

# THE CLIMATE CHANGE PERFORMANCE INDEX

A COMPARISON OF EMISSIONS TRENDS AND CLIMATE PROTECTION POLICIES OF THE TOP 56 CO<sub>2</sub> EMITTING NATIONS

Embargoed until 7 December 2007, 3:00 a.m. GMT

CLIMATE CHANGE  
PERFORMANCE  
**index**  
2008

GERMANWATCH



Germanwatch  
Bonn Office  
Dr. Werner-Schuster-Haus  
Kaiserstraße 201  
D-53113 Bonn  
Phone: +49 (0) 228 - 60492-0  
E-Mail: [info@germanwatch.org](mailto:info@germanwatch.org)

Germanwatch  
Berlin Office  
Voßstraße 1  
D-10117 Berlin  
Phone: +49 (0) 30 - 28 88 356-0  
E-Mail: [info@germanwatch.org](mailto:info@germanwatch.org)

[www.germanwatch.org](http://www.germanwatch.org)

Authors: Jan Burck, Christoph Bals,  
Marisa Beck and Elisabeth Rütthlein

Editing: Gerold Kier

Design:  
ART:BÜRO Dietmar Putscher, Cologne  
[www.dietmar-putscher.de](http://www.dietmar-putscher.de)

Printed on 100% recycled paper

December 2007

Purchase Order Number: 08-2-01e  
ISBN: 978-3-939846-20-8

This publication can be downloaded at:  
[www.germanwatch.org/ccpi.htm](http://www.germanwatch.org/ccpi.htm)

With financial support from the German  
Federal Ministry for Economic Cooperation  
and Development

## CONTENTS



Introduction: Which Country Does How Much to Protect the Climate?	4
<b>Overall Results of the Climate Change Performance Index</b>	<b>4</b>
-----	
1. What Is the Purpose of the CCPI?	8
-----	
2. How Does the Climate Change Performance Index Work?	8
2.1 Emissions Trend	10
2.2 Emissions Level	11
2.3 Climate Policy	13
-----	
3. Country Comparison: China - India	14
-----	
4. Climate Change Performance Index by Country Group	16
-----	
5. Development and Application of the CCPI	17
-----	
6. Annex: Calculation Method	18
-----	
7. Additional Literature and Data Sources	19
-----	



INTRODUCTION:

## WHICH COUNTRY DOES HOW MUCH TO PROTECT THE CLIMATE?

The **Climate Change Performance Index (CCPI)** is an innovative instrument that enhances transparency in international climate politics. On the basis of standardised criteria the index evaluates and compares the climate protection performances of the 56 countries that, together, are responsible for more than 90 percent of global energy-related CO<sub>2</sub> emissions.<sup>1</sup>

The objective of the index is to increase the political and societal pressure on those countries which up to now have failed to take initiatives in climate

protection and which still neglect the importance of the issue.

The **overall results** (table 1) clearly show which countries have to go the longest way in order to catch up. But even countries which are ranking high have no reason to sit back and relax. On the contrary, the results illustrate that even if all countries engaged in the same manner, current efforts would still be insufficient to prevent dangerous climate change. If climate change protection was an Olympic discipline, no country

Table 1:

### Overall Results Climate Change Performance Index 2008

CCPI Rank	Country	Score*	Partial Score		
			Trend	Level	Policy
1	Sweden	65.6			
2	Germany	64.5			
3	Iceland	62.6			
4	Mexico	62.5			
5	India	62.4			
6	Hungary	61.0			
7	United Kingdom	59.2			
8	Brazil	59.0			
9	Switzerland	59.0			
10	Argentina	58.5			
11	Latvia	58.1			
12	Belgium	57.9			
13	Portugal	57.9			
14	Malta	57.8			
15	Indonesia	57.6			
16	Norway	57.6			
17	Denmark	57.3			
18	France	56.8			
19	Slovak Republic	56.5			

\* rounded © Germanwatch 2007

CCPI Rank	Country	Score*	Partial Score		
			Trend	Level	Policy
20	Lithuania	55.9			
21	Turkey	55.7			
22	Bulgaria	55.5			
23	Morocco	54.8			
24	Slovenia	54.2			
25	Czech Republic	51.9			
26	Thailand	51.7			
27	Romania	51.5			
28	Algeria	50.5			
29	Spain	50.1			
30	Netherlands	50.1			
31	New Zealand	50.0			
32	Croatia	49.7			
33	South Africa	49.5			
34	Iran	49.4			
35	Estonia	49.2			
36	Finland	49.1			
37	Austria	48.7			
38	Belarus	47.8			

\* rounded © Germanwatch 2007

<sup>1</sup> Included are industrialised countries and countries in transition to market economies (Annex I countries of the Framework Convention on Climate Change) and all coun-

tries that cause more than one percent of the global CO<sub>2</sub> emissions.

would deserve to climb the winner’s victory podium. Moreover, some of them benefit from specific external circumstances that can be considered fortunate from a climate change perspective.

