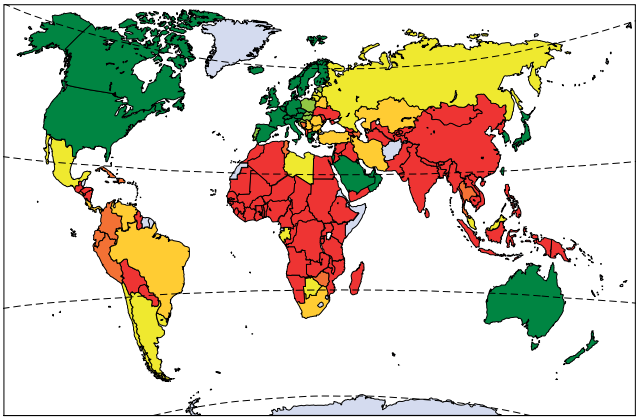


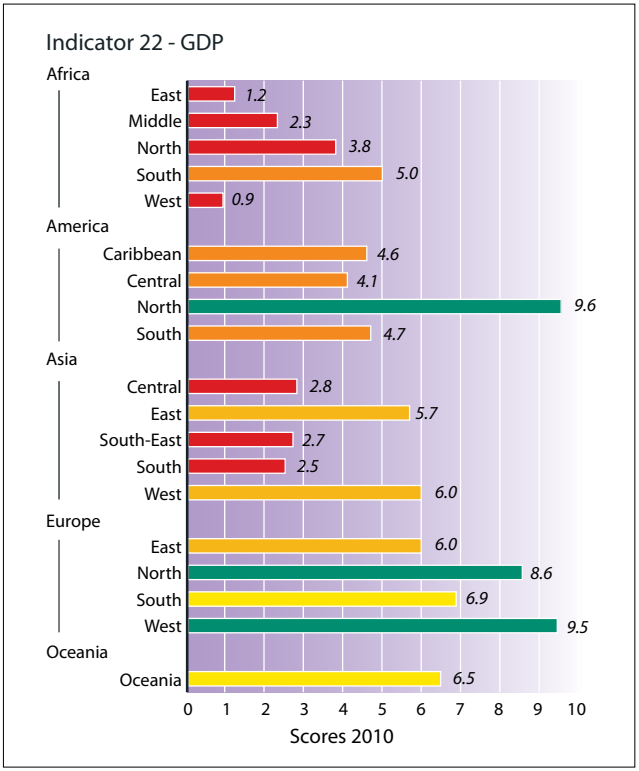
Indicator: GDP per capita, PPP, current international dollars

Source: IMF

Year of data: 2009

Target:



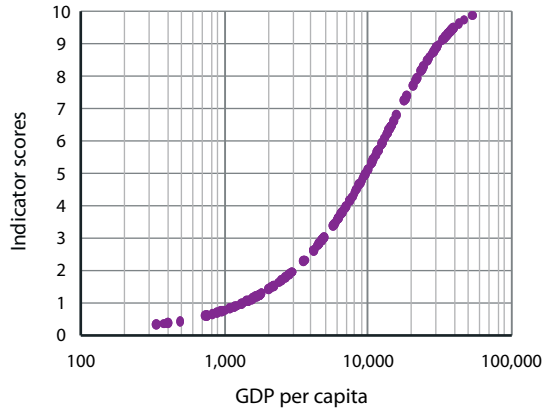


Gross Domestic Product (GDP), probably the world-wide most used indicator since the thirties of the past century, measures the amount of goods and services produced in a year, in a country, as far as the exchange of money is involved. It is assumed to indicate the standard of living of a country. However, an increasing number of people is aware of the limitations of GDP as an indicator to measure progress on the way towards sustainability. Since more appropriate indicators, which are available for a large number of countries, are still lacking, GDP has been used for the time being.

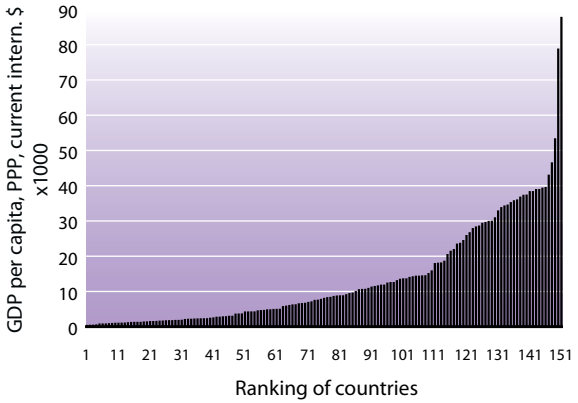
Top 10 - GDP				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Qatar	10.0	10.0	10.0
2	Luxembourg	10.0	10.0	10.0
3	Norway	9.7	9.8	9.9
4	United States	9.6	9.7	9.7
5	Switzerland	9.3	9.6	9.6
6	Ireland	9.4	9.6	9.5
7	Netherlands	9.2	9.5	9.5
8	Austria	9.2	9.4	9.4
9	Kuwait	9.3	9.4	9.4
10	Canada	9.2	9.4	9.4

Bottom 10 - GDP				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Mozambique	0.6	0.7	0.7
143	Malawi	0.5	0.6	0.7
144	Togo	0.6	0.6	0.7
145	Central African Rep.	0.5	0.6	0.6
146	Sierra Leone	0.5	0.6	0.6
147	Niger	0.5	0.6	0.6
148	Guinea-Bissau	0.8	0.8	0.4
149	Burundi	0.3	0.4	0.4
150	Liberia	0.3	0.3	0.4
151	Congo	0.3	0.3	0.3

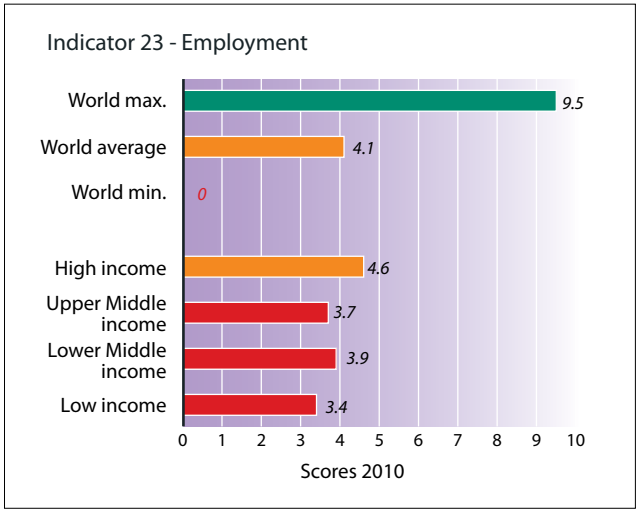
Indicator scores - GDP per capita



GDP per capita



Indicator 23 - Employment

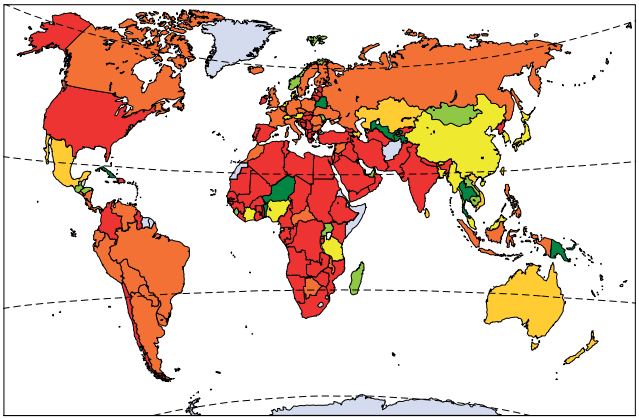


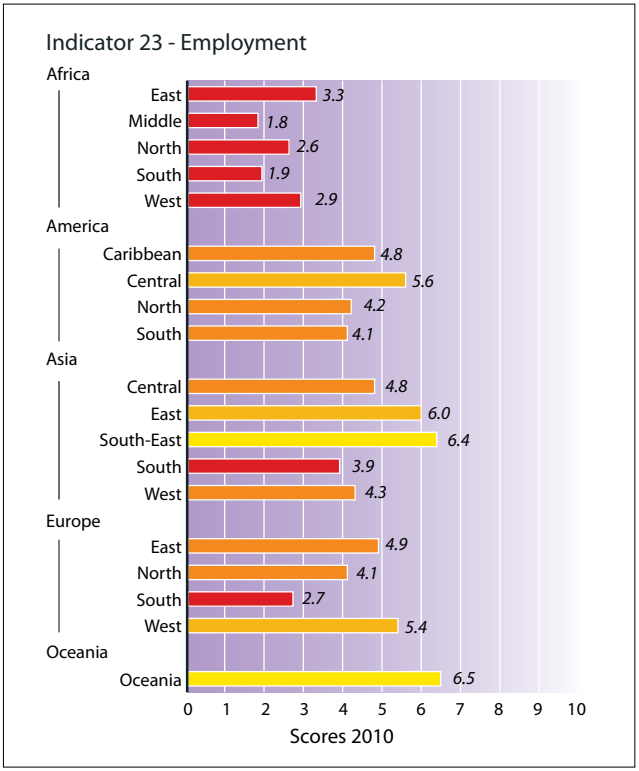
Indicator: unemployment as % of total labour force

Source: CIA World Factbook, ILO and World Bank

Year of data: 2009 (1999-2009)

Target:



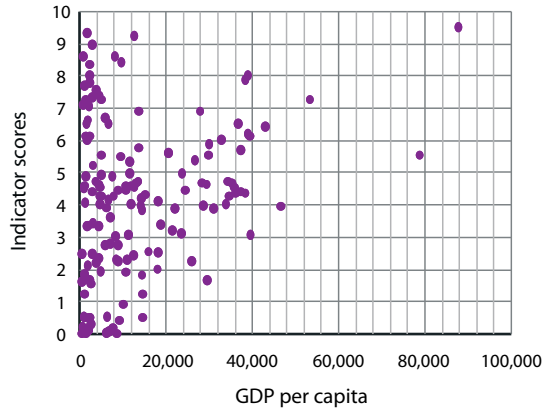


Employment is a common indicator to measure the status of a country's economy. Moreover, for most people employment is an important condition for the possibilities of developing her- or himself.

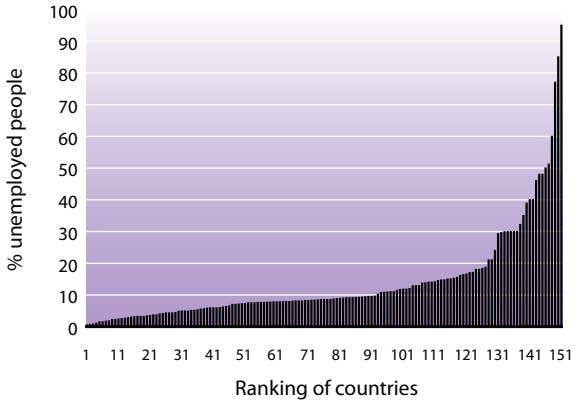
Top 10 - Employment				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Qatar	7.6	9.3	9.5
2	Benin	0.6	0.7	9.3
3	Belarus	8.2	8.5	9.2
4	Uzbekistan	9.4	9.2	9.0
5	Niger	0.6	0.7	8.6
6	Thailand	8.6	8.7	8.6
7	Cuba	7.8	8.4	8.4
8	Papua New Guinea	0.6	8.3	8.4
9	Kuwait	8.0	8.0	8.0
10	Tajikistan	0.2	7.9	8.0

Bottom 10 - Employment				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Kenya	0.2	0.2	0.2
143	Nepal	0.1	0.1	0.1
144	Gambia	0.6	0.7	0.1
145	Senegal	0.6	0.1	0.1
146	Zambia	0.1	0.1	0.1
147	Namibia	0.3	5.9	0.1
148	Turkmenistan	0.0	0.0	0.0
149	Burkina Faso	0.6	0.0	0.0
150	Liberia	0.0	0.0	0.0
151	Zimbabwe	0.0	0.0	0.0

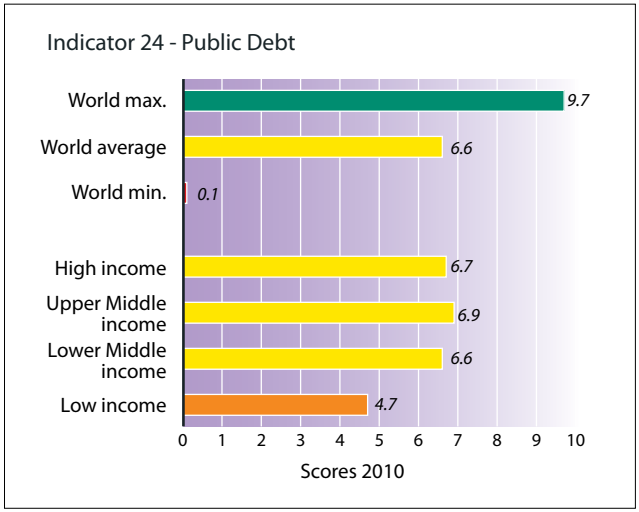
Employment - GDP per capita



Employment



Indicator 24 - Public Debt

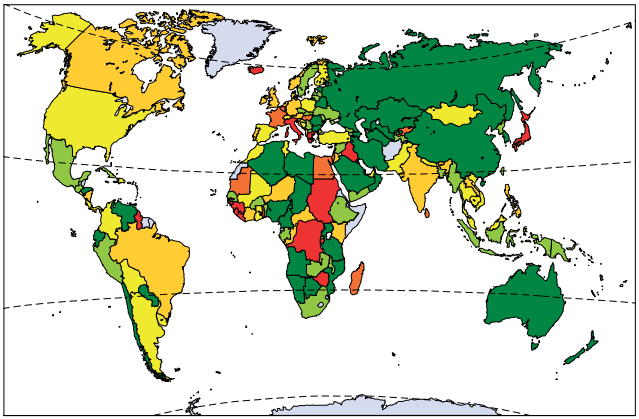


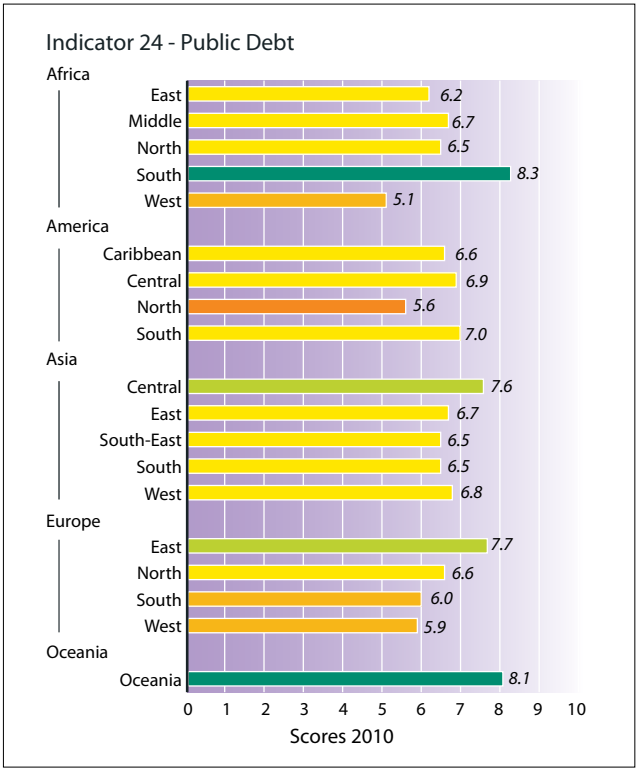
Indicator: the level of public debt of a country as % of GDP

Source: CIA World Factbook

Year of data: 2009

Target:



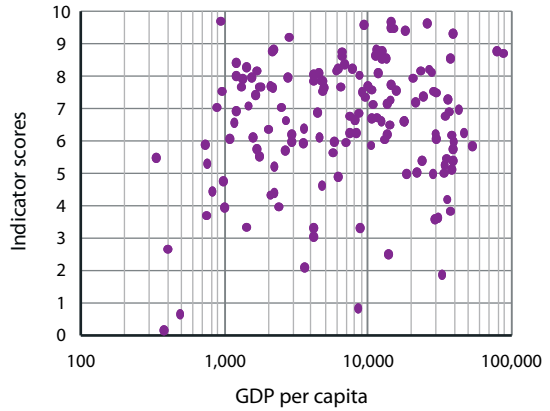


The amount of public debt of a country determines the yearly payments on interest and amortization. This limits a government in the free allocation of its budget. Thus it is an important indicator for economy, as well as for the society at large.