For example, **emissions reductions** in some countries have mainly been caused by the breakdown of ailing industries after the collapse of the USSR or the replacement of inefficient coal industries. And in some cases, as with front-runner Sweden, a country’s energy supply mix is affected by its advantaged initial position for the use of renewable energies.

In order to moderate the impact of these aspects on the index score, the CCPI takes a country’s changes in actual emissions – the emissions trend – with a weighting of 50 percent and its climate policy with a weighting of 20 percent into account. Thereby, the index also reflects developments in domestic climate policy. Governments that rest on their laurels will have to face a drop in their position in next year’s country ranking!

Moreover, a country’s current positive ranking in the CCPI could not be maintained if the government decided to increase the use of coal due to rising gas and oil prices and concerns about energy safety. A strategy of this kind represents a step back from sustainable climate policy and shows its negative effects on a country’s index score. Despite the significance of the emissions trend for the evaluation, the absolute level of emissions must not be neglected. A country’s total energy-related CO<sub>2</sub> emissions reflect the starting point for emissions reductions. Thus, the index recognises that countries with initially low emissions levels should not be punished for having less capability for further reductions.

Particularly alarming is the poor performance of most of the ten largest CO<sub>2</sub> emitters (table 2). These countries account for more than 60 percent of global CO<sub>2</sub> emissions. Their future willingness and ability to pursue a sustainable climate policy will therefore be an important requirement to avoid a highly dangerous level of climate change.

CCPI Rank	Country	Score*	Partial Score		
			Trend	Level	Policy
39	Poland	47.2			
40	China	47.0			
41	Italy	47.0			
42	Japan	46.9			
43	Greece	46.8			
44	Ireland	46.4			
45	Cyprus	46.0			
46	Singapore	45.4			
47	Ukraine	44.7			
48	Kazakhstan	44.6			
49	Malaysia	44.2			
50	Russia	43.9			
51	Korea, Rep.	41.3			
52	Luxembourg	39.2			
53	Canada	37.6			
54	Australia	35.5			
55	USA	33.4			
56	Saudi Arabia	30.0			

\* rounded

© Germanwatch 2007



Table 2:  
**Index ranking of the 10 largest CO<sub>2</sub> emitters**

Country	Share of Global CO <sub>2</sub> Emissions*	CCPI Rank 2008 (2007)**	
Germany	3.00 %	2	(4)
India	4.23 %	5	(9)
United Kingdom	1.95 %	7	(4)
China	18.80 %	40	(44)
Italy	1.67 %	41	(35)
Japan	4.47 %	42	(39)
Russia	5.69 %	50	(42)
Korea, Rep.	1.65 %	51	(48)
Canada	2.02 %	53	(51)
USA	21.44 %	55	(53)