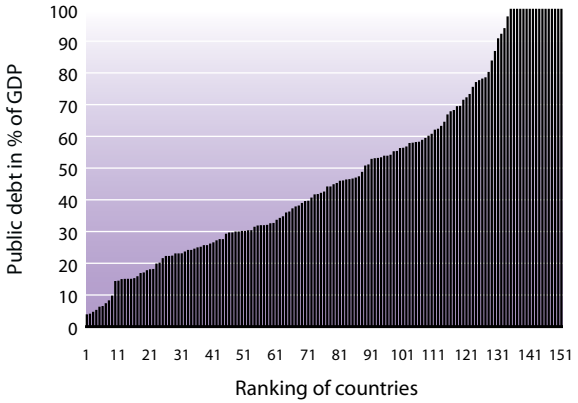
Top 10 - Public Debt				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Mozambique	8.6	8.2	9.7
2	Libya	9.3	9.6	9.7
3	Oman	9.3	9.7	9.6
4	Azerbaijan	8.8	9.4	9.6
5	Chile	9.3	9.6	9.5
6	Russia	8.7	9.5	9.4
7	Estonia	9.7	9.7	9.4
8	Kuwait	8.5	9.3	9.3
9	Uzbekistan	7.0	8.4	9.2
10	Kazakhstan	9.2	9.3	8.8

Bottom 10 - Public Debt				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Congo. Dem. Rep.	2.7	3.3	3.3
143	Jamaica	3.0	3.2	3.3
144	Guyana	2.5	3.0	3.0
145	Burundi	2.2	2.6	2.6
146	Lebanon	2.2	1.9	2.5
147	Iraq	2.0	2.1	2.1
148	Japan	2.2	1.7	1.8
149	Zimbabwe	7.6	1.5	0.8
150	Guinea-Bissau	0.5	0.6	0.6
151	Liberia	3.3	0.1	0.1

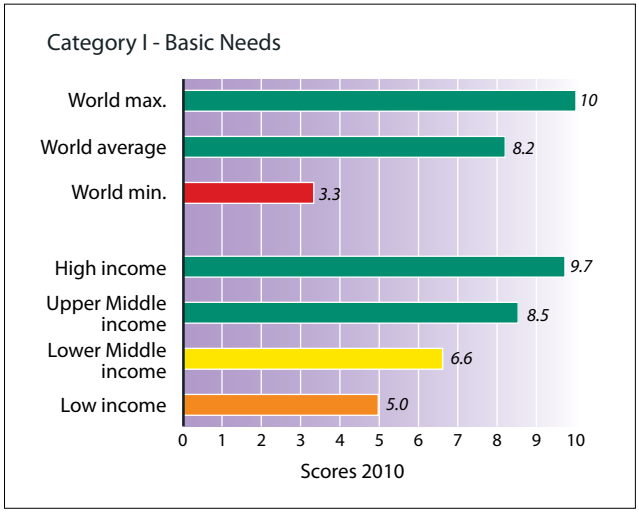
Public Debt - GDP per capita

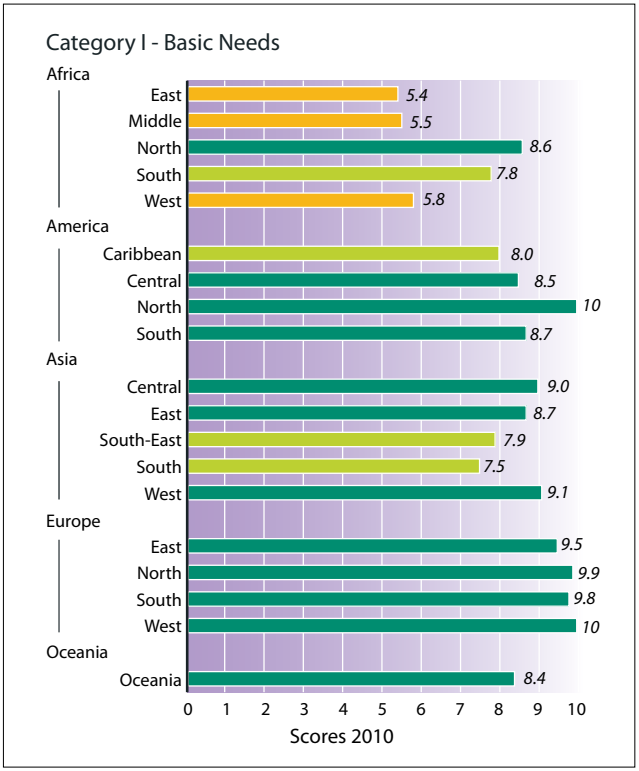


Public Debt



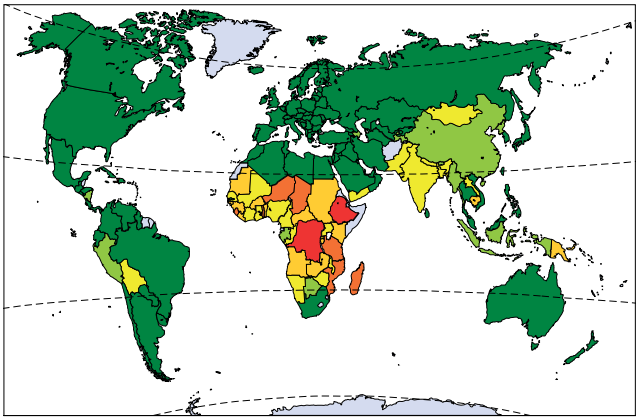
Category I - Basic Needs





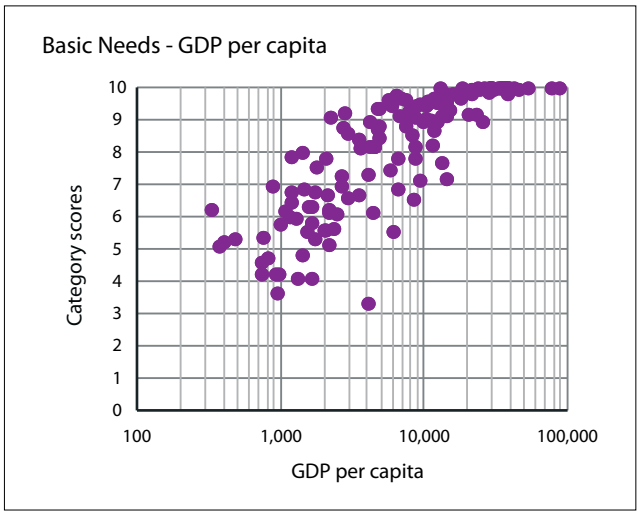
Category I - Basic Needs comprises 3 indicators

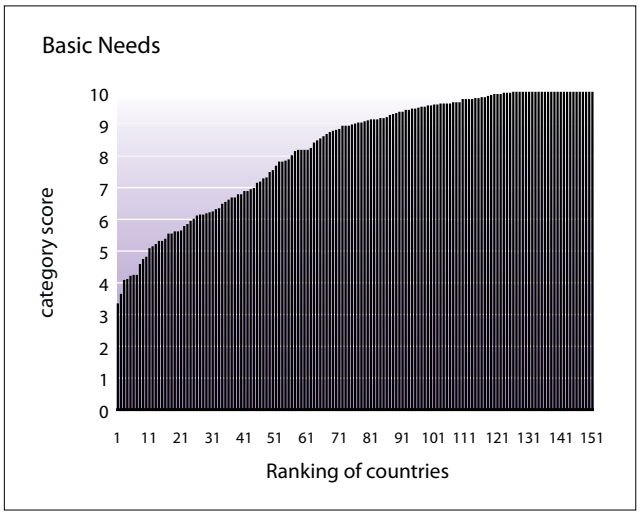
1. Sufficient Food
2. Sufficient to Drink
3. Safe Sanitation



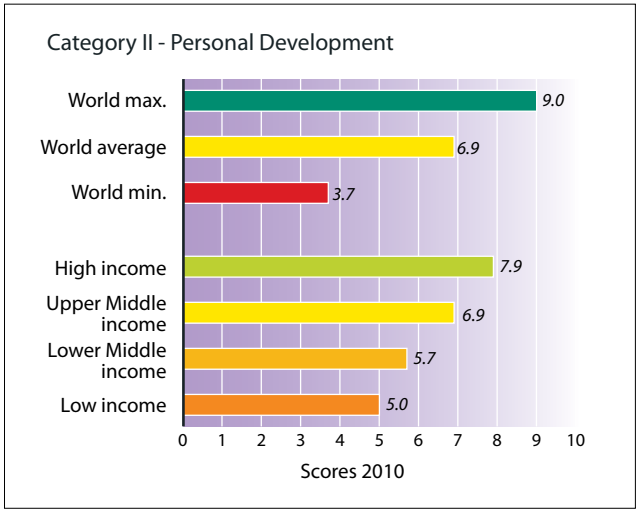
Top 10 - Basic Needs				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Australia	10.0	10.0	10.0
2	Austria	10.0	10.0	10.0
3	Belgium	10.0	10.0	10.0
4	Canada	10.0	10.0	10.0
5	Cyprus	9.8	10.0	10.0
6	Denmark	10.0	10.0	10.0
7	Finland	10.0	10.0	10.0
8	France	10.0	10.0	10.0
9	Germany	10.0	10.0	10.0
10	Hungary	9.8	10.0	10.0

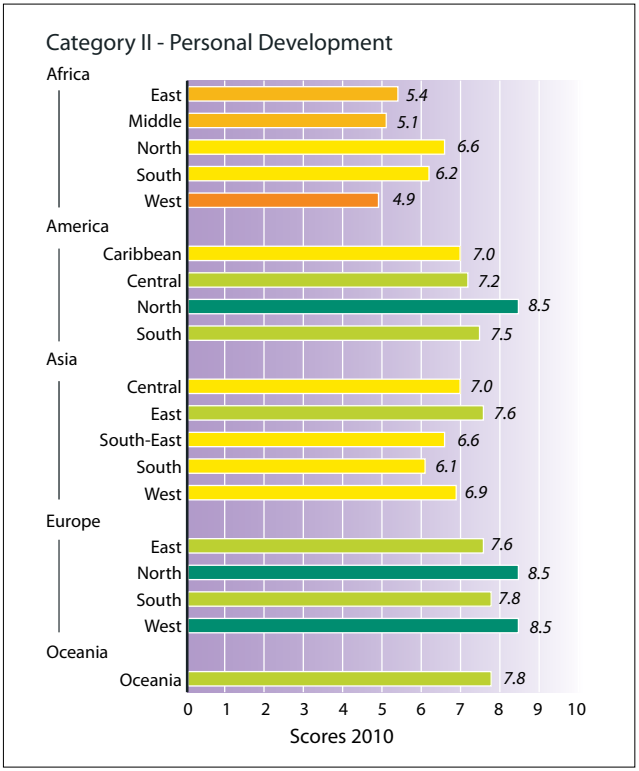
Bottom 10 - Basic Needs				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Tanzania	5.8	4.8	4.8
143	Togo	5.3	4.9	4.7
144	Niger	4.1	3.9	4.6
145	Madagascar	4.7	4.0	4.2
146	Sierra Leone	4.9	3.8	4.2
147	Mozambique	4.1	4.3	4.2
148	Haiti	5.3	4.4	4.1
149	Chad	3.6	4.1	4.1
150	Ethiopia	2.7	3.6	3.6
151	Congo. Dem. Rep.	3.5	3.4	3.3





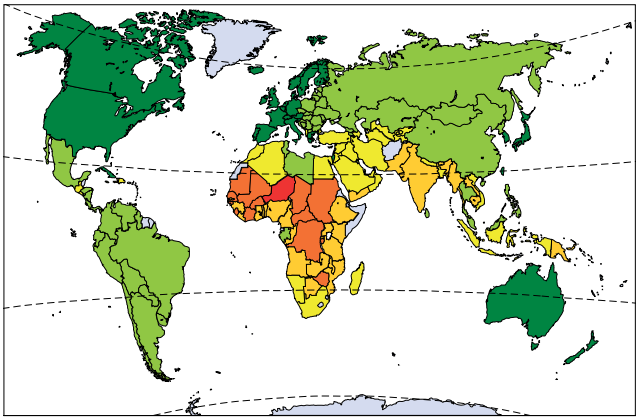
Category II - Personal Development





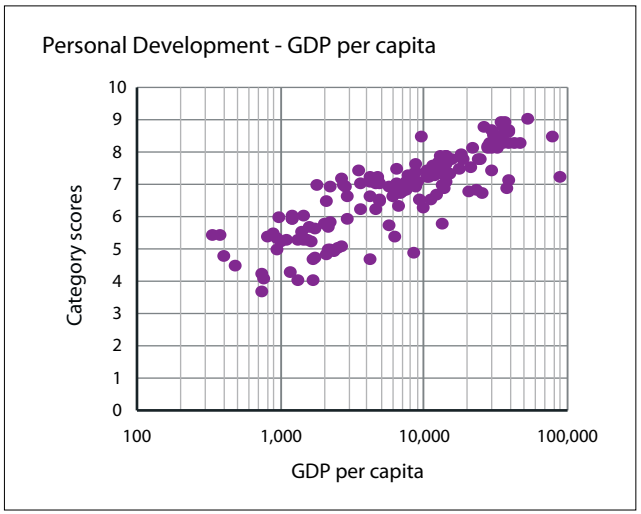
Category II - Personal Development comprises 3 indicators

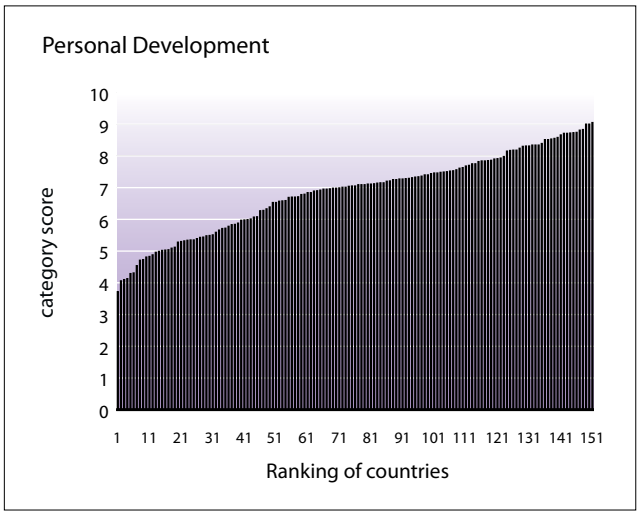
4. Healthy Life
5. Education Opportunities
6. Gender Equality



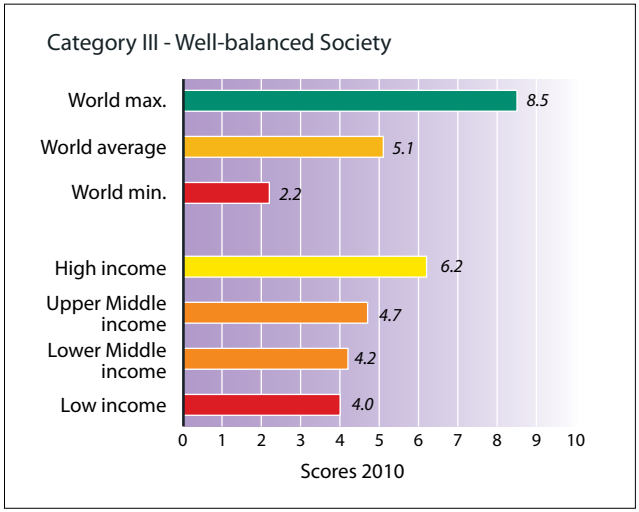
Top 10 - Personal Development				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Norway	8.89	8.99	9.05
2	Finland	8.82	8.95	9.00
3	Iceland	8.74	8.82	9.00
4	Sweden	9.01	8.89	8.83
5	New Zealand	8.66	8.82	8.81
6	Denmark	8.59	8.66	8.74
7	Australia	8.64	8.71	8.73
8	Ireland	8.31	8.66	8.72
9	Spain	8.50	8.66	8.71
10	Canada	8.41	8.61	8.71

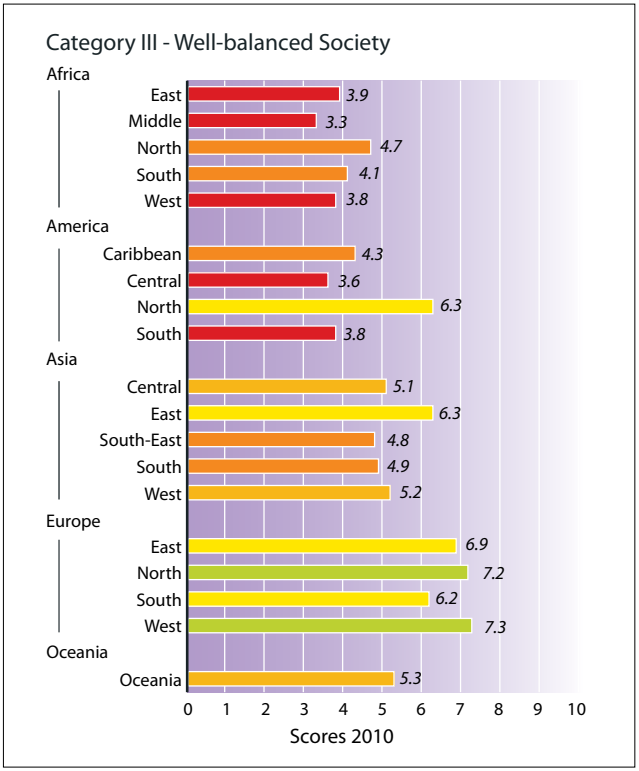
Bottom 10 - Personal Development				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Senegal	5.03	5.08	4.81
143	Cote d'Ivoire	4.38	4.37	4.73
144	Congo. Dem. Rep.	3.78	4.08	4.71
145	Guinea-Bissau	4.41	4.47	4.54
146	Mali	4.06	4.37	4.31
147	Sierra Leone	4.01	4.09	4.29
148	Central African Rep.	3.90	3.96	4.13
149	Burkina Faso	3.62	3.92	4.10
150	Chad	4.17	4.17	4.06
151	Niger	3.59	3.77	3.72





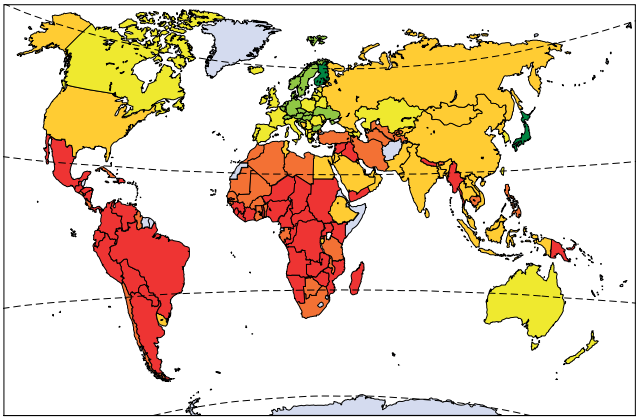
Category III - Well-balanced Society





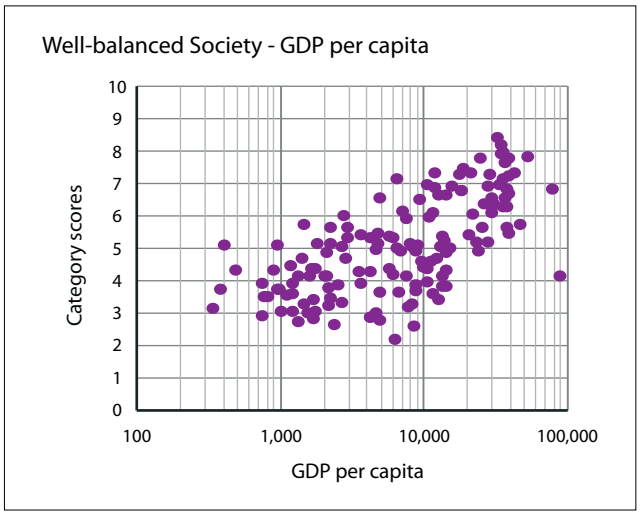
Category III - Well-balanced Society comprises 3 indicators

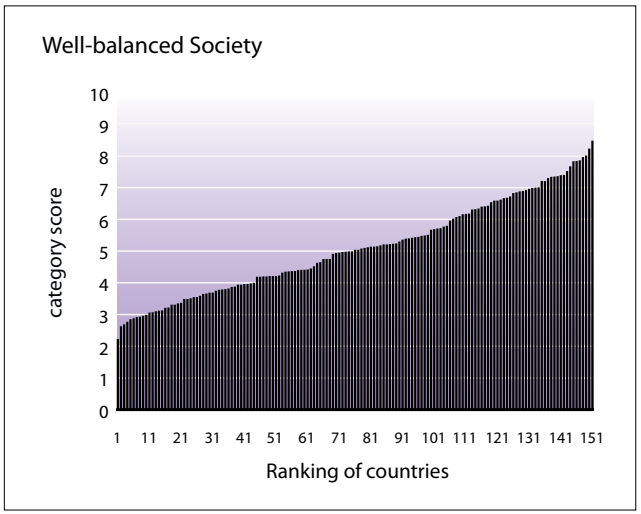
7. Good Governance
8. Income Distribution
9. Population Growth



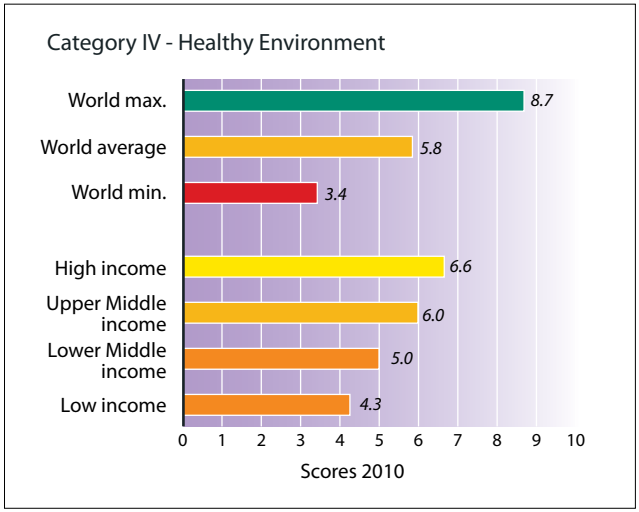
Top 10 - Well-balanced Society				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Japan	8.3	8.3	8.5
2	Finland	8.4	8.3	8.2
3	Sweden	8.2	8.0	8.0
4	Germany	7.8	7.9	7.9
5	Norway	8.0	7.9	7.8
6	Austria	7.7	7.8	7.8
7	Czech Republic	7.8	7.9	7.8
8	Denmark	7.7	7.7	7.7
9	Hungary	8.1	7.9	7.5
10	Bulgaria	6.8	7.4	7.4

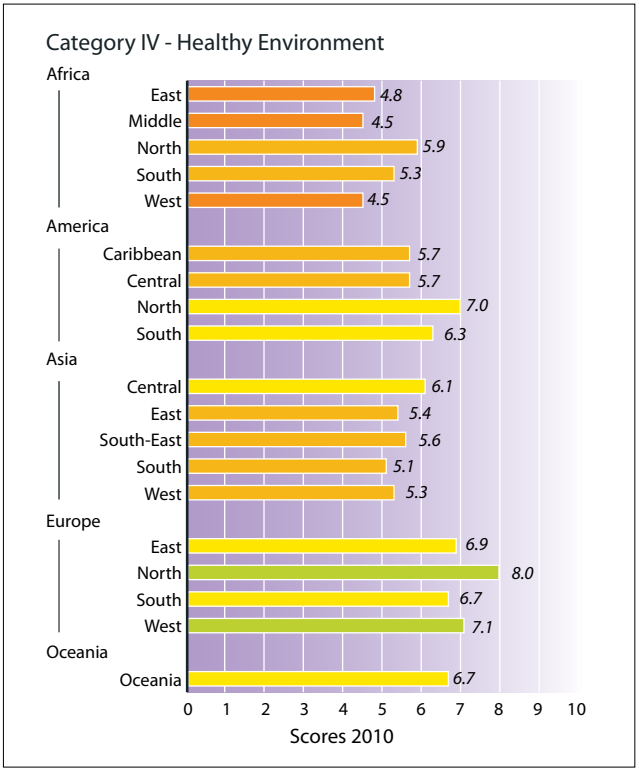
Bottom 10 - Well-balanced Society				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Niger	2.0	2.0	3.0
143	Bolivia	3.4	2.8	2.9
144	Congo. Dem. Rep.	2.3	2.1	2.9
145	Honduras	2.7	3.1	2.9
146	Cote d'Ivoire	3.5	3.4	2.9
147	Guatemala	2.5	2.6	2.8
148	Haiti	3.2	2.6	2.8
149	Sudan	2.7	2.7	2.7
150	Zimbabwe	3.5	3.4	2.6
151	Angola	2.4	2.7	2.2





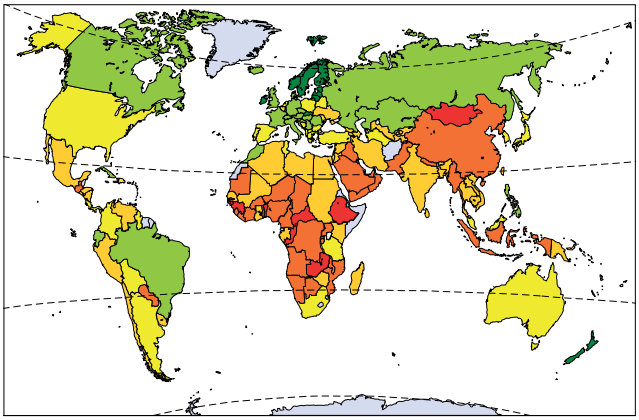
Category IV - Healthy Environment





Category IV - Healthy Environment comprises 3 indicators

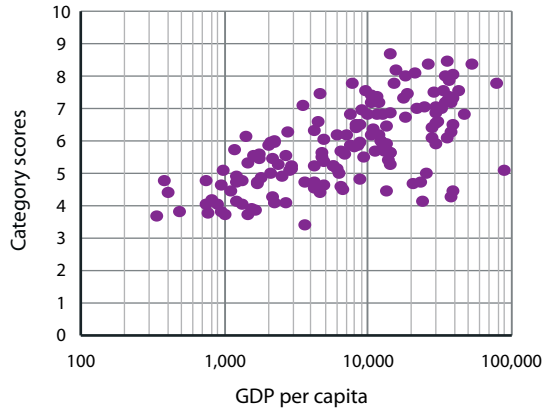
10. Air Quality (humans)
11. Air Quality (nature)
12. Surface Water Quality



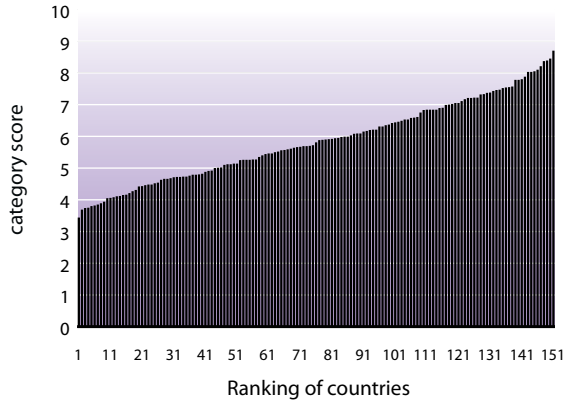
Top 10 - Healthy Environment				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Latvia	7.1	7.9	8.7
2	Sweden	7.7	8.0	8.4
3	New Zealand	9.0	8.7	8.4
4	Norway	7.5	7.9	8.4
5	Lithuania	7.0	7.6	8.2
6	Slovak Republic	7.0	7.7	8.1
7	Ireland	7.2	7.7	8.0
8	Finland	7.4	7.7	8.0
9	Estonia	7.2	7.6	8.0
10	Iceland	7.6	7.7	7.9

Bottom 10 - Healthy Environment				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Malawi	5.1	4.6	4.0
143	Zambia	5.3	4.7	3.9
144	Benin	5.5	4.8	3.9
145	Ethiopia	4.5	4.4	3.8
146	Guinea-Bissau	4.9	4.5	3.8
147	Central African Rep.	5.7	4.9	3.8
148	Gambia	4.6	4.2	3.7
149	Guinea	5.2	4.6	3.7
150	Congo	5.7	4.8	3.7
151	Mongolia	3.0	4.0	3.4

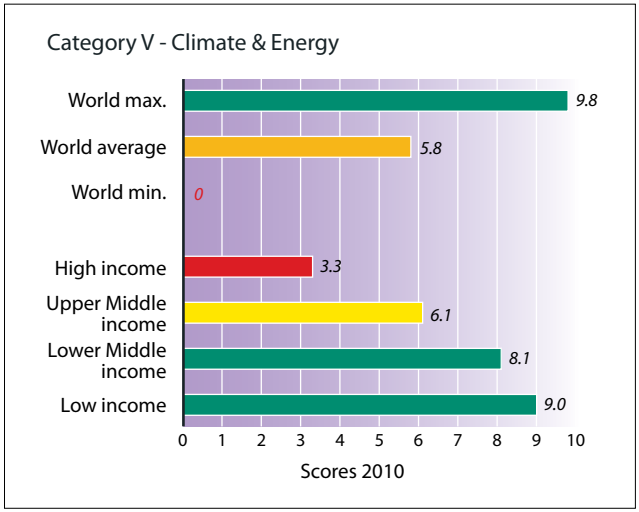
Healthy Environment - GDP per capita

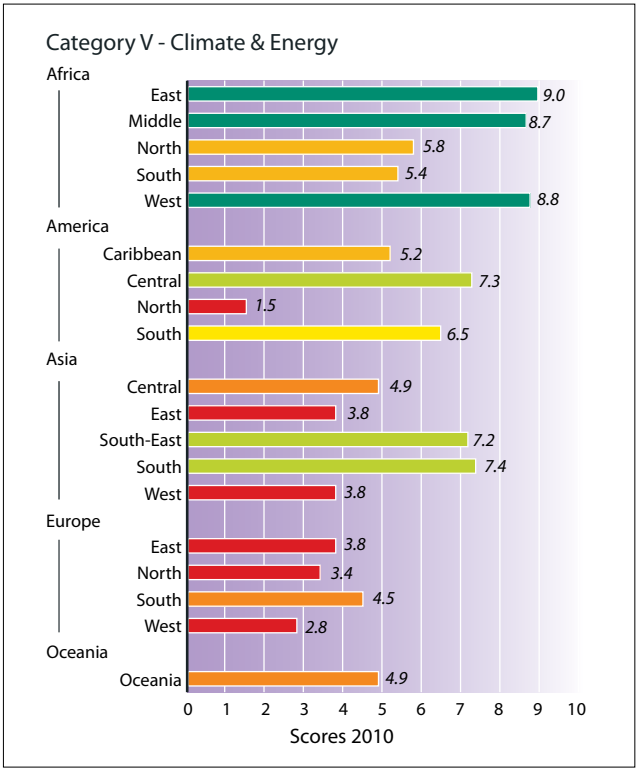


Healthy Environment



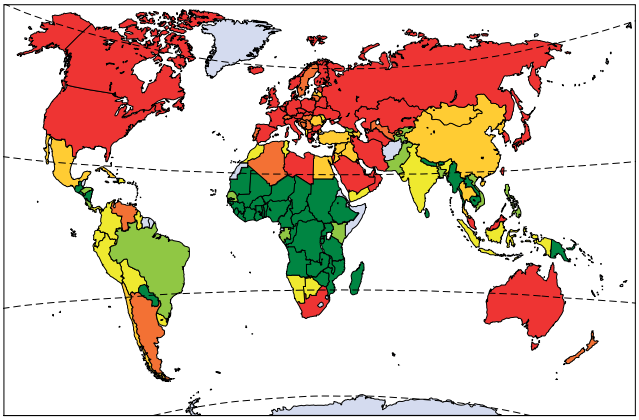
Category V - Climate & Energy





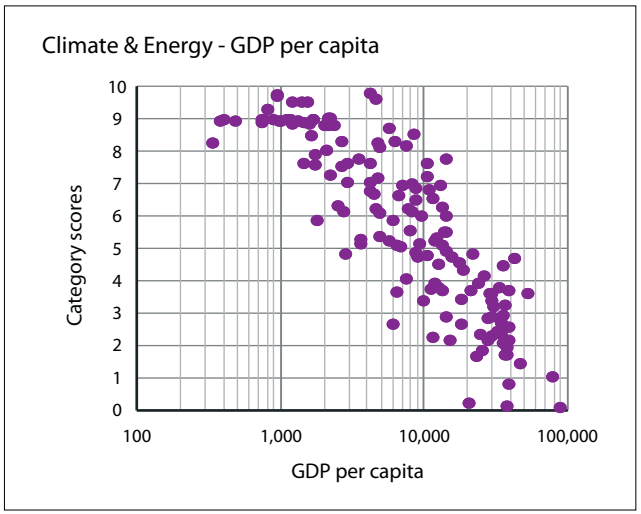
Category V - Climate & Energy comprises 3 indicators

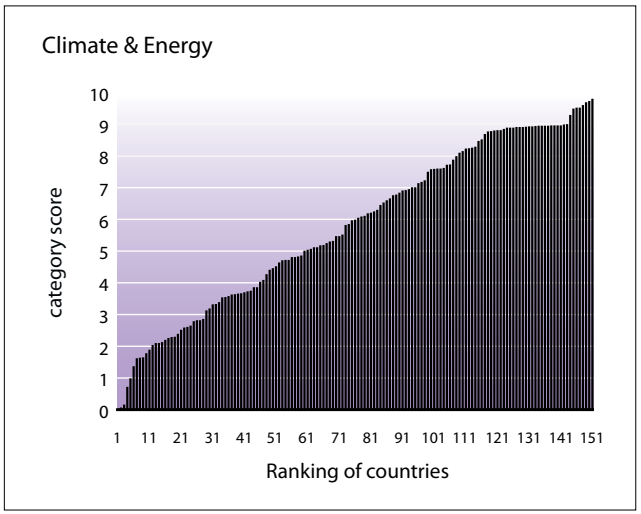
13. Consumption of Renewable Energy
14. Emission of Greenhouse Gases
15. Energy Consumption



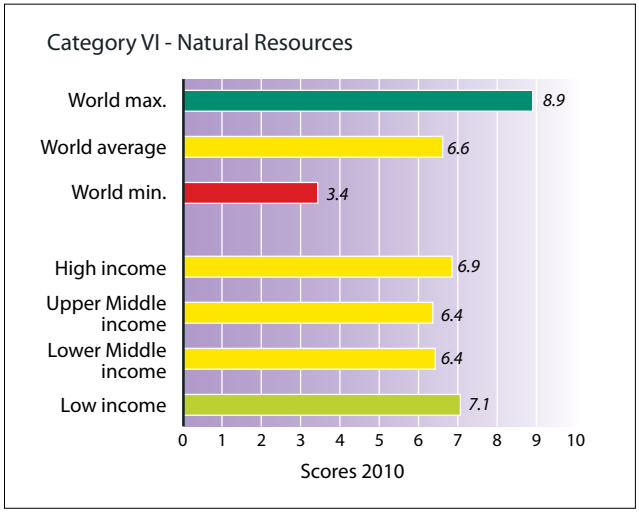
Top 10 - Climate & Energy				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Congo. Dem. Rep.	9.8	9.8	9.8
2	Mozambique	9.8	9.7	9.7
3	Ethiopia	9.7	9.6	9.7
4	Paraguay	9.6	9.1	9.6
5	Zambia	9.5	9.4	9.5
6	Nepal	9.4	9.5	9.5
7	Tanzania	9.6	9.6	9.5
8	Togo	9.0	9.1	9.3
9	Cameroon	9.3	9.3	9.0
10	Nigeria	8.8	8.8	9.0