© Germanwatch 2007

\* energy related

\*\* calculated with the most recent method

Figure 1

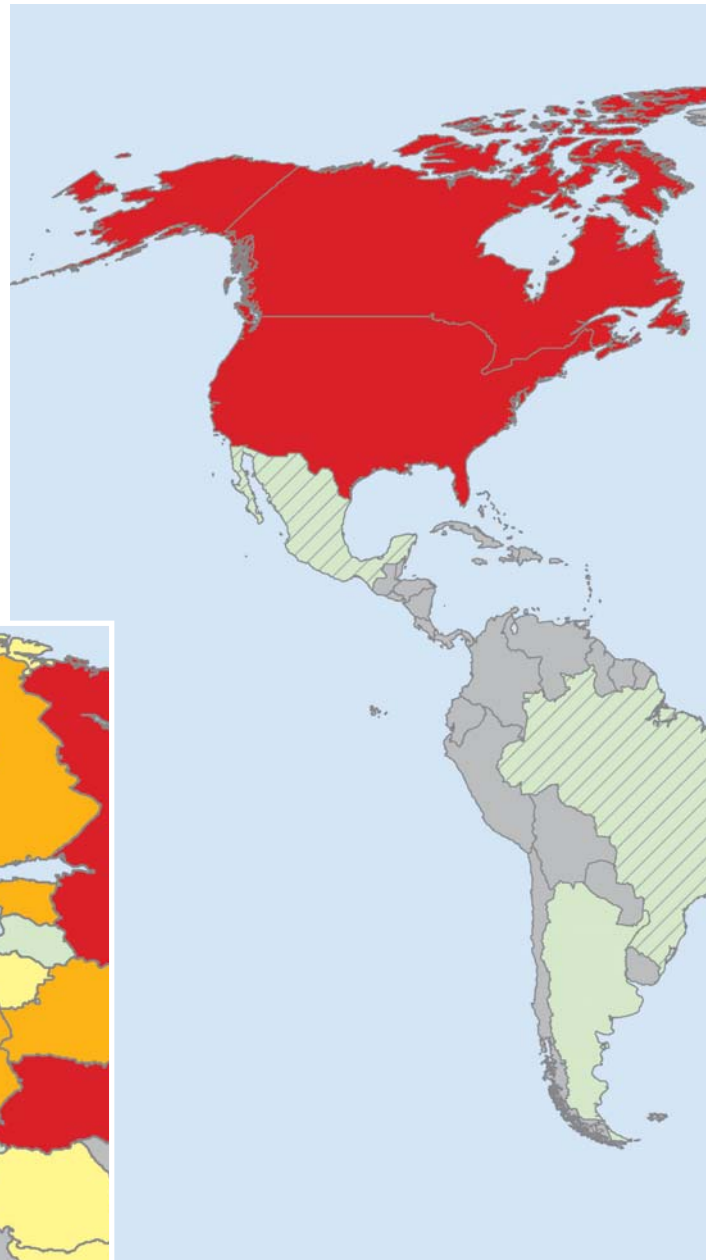
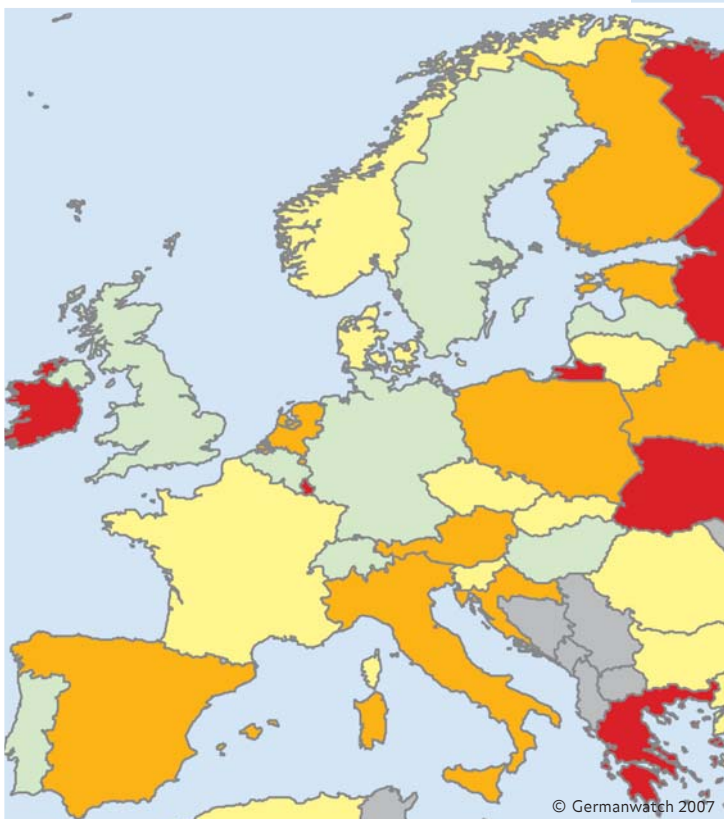
## World map: Climate Change Performance Index 2008

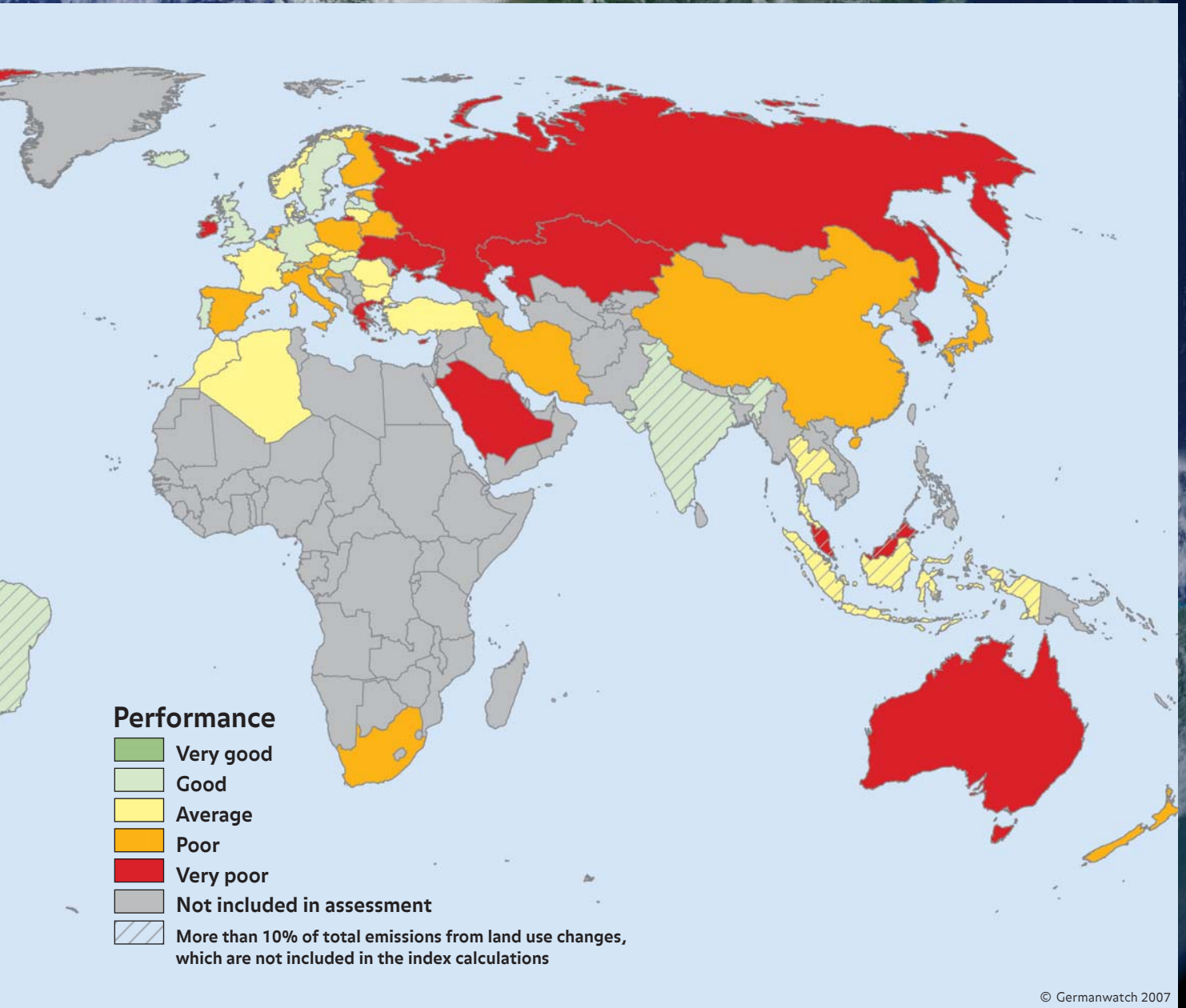
The world map shows that the countries at the forefront of climate protection are still mainly located in Europe, although by now also emerging nations such as Mexico, Brazil and India belong to the leading group of countries. However, not even these countries deserve the classification "Very Good", since their current level of performance would not ensure the prevention of dangerous climate change, even if it was adopted by the remaining part of the world.

The Index only takes energy-related emissions into account. Thus, all countries with an emission share from land-use change higher than 10% (hatched countries in the map) have a special responsibility to additionally reduce their emissions in this sector. Especially Brazil (share of 80%) and Indonesia (share of 45%) have to be supported in their efforts.

The map clearly shows that in large parts of the world, including e.g. Australia, Canada, the U.S.A. and Russia, appropriate climate protection has not been exercised yet. Particularly Australia's climate policy has more and more deviated from the necessary reduction targets as stated in the UN Framework Convention on Climate Change after

the last eleven years of John Howard's presidency. Australia increased its energy related emissions by 42 percent between 1990 and 2005. The country will only upgrade its position in the index if the newly elected president Kevin Rudd will keep his promises and realise a serious climate protection agenda.





## 1. WHAT IS THE PURPOSE OF THE CCPI?

According to Article 2 of the UN Convention on Climate Change, all of the countries considered in the CCPI are obliged to prevent highly dangerous climate change. This goal should be achieved in compliance with the principle of common but differentiated responsibilities of industrialised and developing countries. The two-degree limit for global warming<sup>2</sup> is of particular importance in this context, since it was adopted by the EU as a quantitative target for its climate change policy on the basis of several scientific studies. If the increase of average global temperature stays below this limit, the danger of uncontrollable major risks will be significantly reduced<sup>3</sup>. The German Advisory Council on Global Change (WBGU) therefore recommends that international climate policy must be targeted on ensuring a maximum CO<sub>2</sub> equivalence level of 450 ppm (parts per million) in the atmosphere in order to avoid exceeding the

two-degree limit<sup>4</sup>. This implies that by the middle of this century, CO<sub>2</sub> emissions must be reduced worldwide by 45 to 60 percent and in industrialised countries by 80 percent as compared to the levels of 1990.

The Climate Change Performance Index annually compares how far different countries have come on their way to this "Olympic Goal".

The trend in greenhouse gas emissions as well as the climate policy of the countries can be analysed and compared to each other at a glance.

The CCPI enhances transparency and we are glad to see that it applies pressure on governments and gives them an incentive to get active in the combat against dangerous climate change.



## 2. HOW DOES THE CCPI WORK?

**The CCPI contains three partial ratings that are added up to form a differentiated picture of the climate change performance of the evaluated countries.**

■ First, it rates the per-capita emissions trend of the previous years. The emissions are measured in four economic sectors<sup>5</sup>: energy, transport, residential and industry. Each sector is examined individually.

*The evaluation of emissions trends provides 50 percent of a country's final rating.*

■ Second, it shows the absolute, energy-related CO<sub>2</sub> emissions of a country<sup>6</sup> taking its particular situation into account.

*A country's current emissions level is given a 30 percent weight in the overall evaluation.*

■ Third, it evaluates a country's domestic as well as international climate policy.

*National and international climate policies account for 10 percent each of a country's total CCPI score.*

<sup>2</sup> As compared to pre-industrial levels.