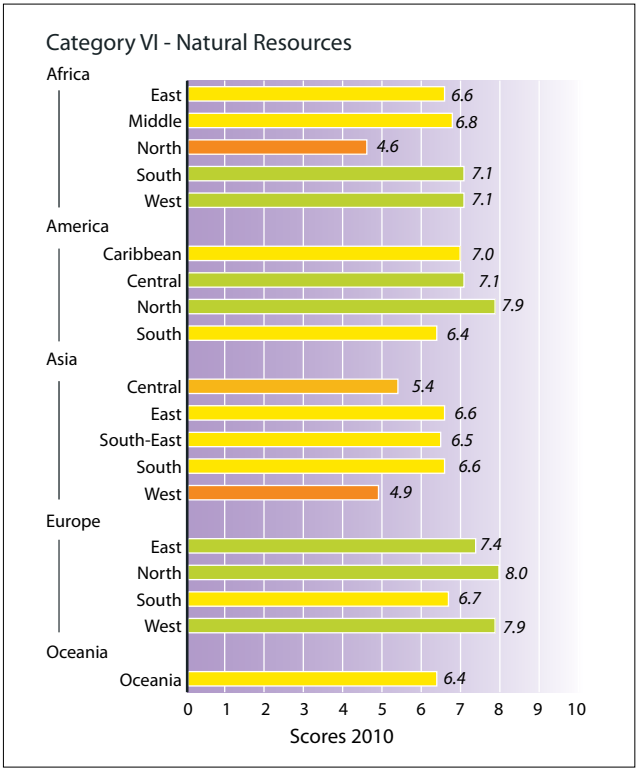
Bottom 10 - Climate & Energy				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Oman	2.1	2.0	1.8
143	Canada	1.6	1.5	1.6
144	Iceland	3.4	3.3	1.6
145	Saudi Arabia	1.8	1.7	1.6
146	United States	1.3	1.3	1.3
147	Luxembourg	1.0	0.8	1.0
148	Kuwait	0.8	0.3	0.7
149	Trinidad and Tobago	1.0	0.7	0.1
150	United Arab Emirates	0.4	0.4	0.0
151	Qatar	0.0	0.0	0.0





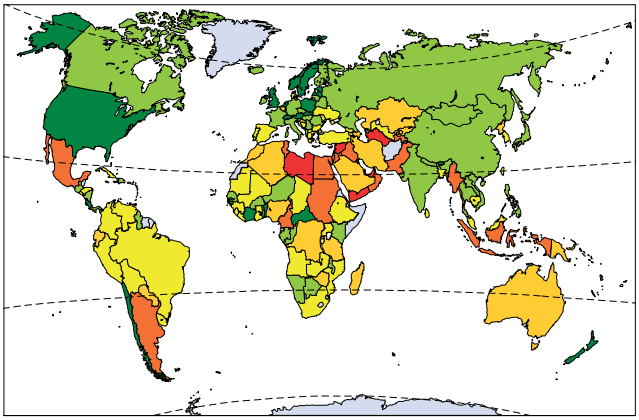
Category VI - Natural resources





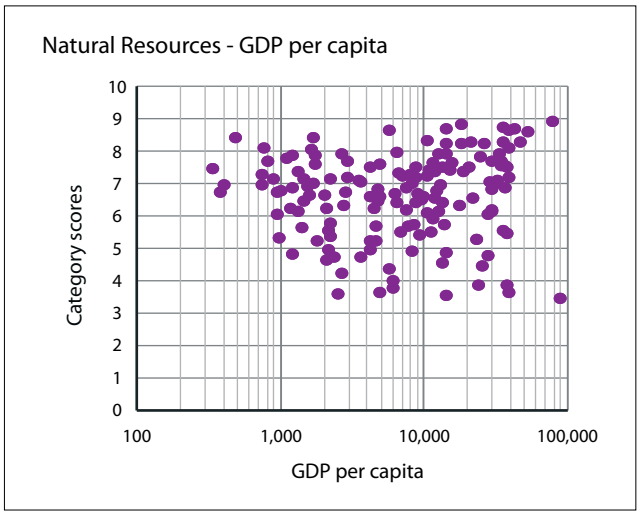
Category VI - Natural Resources comprises 3 indicators

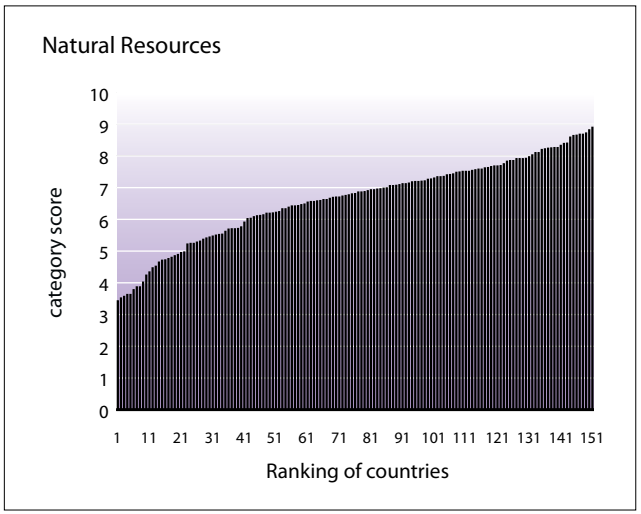
16. Use of Renewable Water Resources
17. Forest Area
18. Biodiversity



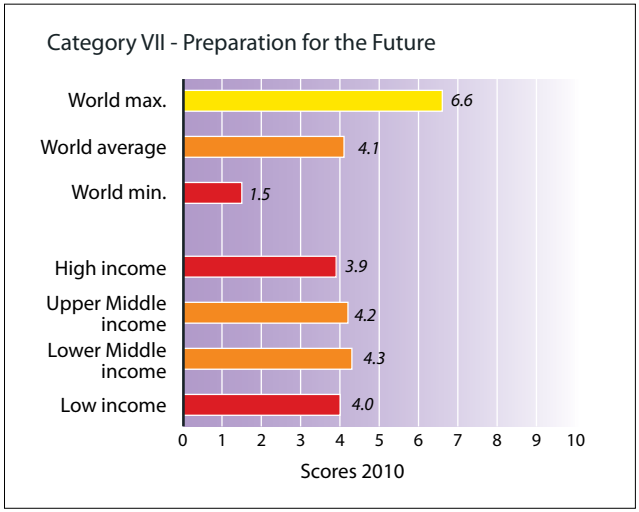
Top 10 - Natural Resources				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Luxembourg	8.9	8.9	8.9
2	Estonia	8.9	8.8	8.8
3	Sweden	8.0	8.7	8.7
4	Latvia	8.5	8.5	8.7
5	Switzerland	8.7	8.7	8.7
6	Austria	8.7	8.7	8.6
7	Bhutan	8.6	8.6	8.6
8	Norway	7.9	8.3	8.6
9	Guinea-Bissau	8.5	8.5	8.4
10	Cote d'Ivoire	8.6	8.6	8.4

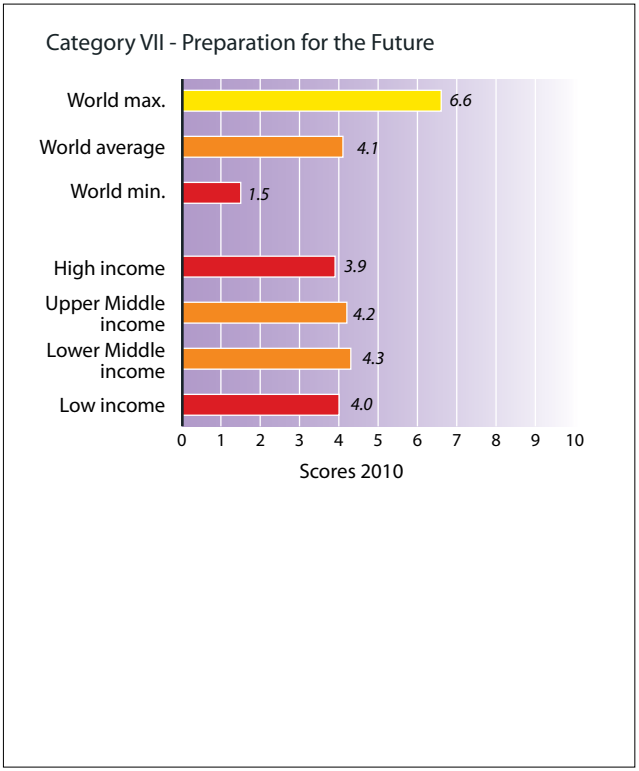
Bottom 10 - Natural Resources				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Pakistan	4.3	4.3	4.2
143	Egypt	4.0	4.0	4.0
144	United Arab Emirates	3.9	3.9	3.9
145	Malta	3.8	3.9	3.9
146	Turkmenistan	3.7	3.7	3.8
147	Syria	3.8	3.8	3.6
148	Kuwait	3.7	3.7	3.6
149	Yemen	3.6	3.6	3.6
150	Libya	3.6	3.6	3.5
151	Qatar	3.5	3.5	3.4





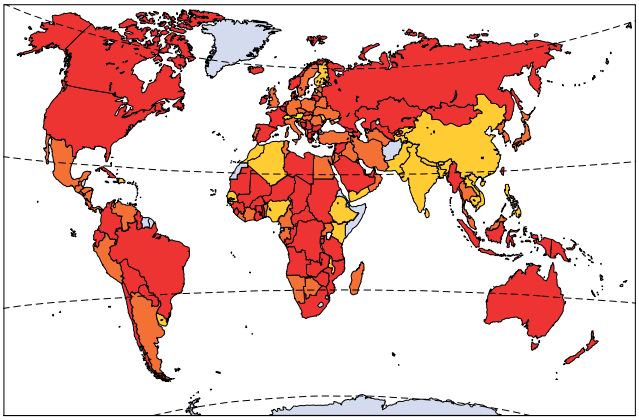
Category VII - Preparation for the Future





Category VII - Preparation for the Future comprises 3 indicators

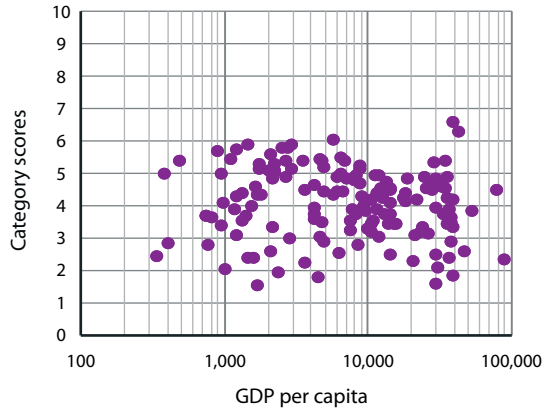
19. Consumption
20. Organic Farming
21. Genuine Savings



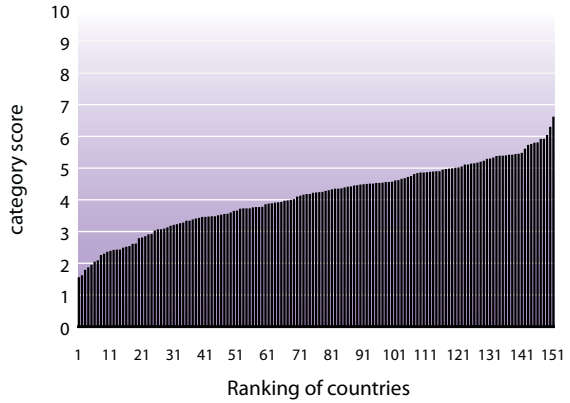
Top 10 - Preparation for the Future				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Austria	7.0	7.1	6.6
2	Switzerland	6.6	6.6	6.3
3	Bhutan	5.9	6.0	6.0
4	Bangladesh	6.1	6.1	5.9
5	India	5.9	6.1	5.9
6	Yemen	5.8	5.8	5.8
7	Moldova	5.6	5.4	5.8
8	Nepal	5.8	5.8	5.7
9	Malawi	4.2	5.2	5.7
10	Tajikistan	5.2	5.3	5.6

Bottom 10 - Preparation for the Future				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Qatar	2.5	2.7	2.3
143	Trinidad and Tobago	2.6	2.4	2.3
144	Mongolia	3.1	3.0	2.2
145	Greece	3.1	2.9	2.1
146	Guinea	2.6	2.6	2.0
147	Sudan	1.7	1.5	1.9
148	Netherlands	4.1	4.5	1.9
149	Bolivia	1.0	2.5	1.8
150	Cyprus	2.6	2.4	1.6
151	Chad	1.4	1.5	1.5

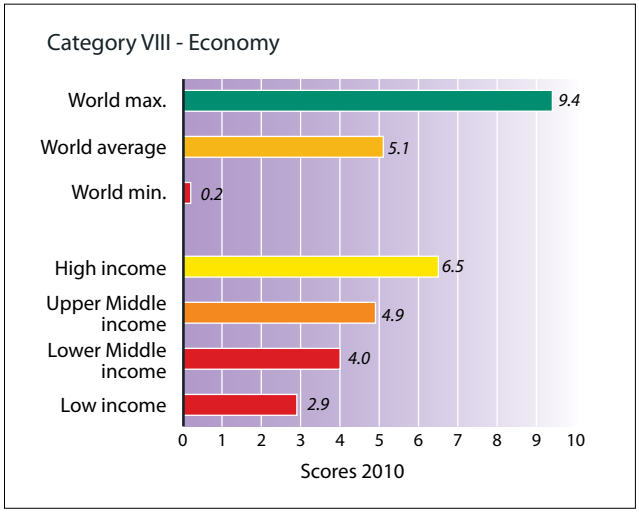
Preparation for the Future - GDP per capita

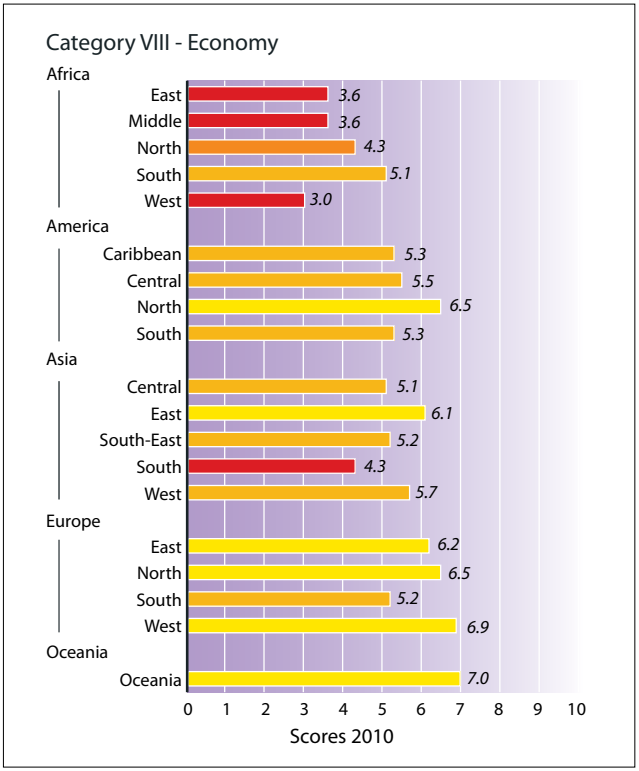


Preparation for the Future



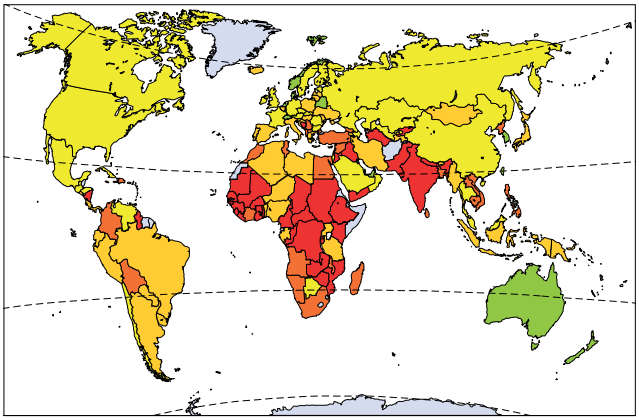
Category VIII - Economy





Category VIII - Economy comprises 3 indicators

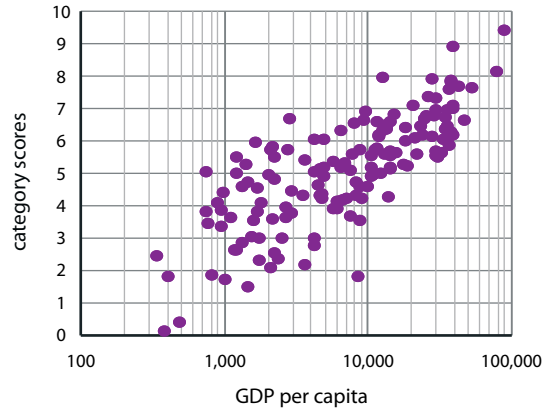
22. Gross Domestic Product
23. Employment
24. Public Debt



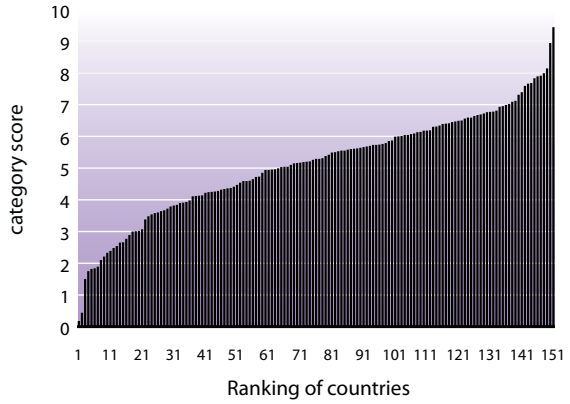
Top 10 - Economy				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Qatar	8.3	9.5	9.4
2	Kuwait	8.6	8.9	8.9
3	Luxembourg	8.6	8.7	8.1
4	Belarus	7.1	7.6	8.0
5	Korea. South	7.6	7.7	7.9
6	Australia	7.9	8.2	7.9
7	United Arab Emirates	8.5	8.5	7.8
8	Switzerland	7.5	8.0	7.7
9	Norway	7.8	7.6	7.6
10	Denmark	7.3	8.3	7.6