<sup>3</sup> Already today a temperature increase of 0.75 degrees is observable (IPCC, 2007a).

<sup>4</sup> For comparison: In 1900, the CO<sub>2</sub> equivalent level in the atmosphere was equal to 280 ppm, in 2005 it was 379 ppm (IPCC, 2007a).

<sup>5</sup> Sectors according to the IPCC Guidelines for National Greenhouse Gas Inventories.

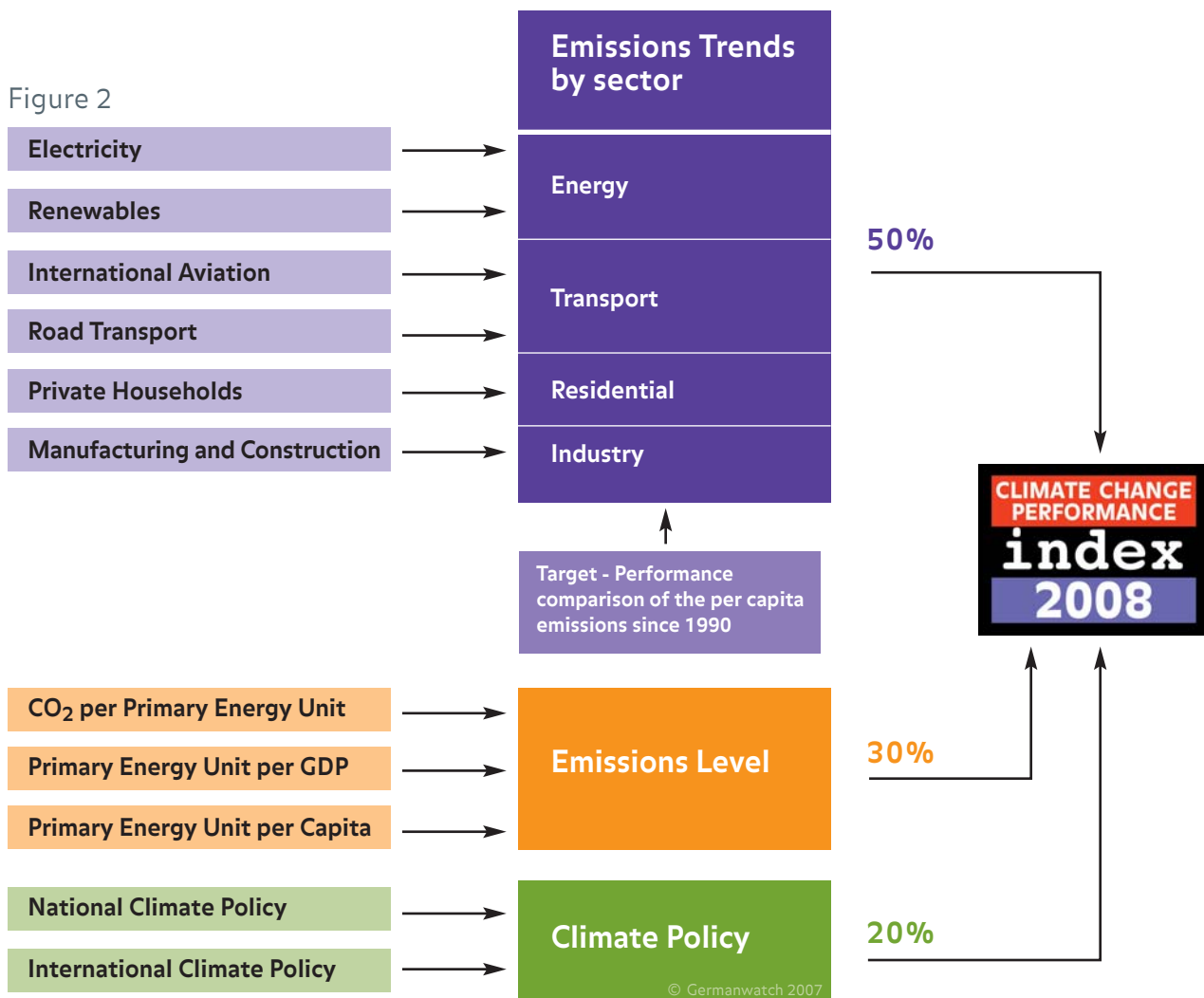
<sup>6</sup> The influence of deforestation on CO<sub>2</sub> emissions could not be taken into account due to the uncertain data base.

Since emissions trend and climate policies determine 70 percent of the final evaluation, a dedicated climate protection policy over a couple of years can lead a country to the top flight of the ranking. However, a high position can only be achieved if the present level of emissions is rather low. After all, the current state accounts for almost one third of the total score, which prevents countries with very high emissions levels from being rated too positively.

If, on the other hand, the current state was given more weight, there would hardly be any changes in the country ranking over the course of one or two years, since absolute emissions adjust slowly. Additionally, it would take years until a country with an unfortunate starting position benefits from its committed climate policies in the CCPI ranking.

The data used in the CCPI are provided by the International Energy Agency (IEA), and they allow for a thorough comparison between countries. They are complemented by a qualitative assessment of national and international climate policies for each country which is based on interviews with worldwide experts on climate change. In preparation for the CCPI 2008, 63 experts reviewed their government policies regarding climate protection. The NGO representatives commented on the central measures that are taken to reduce emissions within the sectors energy, transportation, residential and industry. A progressive climate policy therefore directly affects a country's rating, while the actual impacts on emissions trends often only become visible after a few years. The individual indicators which are included in the calculation of the CCPI are described in detail on the following pages.

Figure 2



## 2.1 Emissions trend (50%)

Effective political or economic measures that aim at reducing CO<sub>2</sub> emissions ultimately have an impact on the sectors they are targeting. Hence, the CCPI quantifies the development of the trend of CO<sub>2</sub> emissions in the energy, transport, residential and industrial sectors. More precisely, this development is measured through a comparison of the average emissions between the periods 1998-2000 and 2003-2005.<sup>7</sup>

For calculating CO<sub>2</sub> emissions in the individual sectors, the following indicators are used.

### ■ Energy:

Emissions resulting from electricity generation are evaluated in this sector. Since nuclear power is a risky energy source<sup>8</sup>, nuclear energy is evaluated with CO<sub>2</sub> risk equivalent per energy unit. These equivalents match the CO<sub>2</sub> emissions of an efficient coal-fired power plant. This is to avert a positive effect from the construction of new nuclear power plants in upcoming CCPI editions. Furthermore, a country that abandons nuclear energy only receives a good

rating if it substitutes its nuclear energy with low-CO<sub>2</sub> alternatives. Because of its essential importance for sustainable emissions reduction, the share of renewable energies is considered separately.

### ■ Transport:

Here, the CO<sub>2</sub> emissions from road traffic and – according to the climate impact<sup>9</sup> – international aviation are included.

### ■ Residential:

In this sector, the energy used for the heating of buildings is considered. It therefore reflects, among others, the emissions that are caused by heating and hot water supply of private households (if not electrically operated).

### ■ Industry:

Here, the CO<sub>2</sub> emissions from the manufacturing and construction industries are included.

## Weighting the Trend Indicators

The trend indicators account for 50 percent of the CCPI score. This indicator category is divided into two sets: First the raw data of the actual trend, which accounts for 35 percentage points, and second the comparison between a target trend and the actual trend, which accounts for 15 percentage points. The "target-performance comparison" recognises the fact that the analysed countries have different climate protection responsibilities depending on their state of development (see UN Convention on Climate Change, Article 2).

The individual sectors' shares in the assessment of the actual trend are determined by their relevance for climate change. For example, the electricity sector causes about 40 percent of energy-related global CO<sub>2</sub> emissions. The transport and the industry sector account for 25 percent each and the residential sector for 10 percent. These contributions of different sectors to total global CO<sub>2</sub> emissions are reflected in the weighting scheme of the trend indicators (see figure 4 on the following page).

The "target-performance comparison" is used to adjust the assessment of the actual trend. It compares the trend of actual per-capita CO<sub>2</sub> emissions between 1990 and 2005 with the "desired" target trend for the same period. This desired target

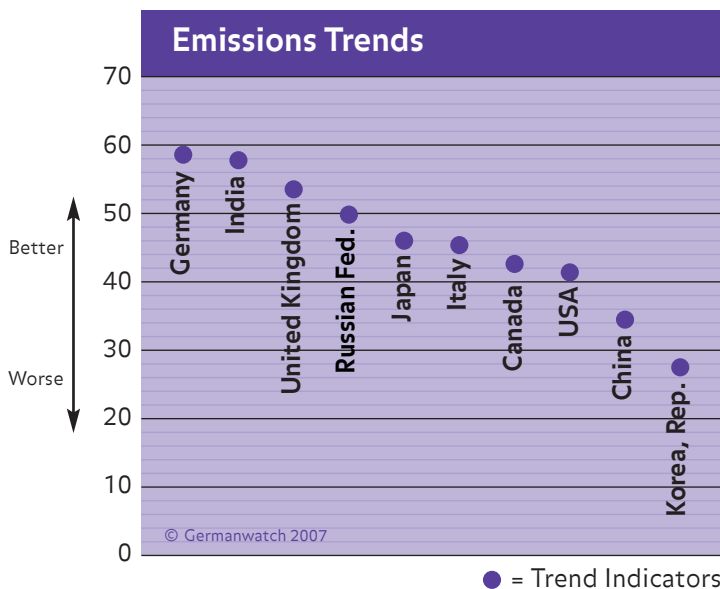


Figure 3

The figure shows the sectoral per-capita emissions trends of the ten largest CO<sub>2</sub> emitters. The comparison between target and actual performance is included (see "Weighting of trend indicators"). India has the second best rank, primarily because its emissions increased less than the allotted target, even though it experienced a strong population growth.

<sup>7</sup> Calculating with periods has the advantage that extreme values are averaged.