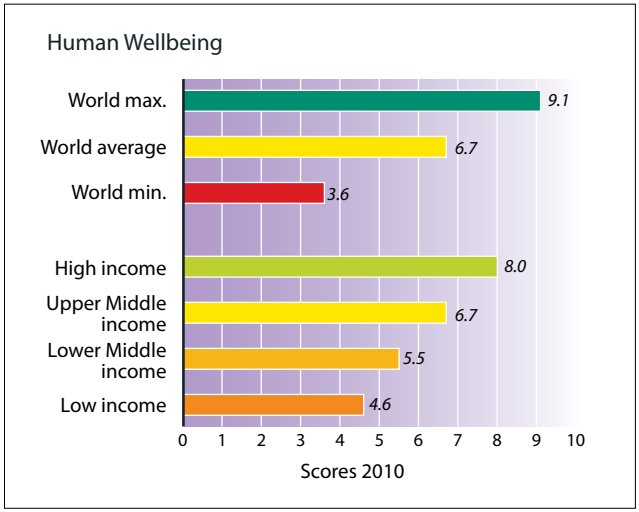
Bottom 10 - Economy				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Kenya	2.2	2.8	2.3
143	Iraq	1.6	1.9	2.2
144	Mauritania	1.5	2.4	2.1
145	Togo	1.8	1.9	1.9
146	Burundi	1.0	1.2	1.8
147	Zimbabwe	2.7	0.6	1.8
148	Guinea	1.9	1.8	1.7
149	Gambia	1.4	1.7	1.5
150	Guinea-Bissau	0.6	0.7	0.4
151	Liberia	1.2	0.2	0.2

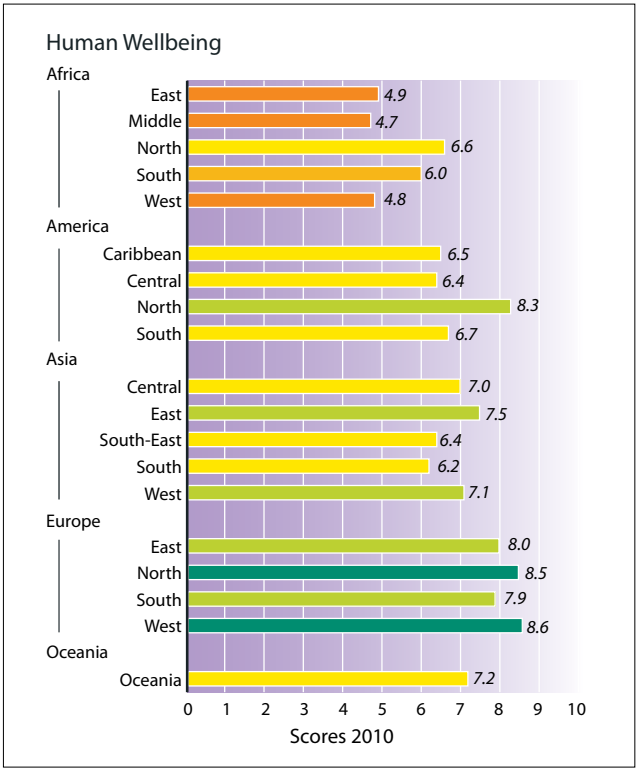
Economy - GDP per capita



Economy

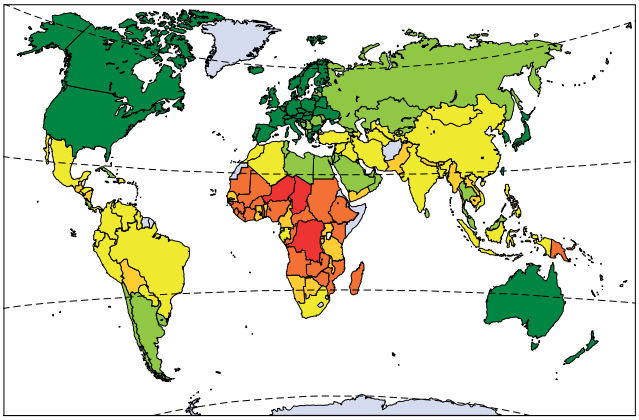






Human Wellbeing comprises 3 categories:

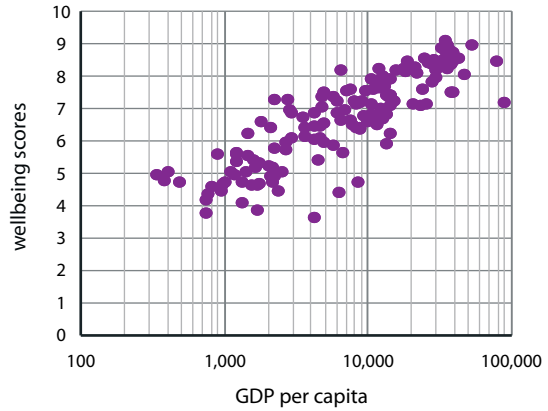
I. Basic Needs
II. Personal Development
III. Well-balanced Society



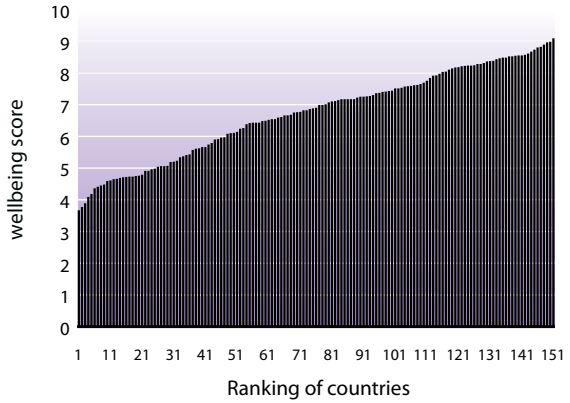
Top 10 - Human Wellbeing				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Finland	9.1	9.1	9.1
2	Norway	9.0	9.0	9.0
3	Sweden	9.1	9.0	8.9
4	Japan	8.8	8.8	8.9
5	Denmark	8.8	8.8	8.8
6	Germany	8.7	8.7	8.8
7	Austria	8.6	8.7	8.7
8	Netherlands	8.6	8.7	8.6
9	Belgium	8.7	8.6	8.6
10	Switzerland	8.6	8.6	8.5

Bottom 10 - Human Wellbeing				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Togo	4.7	4.3	4.6
143	Mozambique	4.4	4.4	4.5
144	Sudan	4.5	4.5	4.4
145	Angola	3.6	4.0	4.4
146	Central African Rep.	4.0	3.8	4.3
147	Sierra Leone	3.5	3.1	4.2
148	Haiti	4.5	4.1	4.1
149	Chad	3.5	3.5	3.9
150	Niger	3.2	3.2	3.8
151	Congo. Dem. Rep.	3.2	3.2	3.6

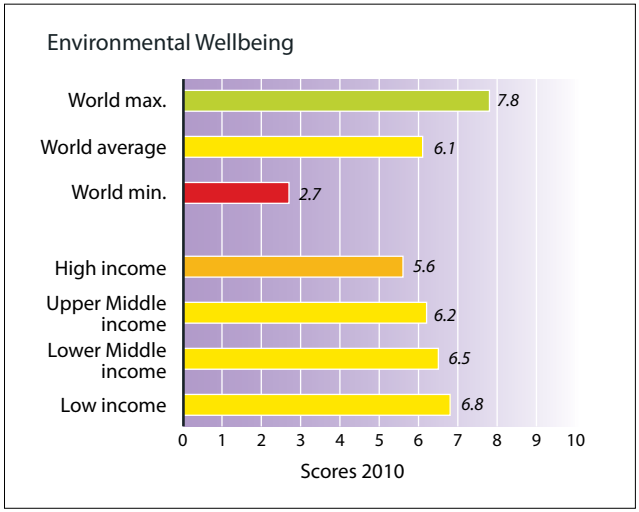
Human Wellbeing - GDP per capita

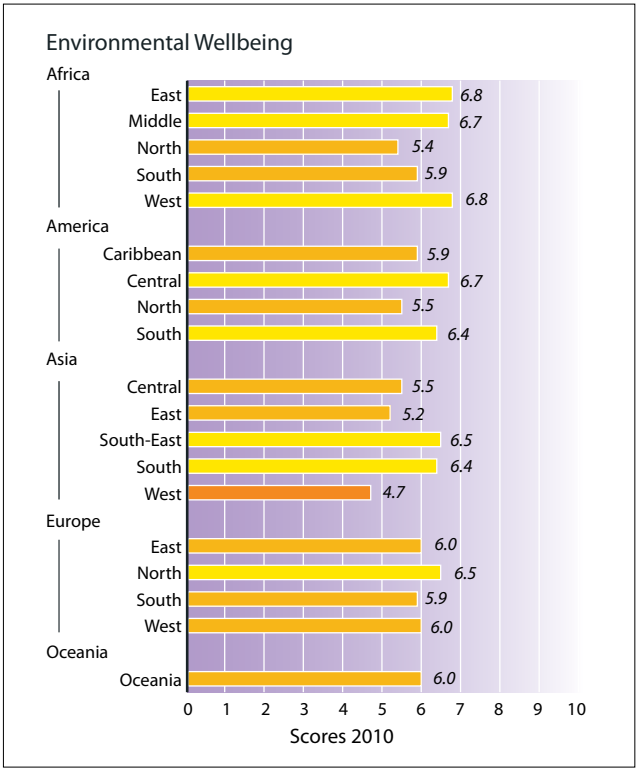


Human Wellbeing



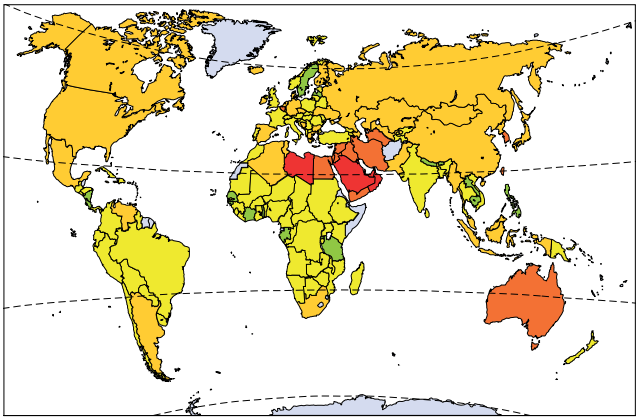
Environmental Wellbeing





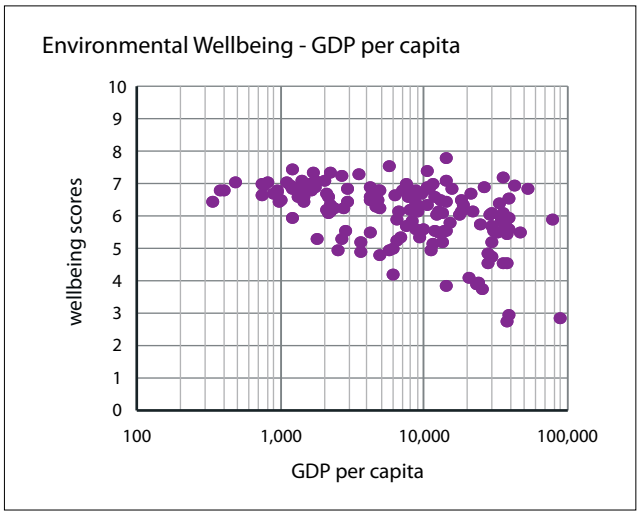
Environmental Wellbeing comprises 3 categories:

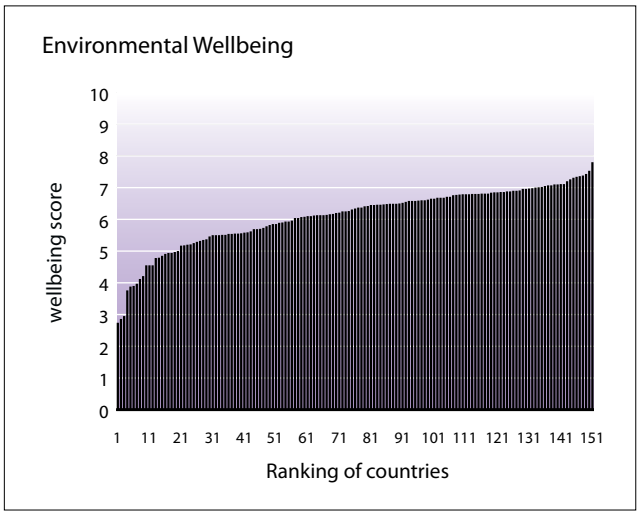
IV. Healthy Environment
V. Climate & Energy
VI. Natural Resources



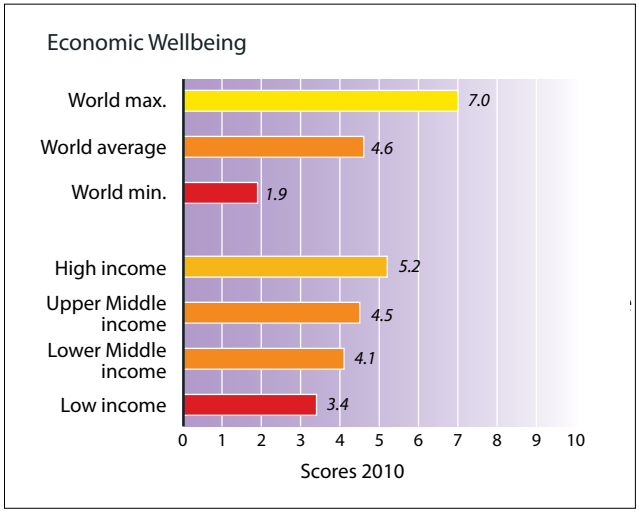
Top 10 - Environmental Wellbeing				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Latvia	7.3	7.6	7.8
2	Bhutan	6.9	7.2	7.5
3	Nepal	6.4	7.0	7.4
4	Costa Rica	6.8	7.2	7.4
5	Cote d'Ivoire	7.7	7.9	7.3
6	Laos	7.2	7.3	7.3
7	Philippines	7.0	7.3	7.3
8	Nicaragua	6.6	7.0	7.2
9	Sweden	6.5	6.9	7.2
10	Senegal	7.4	7.4	7.1

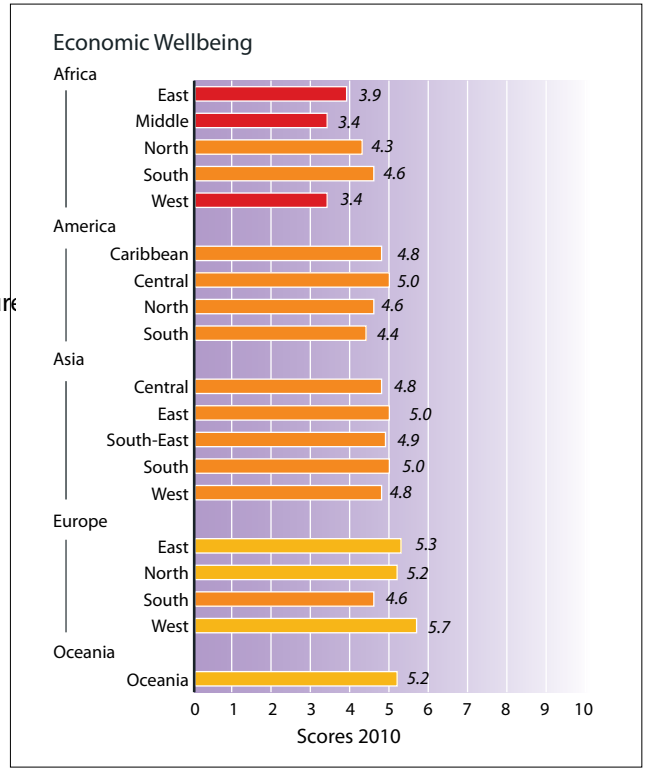
Bottom 10 - Environmental Wellbeing				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Israel	4.4	4.5	4.5
143	Turkmenistan	3.3	4.0	4.2
144	Trinidad and Tobago	5.0	4.4	4.1
145	Malta	4.0	4.0	3.9
146	Saudi Arabia	3.9	3.7	3.9
147	Libya	3.7	3.8	3.9
148	Oman	3.6	3.7	3.7
149	Kuwait	3.0	2.8	2.9
150	Qatar	2.8	2.8	2.8
151	United Arab Emirates	3.1	2.8	2.7





Economic Wellbeing

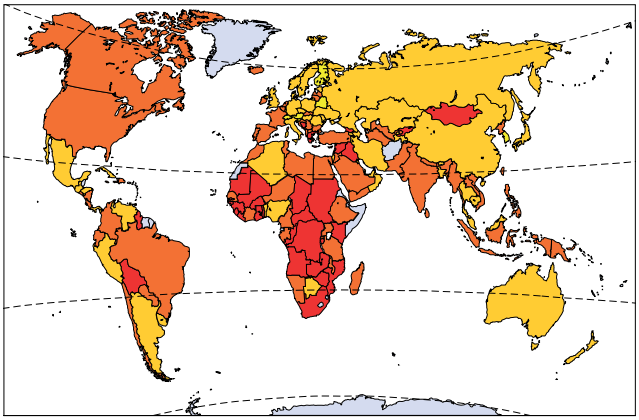




Economic Wellbeing comprises 2 categories:

VII. Preparation for the Future

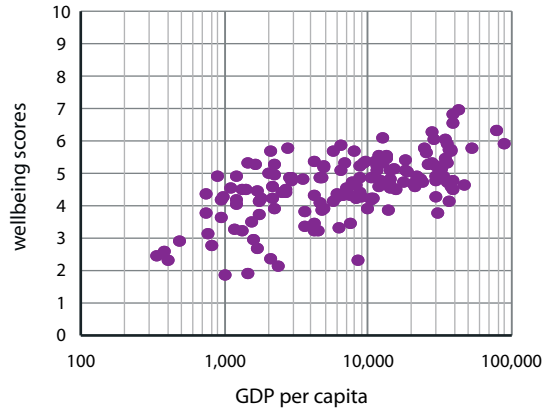
VIII. Economy



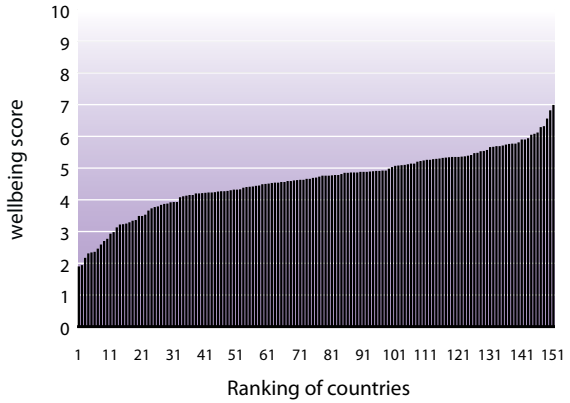
Top 10 - Economic Wellbeing				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Switzerland	7.1	7.3	7.0
2	Austria	7.0	7.2	6.8
3	Kuwait	7.0	7.0	6.5
4	Luxembourg	6.1	6.5	6.3
5	Korea. South	6.1	6.2	6.3
6	Belarus	5.6	5.7	6.1
7	Finland	5.4	5.7	6.1
8	Slovenia	6.1	6.6	6.0
9	Sweden	5.6	6.0	5.9
10	Qatar	5.4	6.1	5.9

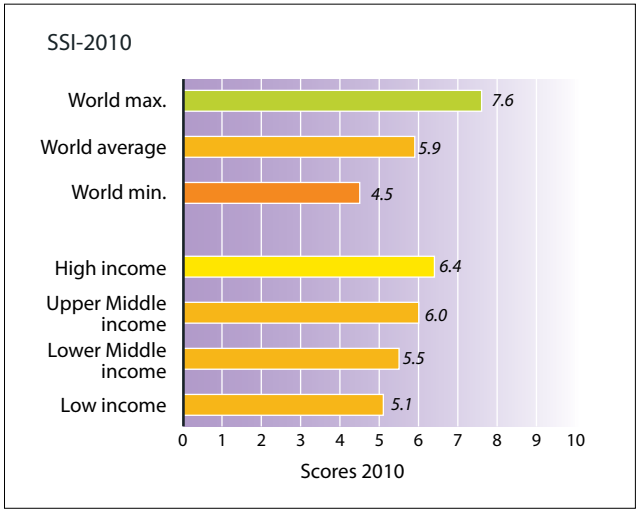
Bottom 10 - Economic Wellbeing				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Togo	2.6	2.7	2.7
143	Chad	2.3	2.4	2.7
144	Liberia	3.1	2.6	2.6
145	Congo	2.1	2.4	2.4
146	Mauritania	0.8	2.2	2.3
147	Burundi	1.9	2.1	2.3
148	Zimbabwe	2.7	1.7	2.3
149	Sudan	2.1	2.0	2.1
150	Gambia	2.9	3.1	1.9
151	Guinea	2.2	2.2	1.9

Economic Wellbeing - GDP per capita

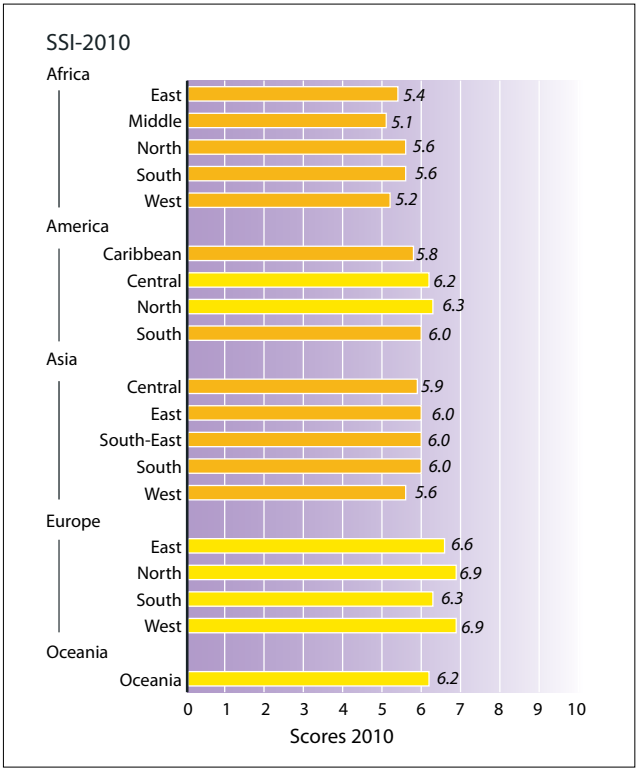


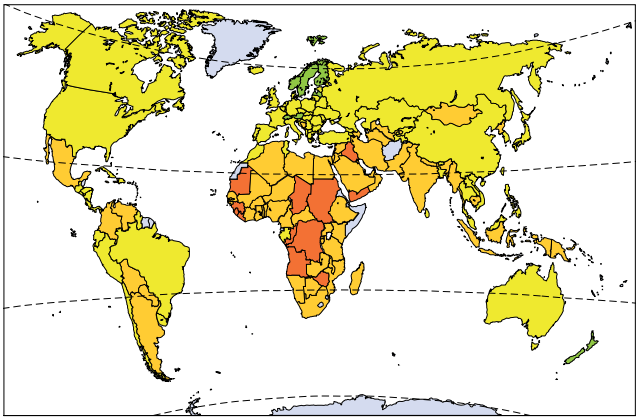
Economic Wellbeing





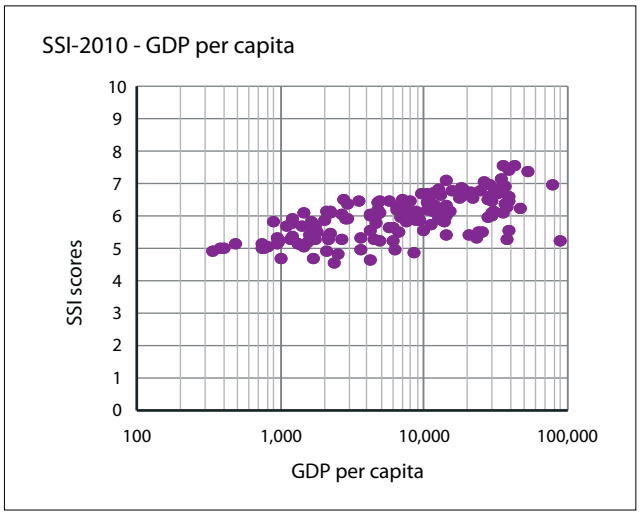
SSI has been calculated as the unweighted average of the scores of 24 indicators.

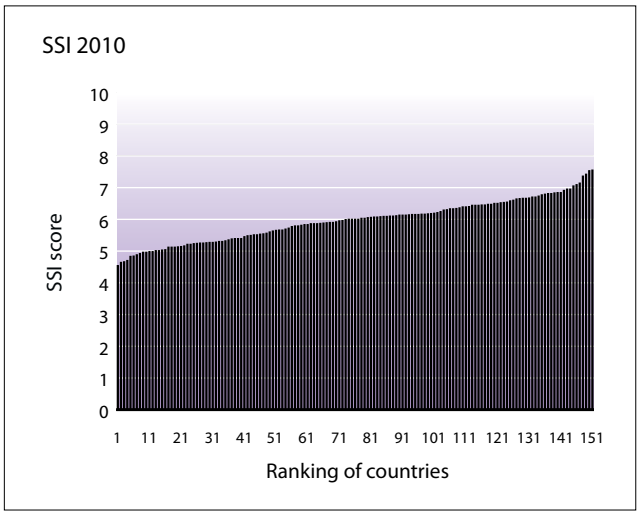




Top 10 - SSI-2010				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
1	Switzerland	7.5	7.6	7.6
2	Sweden	7.3	7.5	7.5
3	Austria	7.4	7.5	7.4
4	Norway	7.2	7.3	7.4
5	Finland	7.0	7.1	7.1
6	Latvia	7.1	7.2	7.1
7	New Zealand	7.1	7.0	7.1
8	Slovenia	7.0	7.1	7.0
9	Luxembourg	6.7	6.8	7.0
10	Denmark	6.7	6.9	6.9

Bottom 10 - SSI-2010				
Rank	Countries	SSI-2006	SSI-2008	SSI-2010
142	Angola	4.7	4.9	5.0
143	Iraq	4.7	4.9	5.0
144	Mauritania	4.5	4.9	4.9
145	Congo	4.7	4.9	4.9
146	Zimbabwe	5.1	4.8	4.8
147	Yemen	4.7	4.8	4.8
148	Chad	4.4	4.5	4.7
149	Guinea	4.9	4.7	4.7
150	Congo. Dem. Rep.	4.5	4.6	4.6
151	Sudan	4.4	4.4	4.5





The sustainable society is one that lives within the self-perpetuating limits of its environment. That society is not a 'no-growth' society. It is rather a society that recognizes the limits of growth and looks for alternative ways of growing.

Coomer, 1979

Continuing to grow the economy when the costs are higher than the benefits is actually uneconomic growth. The United Nations has classified five types of uneconomic growth:

- **jobless growth**, where the economy grows, but does not expand opportunities for employment;
- **ruthless growth**, where the proceeds of economic growth mostly benefit the rich;
- **voiceless growth**, where economic growth is not accompanied by extension of democracy or empowerment;
- **rootless growth**, where economic growth squashes people's cultural identity; and
- **futureless growth**, where the present generation squanders resources needed by future generations.

United Nations

Annex A - Ranking list of the 151 assessed countries

SSI-scores – alphabetical order

	SSI-2010	
	Rank	Score
Albania	32	6.50
Algeria	81	5.95
Angola	142	4.96
Argentina	78	6.00
Armenia	39	6.44
Australia	49	6.24
Austria	3	7.42
Azerbaijan	89	5.86
Bangladesh	67	6.09
Belarus	13	6.83
Belgium	65	6.10
Benin	93	5.81
Bhutan	36	6.45
Bolivia	124	5.25
Bosnia-Herzegovina	92	5.83
Botswana	90	5.86
Brazil	52	6.18
Bulgaria	47	6.30
Burkina Faso	135	5.12
Burundi	138	5.01
Cambodia	88	5.86
Cameroon	122	5.27
Canada	42	6.39
Central African Republic	139	5.01
Chad	148	4.70
Chile	46	6.33
China	55	6.16
Colombia	77	6.00
Congo	145	4.88
Congo. Dem. Rep.	150	4.64
Costa Rica	23	6.66
Cote d'Ivoire	103	5.60
Croatia	29	6.53
Cuba	21	6.67
Cyprus	79	5.99
Czech Republic	16	6.79
Denmark	10	6.91
Dominican Republic	58	6.15
Ecuador	66	6.09
Egypt	101	5.65
El Salvador	53	6.17
Estonia	11	6.84
Ethiopia	119	5.30
Finland	5	7.14
France	15	6.81
Gabon	59	6.14
Gambia	137	5.03
Georgia	54	6.16
Germany	12	6.84
Ghana	112	5.39
Greece	62	6.13
Guatemala	68	6.08
Guinea	149	4.66
Guinea-Bissau	131	5.14
Guyana	75	6.00
Haiti	134	5.12
Honduras	73	6.03
Hungary	14	6.81
Iceland	43	6.36
India	83	5.90

	SSI-2010	
	Rank	Score
Indonesia	104	5.56
Iran	97	5.72
Iraq	143	4.96
Ireland	27	6.58
Israel	80	5.96
Italy	24	6.65
Jamaica	86	5.88
Japan	22	6.66
Jordan	102	5.63
Kazakhstan	61	6.13
Kenya	123	5.26
Korea. North	108	5.51
Korea. South	30	6.52
Kuwait	105	5.54
Kyrgyz Republic	71	6.06
Laos	57	6.15
Latvia	6	7.09
Lebanon	94	5.79
Liberia	141	4.98
Libya	113	5.39
Lithuania	17	6.77
Luxembourg	9	6.95
Macedonia	70	6.07
Madagascar	127	5.23
Malawi	91	5.83
Malaysia	51	6.19
Mali	120	5.28
Malta	107	5.51
Mauritania	144	4.92
Mexico	87	5.87
Moldova	31	6.50
Mongolia	118	5.30
Montenegro	33	6.47
Morocco	76	6.00
Mozambique	132	5.13

	SSI-2010	
	Rank	Score
Myanmar	116	5.35
Namibia	109	5.49
Nepal	82	5.92
Netherlands	35	6.45
New Zealand	7	7.05
Nicaragua	72	6.05
Niger	133	5.12
Nigeria	111	5.45
Norway	4	7.36
Oman	110	5.48
Pakistan	125	5.25
Panama	45	6.33
Papua New Guinea	115	5.38
Paraguay	96	5.77
Peru	63	6.11
Philippines	34	6.47
Poland	26	6.60
Portugal	28	6.54
Qatar	128	5.21
Romania	19	6.70
Russia	56	6.15
Rwanda	100	5.66
Saudi Arabia	117	5.32
Senegal	98	5.69
Serbia	41	6.39
Sierra Leone	140	4.98
Slovak Republic	18	6.73
Slovenia	8	6.95
South Africa	106	5.53
Spain	37	6.44
Sri Lanka	40	6.40
Sudan	151	4.54
Sweden	2	7.53
Switzerland	1	7.55
Syria	129	5.21

	SSI-2010	
	Rank	Score
Taiwan	64	6.10
Tajikistan	60	6.13
Tanzania	99	5.66
Thailand	38	6.44
Togo	136	5.04
Trinidad and Tobago	114	5.39
Tunisia	74	6.03
Turkey	69	6.07
Turkmenistan	126	5.24
Uganda	95	5.79
Ukraine	48	6.29
United Arab Emirates	121	5.27
United Kingdom	20	6.70
United States	50	6.21
Uruguay	25	6.64
Uzbekistan	84	5.90
Venezuela	85	5.89
Vietnam	44	6.34
Yemen	147	4.83
Zambia	130	5.16
Zimbabwe	146	4.84

SSI-scores – descending values, based on SSI-2010

	SSI-2006		SSI-2008		SSI-2010	
	rank	score	rank	score	rank	score
Switzerland	1	7.49	1	7.60	1	7.55
Sweden	3	7.26	3	7.46	2	7.53
Austria	2	7.43	2	7.50	3	7.42
Norway	4	7.19	4	7.28	4	7.36
Finland	8	6.98	8	7.06	5	7.14
Latvia	6	7.06	5	7.22	6	7.09
New Zealand	5	7.07	9	7.02	7	7.05
Slovenia	7	6.99	6	7.12	8	6.95
Luxembourg	16	6.73	16	6.85	9	6.95
Denmark	17	6.71	12	6.94	10	6.91
Estonia	18	6.70	10	7.00	11	6.84
Germany	14	6.79	14	6.89	12	6.84
Belarus	26	6.48	27	6.61	13	6.83
Hungary	11	6.83	18	6.81	14	6.81
France	15	6.75	17	6.85	15	6.81
Czech Republic	23	6.57	23	6.69	16	6.79
Lithuania	10	6.83	7	7.09	17	6.77
Slovak Republic	13	6.81	11	6.96	18	6.73
Romania	49	6.11	22	6.70	19	6.70
United Kingdom	9	6.88	19	6.80	20	6.70
Cuba	41	6.19	30	6.56	21	6.67
Japan	22	6.58	25	6.66	22	6.66
Costa Rica	30	6.42	24	6.67	23	6.66
Italy	21	6.62	20	6.73	24	6.65
Uruguay	38	6.26	32	6.52	25	6.64
Poland	28	6.45	26	6.64	26	6.60
Ireland	20	6.64	21	6.71	27	6.58
Portugal	27	6.47	34	6.50	28	6.54
Croatia	25	6.49	28	6.61	29	6.53
Korea. South	35	6.36	33	6.51	30	6.52
Moldova	55	5.99	41	6.39	31	6.50
Albania	32	6.40	35	6.50	32	6.50
Montenegro	56	5.97	50	6.21	33	6.47

	SSI-2006		SSI-2008		SSI-2010	
	rank	score	rank	score	rank	score
Philippines	43	6.13	37	6.45	34	6.47
Netherlands	19	6.66	15	6.88	35	6.45
Bhutan	74	5.76	56	6.14	36	6.45
Spain	24	6.54	29	6.60	37	6.44
Thailand	36	6.32	43	6.37	38	6.44
Armenia	68	5.80	44	6.37	39	6.44
Sri Lanka	33	6.39	40	6.40	40	6.40
Serbia	54	6.01	49	6.23	41	6.39
Canada	31	6.40	42	6.38	42	6.39
Iceland	12	6.82	13	6.93	43	6.36
Vietnam	40	6.21	36	6.48	44	6.34
Panama	52	6.03	48	6.29	45	6.33
Chile	29	6.45	45	6.36	46	6.33
Bulgaria	42	6.16	31	6.54	47	6.30
Ukraine	37	6.30	38	6.42	48	6.29
Australia	34	6.39	46	6.32	49	6.24
United States	46	6.12	54	6.15	50	6.21
Malaysia	39	6.23	51	6.20	51	6.19
Brazil	65	5.88	62	6.08	52	6.18
El Salvador	75	5.74	57	6.13	53	6.17
Georgia	58	5.96	39	6.40	54	6.16
China	66	5.86	65	6.07	55	6.16
Russia	50	6.11	63	6.08	56	6.15
Laos	83	5.64	53	6.16	57	6.15
Dominican Republic	72	5.77	61	6.10	58	6.15
Gabon	45	6.12	73	5.96	59	6.14
Tajikistan	128	5.04	87	5.73	60	6.13
Kazakhstan	103	5.39	84	5.79	61	6.13
Greece	44	6.13	47	6.31	62	6.13
Peru	57	5.97	58	6.13	63	6.11
Taiwan	48	6.11	52	6.18	64	6.10
Belgium	47	6.12	59	6.12	65	6.10
Ecuador	69	5.80	70	5.99	66	6.09
Bangladesh	91	5.55	67	6.04	67	6.09
Guatemala	86	5.62	66	6.05	68	6.08

	SSI-2006		SSI-2008		SSI-2010	
	rank	score	rank	score	rank	score
Turkey	60	5.93	64	6.07	69	6.07
Macedonia	53	6.02	60	6.11	70	6.07
Kyrgyz Republic	98	5.46	80	5.86	71	6.06
Nicaragua	82	5.65	71	5.99	72	6.05
Honduras	116	5.24	101	5.57	73	6.03
Tunisia	73	5.77	69	6.03	74	6.03
Guyana	92	5.54	75	5.95	75	6.00
Morocco	88	5.60	85	5.79	76	6.00
Colombia	61	5.92	68	6.04	77	6.00
Argentina	59	5.94	77	5.93	78	6.00
Cyprus	51	6.05	55	6.15	79	5.99
Israel	95	5.50	91	5.69	80	5.96
Algeria	79	5.70	82	5.84	81	5.95
Nepal	94	5.53	90	5.69	82	5.92
India	71	5.78	76	5.94	83	5.90
Uzbekistan	106	5.37	94	5.65	84	5.90
Venezuela	96	5.48	88	5.72	85	5.89
Jamaica	67	5.82	74	5.96	86	5.88
Mexico	90	5.58	79	5.87	87	5.87
Cambodia	77	5.74	78	5.91	88	5.86
Azerbaijan	104	5.38	95	5.64	89	5.86
Botswana	78	5.73	83	5.84	90	5.86
Malawi	122	5.13	99	5.60	91	5.83
Bosnia-Herzegovina	64	5.89	72	5.97	92	5.83
Benin	89	5.59	97	5.62	93	5.81
Lebanon	100	5.43	111	5.48	94	5.79
Uganda	97	5.47	106	5.52	95	5.79
Paraguay	84	5.64	93	5.66	96	5.77
Iran	108	5.34	103	5.55	97	5.72
Senegal	76	5.74	89	5.71	98	5.69
Tanzania	81	5.68	102	5.56	99	5.66
Rwanda	63	5.90	110	5.48	100	5.66
Egypt	102	5.41	112	5.47	101	5.65
Jordan	111	5.29	119	5.38	102	5.63
Cote d'Ivoire	80	5.68	113	5.47	103	5.60

	SSI-2006		SSI-2008		SSI-2010	
	rank	score	rank	score	rank	score
Indonesia	93	5.54	92	5.68	104	5.56
Kuwait	101	5.42	98	5.62	105	5.54
South Africa	87	5.61	108	5.49	106	5.53
Malta	114	5.28	100	5.59	107	5.51
Korea. North	105	5.38	117	5.39	108	5.51
Namibia	115	5.25	96	5.62	109	5.49
Oman	109	5.33	109	5.48	110	5.48
Nigeria	107	5.35	105	5.52	111	5.45
Ghana	62	5.90	81	5.85	112	5.39
Libya	120	5.16	120	5.30	113	5.39
Trinidad and Tobago	85	5.62	104	5.52	114	5.39
Papua New Guinea	137	4.89	123	5.25	115	5.38
Myanmar	110	5.31	118	5.38	116	5.35
Saudi Arabia	135	4.90	127	5.16	117	5.32
Mongolia	132	4.97	107	5.50	118	5.30
Ethiopia	126	5.07	126	5.23	119	5.30
Mali	130	4.99	125	5.24	120	5.28
United Arab Emirates	99	5.44	121	5.28	121	5.27
Cameroon	113	5.28	114	5.45	122	5.27
Kenya	70	5.78	86	5.77	123	5.26
Bolivia	123	5.11	115	5.42	124	5.25
Pakistan	117	5.21	116	5.40	125	5.25
Turkmenistan	146	4.54	129	5.10	126	5.24
Madagascar	129	5.00	135	5.00	127	5.23
Qatar	119	5.21	124	5.24	128	5.21
Syria	141	4.73	134	5.00	129	5.21
Zambia	138	4.87	132	5.05	130	5.16
Guinea-Bissau	127	5.06	131	5.05	131	5.14
Mozambique	121	5.14	130	5.08	132	5.13
Niger	147	4.53	146	4.62	133	5.12
Haiti	136	4.90	139	4.88	134	5.12
Burkina Faso	134	4.91	128	5.12	135	5.12
Togo	118	5.21	133	5.04	136	5.04
Gambia	112	5.28	122	5.27	137	5.03
Burundi	144	4.70	147	4.62	138	5.01

	SSI-2006		SSI-2008		SSI-2010	
	rank	score	rank	score	rank	score
Central African Republic	125	5.07	136	4.97	139	5.01
Sierra Leone	139	4.86	148	4.59	140	4.98
Liberia	131	4.98	143	4.83	141	4.98
Angola	140	4.74	138	4.91	142	4.96
Iraq	142	4.73	137	4.95	143	4.96
Mauritania	149	4.46	141	4.87	144	4.92
Congo	143	4.73	140	4.87	145	4.88
Zimbabwe	124	5.09	144	4.79	146	4.84
Yemen	145	4.65	142	4.85	147	4.83
Chad	150	4.43	150	4.52	148	4.70
Guinea	133	4.92	145	4.75	149	4.66
Congo. Dem. Rep.	148	4.49	149	4.55	150	4.64
Sudan	151	4.38	151	4.38	151	4.54

Annex B - Regions

Africa East
Burundi
Ethiopia
Kenya
Madagascar
Malawi
Mozambique
Rwanda
Tanzania
Uganda
Zambia
Zimbabwe

Africa Middle
Angola
Cameroon
Central African Republic
Chad
Congo
Congo. Dem. Rep.
Gabon

Africa North
Algeria
Egypt
Libya
Morocco
Sudan
Tunisia

Africa South
Botswana
Namibia
South Africa

Africa West
Benin
Burkina Faso
Cote d'Ivoire
Gambia
Ghana
Guinea
Guinea-Bissau
Liberia
Mali
Mauritania
Niger
Nigeria
Senegal
Sierra Leone
Togo

America Caribbean
Cuba
Dominican Republic
Haiti
Jamaica
Trinidad and Tobago

America Central
Costa Rica
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama

America North
Canada
United States

America South
Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Guyana
Paraguay
Peru
Uruguay
Venezuela

Asia Central
Kazakhstan
Kyrgyz Republic
Tajikistan
Turkmenistan
Uzbekistan

Asia East
China
Japan
Korea. North
Korea. South
Mongolia
Taiwan

Asia South
Bangladesh
Bhutan
India
Iran
Nepal
Pakistan
Sri Lanka

Asia South East
Cambodia
Indonesia
Laos
Malaysia
Myanmar
Philippines
Thailand
Vietnam

Asia West
Armenia
Azerbaijan
Cyprus
Georgia
Iraq
Israel
Jordan
Kuwait
Lebanon
Oman
Qatar
Saudi Arabia
Syria
Turkey
United Arab Emirates
Yemen

Europe East
Belarus
Bulgaria
Czech Republic
Hungary
Moldova
Poland
Romania
Russia
Slovak Republic
Ukraine

Europe North
Denmark
Estonia
Finland
Iceland
Ireland
Latvia
Lithuania
Norway
Sweden
United Kingdom

Europe South
Albania
Bosnia-Herzegovina
Croatia
Greece
Italy
Macedonia
Malta
Montenegro
Portugal
Serbia
Slovenia
Spain

Europe West
Austria
Belgium
France
Germany
Luxembourg
Netherlands
Switzerland

Oceania
Australia
New Zealand
Papua New Guinea

Annex C - Evaluation and redesign of the SSI

1. History

The SSI shows at a glance the level of sustainability of each of 151 countries and the distance to full sustainability. It is based on the well-known Brundtland definition. The SSI, comprising no more than 22 indicators clustered into 5 categories was published in 2006 for the first time. In 2008 the first of the two-yearly updates has been presented. The figure below shows the actual structure of the SSI.

The SSI received a warm welcome by many people, varying from politicians, to scientists, students, NGOs and interested public. It is appreciated because it integrates quality of life and environmental sustainability and is nevertheless simple and easy to understand. The possibilities of comparison between countries are valued, as well as the possibilities to analyse the background data and to give one's own weights to indicators and categories. All data are available for free on our website www.ssfindex.com.

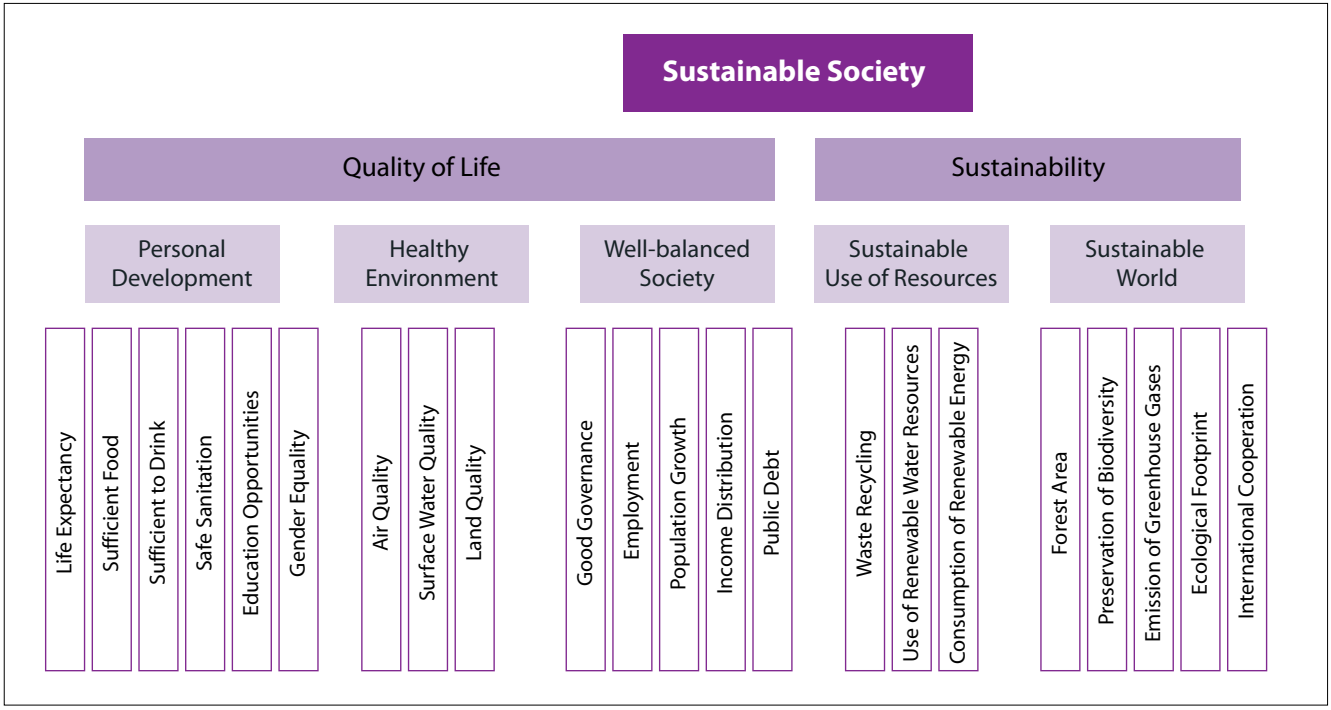


Figure 1: Current setup of SSI-2006 and SSI-2008

2. Evaluation

In the course of 2009 we decided to evaluate the findings so far. Eventually this has resulted in a redesign of the framework of the SSI. This framework has been used for the 2010 update.

The main inputs of our evaluation of the SSI consisted of:

- our own experiences with working with the SSI-2006 and SSI-2008,
- the experiences in our project "Romania, on its way to a sustainable society",
- remarks and comments from many people, both experts and laymen,
- recent developments worldwide with respect to sustainable development, particularly the necessity of a better measure of economic progress (Beyond GDP) and the focus on climate change.

3. Indicators

As outlined below, 4 indicators have been deleted from the current framework:

- Land Quality
- Waste Recycling
- Ecological Footprint
- International Cooperation

and 6 indicators have been introduced bringing the total from 22 to 24:

- Air Quality – nature
- Energy Consumption
- Material Consumption
- Organic Farming
- Genuine Savings
- Gross Domestic Product.

3.1 Data availability

We encountered serious problems with the availability of data. The main problems concern:

- Air Quality: data, retrieved until now from the Environmental Sustainability Index (ESI), will not be updated. However, the Environmental Performance Index (EPI) will probably be updated every 2 years. The EPI comprises two indicators for Air Quality: one expressing the effects on humans and one the effects on nature. We will include both in the redesigned SSI.
- Land Quality: the GLASOD data used for SSI-2006 were replaced by the improved data from the GLADA project for SSI-2008. These data are supposed to better reflect the actual situation, but are nevertheless still criticised. Since no updates can be expected soon, we have to delete Land Quality.
- Waste Recycling: the actual data from UN Habitat will not be updated and no other worldwide data are available. There is no proxy either, so we have to delete this indicator – until data become available again.
- Biodiversity: until now, we have used the National Biodiversity Index from the Convention on Biological Diversity. However, this indicator will be updated only once every ten years. So we will replace it by data about endangered species, which will be updated on a continual basis and published yearly by IUCN and data about the protected area per country, published yearly by World Database on Protected Areas (UNEP-WCMC).
- International Cooperation: Data about the signing and ratification of many international agreements are yearly updated. However, data about the implementation of the agreements are not available. That decreases the value of this indicator, which is a reason to delete it.

3.2 Overlap between indicators

The largest overlap between the indicators of the current SSI is between Emission of Greenhouse Gases and Ecological Footprint, EF. The latter is determined for over 50% by emission of greenhouse gases. The main reason to adopt EF as one of the indicators for the current SSI was that EF is – to some extent – a proxy for the level of material use and thus for the level of depletion of resources. Until now no other adequate worldwide data for material consumption are available, in spite of a lot of research in this field. Some alternatives are available, but none of them fits well. Thus we finally decided to use as a proxy, not the Ecological Footprint itself, but the Ecological Footprint minus the Carbon Footprint. That diminishes the overlap between indicators and enables to include at least a kind of measure of consumption.

3.3 Inclusion of new indicators

6 new indicators are included in the new setup of the SSI:

- *Air Quality – nature*
  The inclusion of this indicator has already been mentioned above, in paragraph 3.1.
- *Energy Consumption*
  In the new category Climate & Energy we have, beside the indicators Renewable Energy and Emission of Greenhouse Gases, introduced a third indicator: Energy Consumption, to express the increase or decrease of the level of energy consumption. Energy saving is an important issue for the near future.
- *Material Consumption*
  The inclusion of this indicator has been outlined above, in paragraph 3.2.
- *Organic Farming*
  Several indicators can be taken into account to express the transition of a country's economy to a sustainable situation. Since for Organic Farming data are available which will be updated annually, this indicator has been added to the SSI.
- *Gross Domestic Product*
  An increasing number of people is aware of the limitations of Gross Domestic Product (per capita) as an indicator to measure progress on the way towards sustainability. The Stiglitz-Sen-Fitoussi report of September 2009 emphasizes the necessity to develop a new measure for this purpose. The Index for Sustainable Economic Welfare (ISEW) and the Genuine Progress Indicator (GPI) are good candidates to replace GDP in this respect. However, until now ISEW and GPI are available for a few countries only. The Stiglitz report also suggests Household Income as an interesting indicator. Again, no data are available for this indicator for a large number of countries. And another suggestion, the use of Net Domestic Product as an indicator to measure a country's progress, also fails due to lack of available data. Therefore, we have no choice but to include GDP per capita – for the time being – as an indicator.
- *Genuine Savings*
  Other than ISEW and GPI which measure actual economic wellbeing. Genuine Savings (GS) or Adjusted Net Savings (ANS) as it is called also, measures the true rate of savings in an economy after taking into account investments in human capital, depletion of natural resources and damage caused by pollution. It is based on the notion that savings are essential for sustainability. Thus this indicator fits very well in the category Preparation for the Future.

The rationale of all 24 indicators is given in Annex D.

4. Calculation

4.1 Reliability of data

The reliability of data is a serious concern. One is inclined to assume published figures to be correct and reliable. However, this is certainly too optimistic. Particularly when producing time series one is confronted with many irregularities and impossibilities in the data. This problem will decrease over time, since the importance of sound statistical data is now generally recognized. For example, the Stiglitz report also calls for increasing efforts by countries and statistical offices.

4.2 Calculation methodology

The current SSI is built up from five categories with different numbers of indicators: one category comprises six indicators, two consist of five indicators and two of three. That results in unintended different weights when calculating the overall index (following the current calculation methodology). It would be better to have an equal number of indicators in each category. In the redesigned SSI all 8 categories comprise three indicators.

We are now in the process of receiving expert opinions with respect to the weighting of indicators, categories and wellbeing dimensions. This will result in a methodological framework to aggregate indicators into categories, then into wellbeing dimensions and finally into one overall figure for the SSI. For the time being we will attribute equal weights to all indicators, categories and wellbeing dimensions. The overall score of the SSI is calculated as the average of the scores of the 24 indicators, thus avoiding unintended influence of the unequal numbers of categories for the three wellbeing dimensions (as you will see in the next chapter).