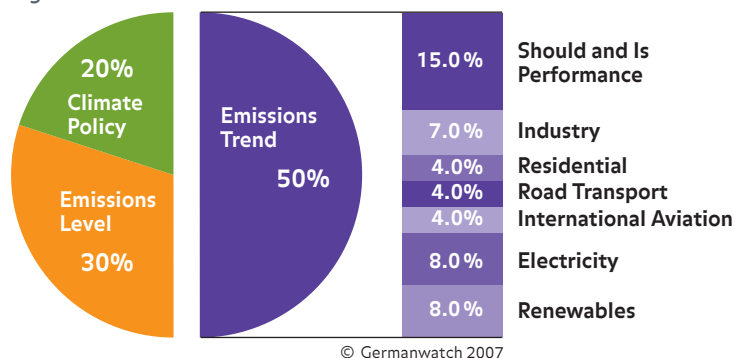
<sup>8</sup> Hohmeyer (1989).

<sup>9</sup> The additional impacts of air traffic on the atmosphere (e.g. through condensation trails) are taken into consideration in the evaluation.

trend was calculated with the approach "common but differentiated convergence"<sup>10</sup>. It is based on the principle of "common convergence", assuming all countries' per capita emissions converge in the long run, but "differentiated". "Differentiated" means that developing countries would commit to the same target as developed countries but at some later point in time and conditional the developed country emission trajectory. Combining this approach with a scenario<sup>11</sup> (450 ppm CO<sub>2</sub> equivalence until 2050) that leads to a 50 percent chance to stay below 2 °C global warming, generates the desired per-capita emissions for the most recent year (2005) considered for every country.

As suggested by the WGBU<sup>12</sup>, the development path towards the 2 °C limit is calculated according to the principle of common but differentiated responsibilities. Per-capita emissions of all countries gradually have to converge until the year 2050, hence industrialised countries need to reduce their CO<sub>2</sub> emissions twice as fast as the rapidly developing countries.

Figure 4



In other words:

**By making a target-performance comparison, the CCPI grants temporary emission allowances to fast developing countries without losing sight of the ultimate objective to reduce CO<sub>2</sub> emissions. Furthermore, it particularly rewards those countries that have reduced their emissions according to or even beyond their Kyoto commitments since 1990.**

## 2.2 Emissions Levels (30%)

The following table displays the share of the ten largest CO<sub>2</sub> emitters in terms of global CO<sub>2</sub> emissions, gross domestic product (GDP), energy

consumption and population, and their rank in the CCPI.

Table 3: Key Data for the 10 Largest CO<sub>2</sub> Emitters

Country	CCPI Rank 2008	CCPI Rank (2007)*	Share of Global CO <sub>2</sub> Emissions**	Share of Global Primary Energy Supply	Share of Global GDP	Share of Global Population
Germany	2	(4)	3.00%	3.02%	3.97%	1.28%
India	5	(9)	4.23%	4.70%	6.16%	17.02%
United Kingdom	7	(4)	1.95%	2.05%	3.11%	0.94%
China	40	(44)	18.80%	15.18%	14.75%	20.39%
Italy	41	(35)	1.67%	1.62%	2.79%	0.91%
Japan	42	(39)	4.47%	4.64%	6.36%	1.99%
Russian Fed.	50	(42)	5.69%	5.66%	2.53%	2.23%
Korea, Rep.	51	(48)	1.65%	1.87%	1.75%	0.75%
Canada	53	(51)	2.02%	2.38%	1.81%	0.50%
USA	55	(53)	21.44%	20.47%	20.13%	4.61%
Total			64.92%	63.97%	63.36%	50.62%

\*calculated with the most recent method

\*\*energy related

© Germanwatch 2007

<sup>10</sup> Höhne et al. 2005.

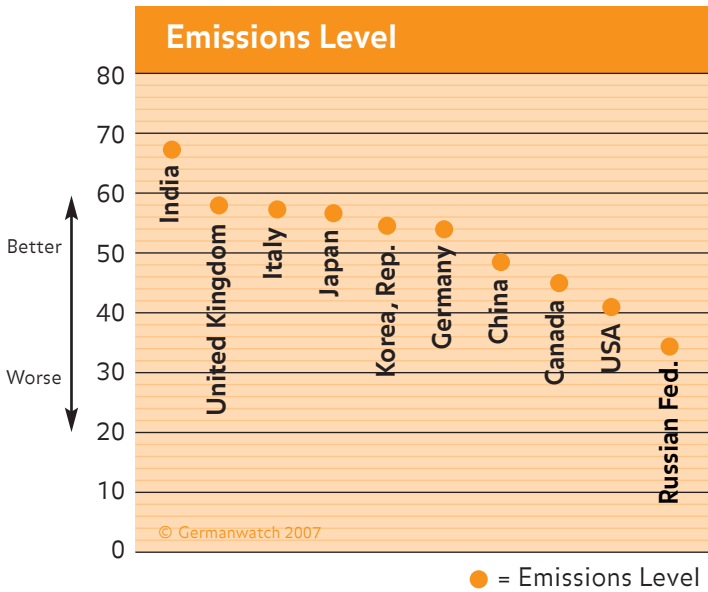
<sup>11</sup> Meinshausen 2005.