4.3 Aggregation

Many people support the aggregation of indicators and categories into one single figure: the overall index; many others strongly object to aggregation, since it is adding up apples and oranges. Nevertheless, we will continue to aggregate all scores into one single score for the overall index, in order to show at a glance the sustainability level of a country. This is a strong communication tool to the public at large. Of course we realise the objections one may have. One of the main objections is possible trade-off between the indicators. However, since all 24 indicators, must receive a score of 10 (on a scale of 0 to 10) to achieve full sustainability, a trade-off will not be sufficient to achieve full sustainability.
For those who object to the aggregation and are only interested in the underlying figures, we present all available data. Thus the user may make its own choice: focus on the overall index or on the underlying figures, Or on both.

5. Redesign of the SSI

Having studied the main findings carefully, we have developed various alternative designs for the revised SSI. Though no framework will be perfect, we have decided on a setup, which is even more balanced and transparent than the current one:

I. Human Wellbeing, with 3 categories
Basic Needs
Personal Development
Well-balanced Society

II. Environmental Wellbeing, with 3 categories
Healthy Environment
Climate & Energy
Natural Resources

III. Economic Wellbeing, with 2 categories
Preparation for the future
Economy.

The structure of the redesigned SSI is shown in the following figure.

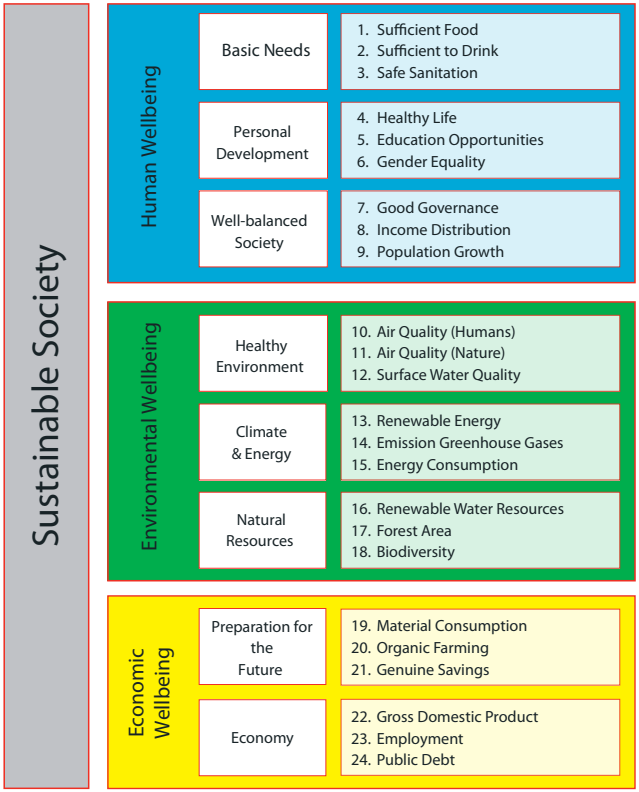


Figure 2 Structure of the redesigned SSI

The dimension Economic Wellbeing is introduced to measure

- the transition of the economy to sustainability,
- the possibility to sustain wellbeing over the years to come,
- the contribution of the economy to the actual wellbeing of a society.

It can be considered as the safeguard to wellbeing.

In order to show developments over time, the SSI-2006 and SSI-2008 have been recalculated, based on the new structure of the SSI.

Annex D - Rationale for the 24 indicators

	Indicator	Rationale
1	Sufficient Food	Condition for the development of an individual
2	Sufficient to Drink	Condition for the development of an individual
3	Safe Sanitation	Condition for the prevention and spreading of diseases that would severely hamper a person's development
4	Healthy Life	Condition for development of each individual in a healthy way
5	Education Opportunities	Condition for a full and balanced development of children
6	Gender Equality	Condition for a full and balanced development of all individuals and society at large
7	Good Governance	Condition for development of all people in freedom and harmony. within the framework of (international) rules and laws
8	Income Distribution	Fair distribution of prosperity is a condition for sustainability
9	Population Growth	Limitation of population pressure on earth is a condition for sustainability
10	Air Quality - humans	Condition for human health
11	Air Quality - nature	Condition for ecological health
12	Surface Water Quality	Condition for ecological health
13	Renewable Energy	Measure of sustainable use of renewable energy resources in order to prevent depletion of fossil resources
14	Emission of GHGs	Measure of main contribution to climate change. causing irreversible effects
15	Energy Consumption	Measure for level of energy consumption and saving to prevent emission of GHGs and depletion of fossil resources
16	Renewable Water Resources	Measure of sustainable use of renewable water resources in order to prevent depletion of resources
17	Forest Area	Preservation of forest area is a condition for sustainability
18	Biodiversity	Condition for perpetuating the function of nature. in all its aspects
19	Material Consumption	Measure of the use and depletion of material resources
20	Organic Farming	Measure for progress of transition to sustainability
21	Genuine Savings	Measure for the true rate of savings. essential for sustainability
22	Gross Domestic Product	(Inadequate) measure for (the growth of) the economy
23	Employment	Access to the labour market is a condition for wellbeing for all people
24	Public Debt	Measure of a country's ability to make independent decisions with respect to budget allocation

Annex E - Calculation and data sources

Reliability of data

The reliability of data is a serious concern. One is inclined to assume published figures to be correct and reliable. However. this is certainly way too optimistic. Particularly when producing time series one is confronted with many irregularities and impossibilities in the data. This problem will decrease over time. since the importance of sound statistical data is now generally recognized. For example. the Stiglitz report also calls for increasing efforts by countries and statistical offices.

Aggregation

Opinions concerning aggregation vary enormously. For some it is an absolute 'don't'. others simply do it. In view of the objectives of the SSI – among others to show at a glance the level of sustainability of a country – an aggregation has been made from indicators into categories and from categories into wellbeing dimensions and finally into one single figure for the SSI. We do realise the objections one may have. one of these being a possible trade-off between the indicators. However. since all 24 indicators must receive a score of 10 (on a scale of 0 to 10) to achieve full sustainability. a trade-off will not be sufficient to achieve full sustainability.
For those who object to aggregation and are only interested in the underlying figures. we present all available data. Thus the user may make its own choice: focus on the overall index or on the underlying figures. Or on both.

Calculation methodology

For lack of a scientific basis for the attribution of different weights to the indicators. every indicator has received the same weight for the aggregation into categories. The same applies for the aggregation into the three wellbeing dimensions. Since there is an inequality among the three dimensions – two comprising three categories and one comprising two categories – the overall index SSI has been calculated directly as the unweighted average of the 24 indicators.

Note that the calculation of world totals is based on the unweighted average of 151 countries. Should one use a calculation based on weighting of – for instance – population size per country. the results would be different. We have done so. The results can be found on our website www.ssfindex.com. Page SSI/Calculation Methodology.

Explanation and data source per indicator

Indicator 1 – Sufficient food
Indicator: number of undernourished people in % of total population
Source: FAO.
http://www.fao.org/economic/ess/food-security-statistics/en/
Year of data: 2005 – 2007
Target: 0% undernourished people
Formula: F(X)=(100-X)/10
Range of validity: 0≤X≤100

Indicator 2 – Sufficient to Drink
Indicator: number of people as % of the total population, with sustainable access to an improved water source.
Source: WHO - Unicef Joint Monitoring Programme.
http://www.wssinfo.org/data-estimates/introduction/
Year of data: 2008
Target: 100%
Formula: F(X)=X/10
Range of validity: 0≤X≤100

Indicator 3 – Safe Sanitation
Indicator: number of people in % of total population, with sustainable access to an improved water source
Source: WHO – Unicef Joint Monitoring Programme.
http://www.wssinfo.org/data-estimates/introduction/
Year of data: 2008
Target: 100%
Formula: F(X)=X/10
Range of validity: 0≤X≤100

Indicator 4 – Healthy Life
Indicator: Life expectancy at birth in number of healthy life years (HALE – Health Adjusted Life Expectancy)
Source: WHO and UN Population Division.
http://databank.worldbank.org/ddp/home.do
Year of data: 2008
Target: the actual maximum
Formula: F(X)=((X-20)/60)*10
Range of validity: 20≤X≤80

Indicator 5 – Education Opportunities
Indicator: combined gross enrolment ratio for primary, secondary and tertiary schools
Source: Unesco, retrieved from Human Development Report.
http://hdr.undp.org/en/reports/global/hdr2010/
Year of data: 2008 or MRYA
Target: 100%
Formula: F(X)=X/10 if 0≤X≤100
F(X)=10 if X>100

Indicator 6 – Gender Equality
Indicator: Gender Gap Index
Source: World Economic Forum.
http://www.weforum.org/reports/global-gender-gap-report-2010?fo=1
Year of data: 2009 or MRYA
Target: 1
Formula: F(X) = X*10
Range of validity: 0≤X≤1

Indicator 7 – Good Governance
Indicator: the average of values of the six Governance Indicators of the World Bank
Source: World Bank.
http://info.worldbank.org/governance/wgi/index.asp
Year of data: 2008
Target: the maximum score corresponds with 15, on the World Bank scale of -15 to +15
Formula: F(X)=((X+15)/30)*10
Range of validity: -15≤X≤+15

Indicator 8 – Income Distribution
Indicator: ratio of income of the richest 10% to the poorest 10% of the people in a country
Source: World Bank.
http://databank.worldbank.org/ddp/home.do
Year of data: 2008 or MRYA
Target: the actual maximum score, i.e. the lowest ratio
Formula: F(X)=exp(-0.1*(X-4.5))*10
Range of validity: 4.5≤X≤168

Indicator 9 – Population Growth
Indicator: average annual population growth, 2010 - 2015
Source: UN Population Division.
http://esa.un.org/unpd/wpp2008/all-wpp-indicators_components.htm
Year of data: 2008 revision
Target: the actual minimum growth
Formula: F(X)=(1-(X+1.5)/6.5)*10
Range of validity: -1.5≤X≤5

Indicator 10 – Air Quality (humans)
Indicator: Air pollution in its effects on humans
Source: Environmental Performance Index, EPI 2010.
http://epi.yale.edu/Files
Year of data: 2007 or MRYA
Target: 100
Formula: F(X)=X/10
Range of validity: 0≤X≤100

Indicator 11 – Air Quality (nature)
Indicator: Air Pollution in its effects on nature
Source: Environmental Performance Index, EPI 2010.
http://epi.yale.edu/Files
Year of data: 2006 or MRYA
Target: 100
Formula: F(X)=X/10
Range of validity: 0≤X≤100

Indicator 12 – Surface Water Quality
Indicator: surface water quality based on dissolved oxygen concentration, pH, electrical conductivity, total nitrogen, total phosphorus
Source: Environmental Performance Index, EPI 2010.
http://epi.yale.edu/Files
Year of data: 2008 or MRYA
Target: 100
Formula: F(X)=X/10
Range of validity: 0≤X≤100

Indicator 13 – Consumption of Renewable Energy
Indicator: consumption of renewable energy as % of total energy consumption
Source: IEA.
Renewables Information (2010 Edition), Table 1.
Year of data: 2008
Target: 100%
Formula: F(X)=X/10
Range of validity: 0≤X≤100

Indicator 14 – Emission of Greenhouse Gases
Indicator: CO_2 emissions per capita per year
Source: CDIAC and Millennium Indicators.
http://unstats.un.org/unsd/mdg/Data.aspx
Year of data: 2007
Target: ≤ 2 ton CO_2 per capita per year
Formula: F(X)=10-X if 0≤X≤10
F(X)=0 if X>10

Indicator 15 – Energy Consumption
Indicator: energy consumption per capita
Source: IEA.
http://databank.worldbank.org/ddp/home.do
Year of data: 2007
Target:
Formula: F(X)=(1-X/12000)*10 if X<12000
F(X)=0 if X≥12000

Indicator 16 – Use of Renewable Water Resources
Indicator: annual water withdrawals (m^3 per capita) as % of renewable water resources
Source: WRI, Aquastat.
http://earthtrends.wri.org/
Year of data: 2007 (renewable water resources), 2000 (water withdrawals)
Target:
Formula: F(X)=(100-X)/10 if 0≤X≤100
F(X)=0 if X>100

Indicator 17 – Forest Area
Indicator: change in forest area of a country in ‰ of world forest area over the period 2000 - 2010
Source: FAO.
http://earthtrends.wri.org/
Year of data: 2010
Target: 0.4‰
Formula:
F(X)=(10*X+7)^2*((-20*X+19)/11)^3*10 if -0.65≤X≤0.4
F(X)=10 if X>0.4

Indicator 18 – Biodiversity
Indicator: number of threatened species vertebrates (in % of number of species) and protected areas (in % of land area)
Source: IUCN (threatened species), UNEP-WCMC (protected areas).
http://www.iucnredlist.org/
http://www.wdpa.org/Statistics.aspx
Year of data: 2009
Target:
Threatened species:
Formula: $F(X_1)=10-0.5*X_1$ for $0\leq X_1\leq 20$
Protected areas:
Formula: $F(X_2)= 0.5*X_2$ for $0<X_2<20$
$F(X_2)=10$ for $X_2\geq 20$
Indicator:
Formula: $F(X)= (X_1+X_2)/2$

Indicator 19 – Consumption
Indicator: Ecological Footprint minus Carbon Footprint
Source: Global Footprint Network.
http://www.footprintnetwork.org/en/index.php/GFN/page/ecological_footprint_atlas_2008/
Year of data: 2007
Target: 0.9 gha (global hectares)
Formula: F(X)=10-3*X*2/1.8 if 0≤X≤3
F(X)=0 if X>3

Indicator 20 – Organic Farming
Indicator: area for organic farming in % of total agricultural area of a country
Source: FiBL.
http://www.organic-world.net/statistics-2008.html
Year of data: 2008
Target: 20%
Formula: F(X)=0.5*X
Range of validity: 0≤X≤20

Indicator 21 – Genuine Savings
Indicator: Genuine Savings (Adjusted Net Savings) as % of Gross National Income (GNI)
Source: World Bank.
http://databank.worldbank.org/ddp/home.do
Year of data: 2008
Target:
Formula: F(X)=10*arctan(0.2*X)/π +5
Range of validity: -∞<X<+∞

Indicator 22 – Gross Domestic Product
Indicator: GDP per capita,PPP, current international dollars
Source: IMF.
http://www.economywatch.com/economic-statistics/economic-indicators/GDP_Per_Capita_PPP_US_Dollars/
Year of data: 2009
Formula: 10*(1.01-exp(-0.00007*X))
Range of validity: X>0

Indicator 23 – Employment
Indicator: unemployment as % of total labour force
Source: CIA World Factbook, ILO and World Bank.
http://www.economywatch.com/economic-statistics/economic-indicators/Unemployment_Rate_Percentage_of_Labour_Force/
Year of data: 2009 (1999-2009)
Target:
Formula: F(X)=exp(-0.1*X)*10
Range of validity: X≥0

Indicator 24 – Public Debt
Indicator: the level of public debt of a country as % of GDP
Source: CIA World Factbook.
https://www.cia.gov/library/publications/the-world-factbook/fields/2186.html?countryName=&countryCode=&regionCode=¤
Year of data: 2009
Target:
Formula: F(X)=exp(-0.009*X)*10
Range of validity: X≥0

Annex F - Abbreviations

ANS	Adjusted Net Savings
CDIAC	Carbon Dioxide Information Analysis Center
CIA	Central Intelligence Agency
EF	Ecological Footprint
EPI	Environmental Performance Index
ESI	Environmental Sustainability Index
EU	European Union
FAO	Food and Agriculture Organisation
FiBL	Forschungsinstitut für biologischen Landbau
GDI	Gender related Development Index
GDP	Gross Domestic Product
Gha	Global hectares
GHG	Greenhouse Gases
GLASOD	Global Assessment of Human-induced Soil Degradation
GNI	Gross National Income
GPI	Genuine Progress Indicator
GS	Genuine Savings
HALE	Health Adjusted Life Expectancy
HDR	Human Development Report
IEA	International Energy Agency
ILO	International Labour Organisation
IMF	International Monetary Fund
ISEW	Index for Sustainable Economic Welfare
IUCN	International Union for Conservation of Nature
MDG	Millennium Development Goals
MRYA	Most recent year available
NGO	Non-Governmental Organisation
NOAA	National Oceanic and Atmospheric Administration
OECD	Organisation for Economic Cooperation and Development
RCW	Renewable combustibles and waste
SSF	Sustainable Society Foundation
SSI	Sustainable Society Index
TPES	Total Primary Energy Supply
UN	United Nations
UNEP	United Nations Environmental Program

Unesco	United Nations Educational. Scientific and Cultural Organisation
UNICEF	United Nations International Children's Emergency Fund
WCED	World Commission on Environment and Development
WCMC	World Conservation Monitoring Centre
WDPA	World Database on Protected Areas
WHO	World Health Organisation
WRI	World Resources Institute
WWF	World Wildlife Fund / World Wild Fund for Nature

Goals that are not measurable are unlikely to be achieved. We invest in what we measure, and over time, we become what we reward. Without a valid and reliable assessment methodology, we run the risk of achieving unintended and unanticipated results, and of wasting much of our investment in the future.

Hales and Prescott-Allen
(in Global Environmental Governance)

The decisions we make depend on what we measure, how good our measurements are and how well our measures are understood. We are almost blind when the metrics on which action is based are ill-designed or when they are not well understood. For many purposes, we need better metrics.

Stiglitz-Sen-Fitoussi report
September 2009

www.ssfindex.com