<sup>12</sup> WBGU 2003b.

The following indicators of emissions levels refer to these key data.

A country's CO<sub>2</sub> emissions are seen in relation to these factors. Moreover, the energy efficiency of a country is assessed, resulting in the following three emissions level indicators:

- CO<sub>2</sub> emissions per primary energy unit
- Primary energy consumption per unit of GDP
- Primary energy consumption per capita



**Figure 5**  
The illustration above shows how the ten largest CO<sub>2</sub> emitters rank with regard to their emissions levels. India ranks at the top while Russia brings up the rear in this assessment.

**Weighting the Emissions Level**

The emissions levels indicators account for 30 percent of the total CCPI score. The pie chart below shows how they are considered in the overall assessment.

The selection and weighting of the three indicators ensures that none of the four components in this calculation are considered double.

**Figure 6**

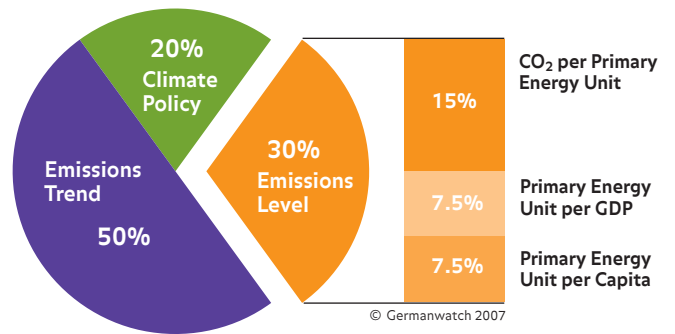


Photo: Dietmar Putscher

## 2.3 Climate policy (20%)

These indicators consider the fact that measures taken for CO<sub>2</sub> reduction often need several years to show their full effect. Furthermore, the most current CO<sub>2</sub> emissions data are about two years old since it takes time to attain a thorough collection of information. However, the assessment of climate politics includes very recent developments. It is thereby avoided that new governments which induce a change in climate policy benefit or suffer from the consequences of the precedent administration.

A comprehensive annual research study which is mainly based on an assessment by the country experts provides an up-to-date evaluation of national climate policy for each country with regard to the different sectors energy, industry, transport and residential. By taking a country's current climate policy into account, the CCPI rewards political measures that entail emissions reductions immediately. Both the evaluation of a country's domestic efforts and its role played in international climate negotiations influence the final ranking. Without a strong, internationally coordinated climate policy, chances are low that ambitious climate protection targets will be achieved.

### Weighting Climate Policy

The climate policy of the evaluated countries accounts for 20 percent of the CCPI score. Here national and international activities are weighted with 10 percent respectively. At first glance, this does not seem to be very much. Nevertheless, this partial rating may significantly influence a country's final result. While emissions levels can only be lowered step by step – thus an improvement of the balance takes some time – switching to a responsible climate policy can improve the overall evaluation much faster. For example, the United States' blocking of climate policy lowers its ranking position significantly so that they are ranked last on position 56. Germany, on the other hand, has been playing a strong role in climate protection for years, and its evaluation benefits from these constant efforts. Especially mentioned from the experts, was the outstanding engagement for more climate protection while Germany's EU-Presidency in 2007. If the U.S. government actually took a leading role in global climate politics as claimed by President Bush, the country could im-

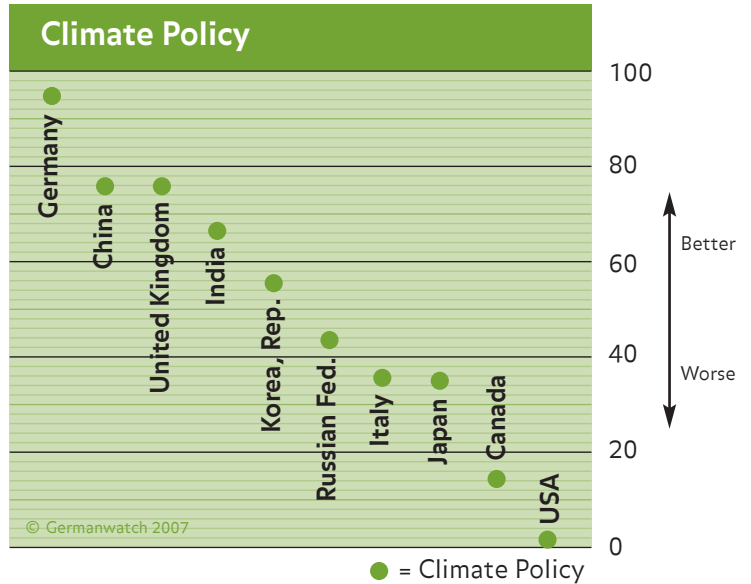
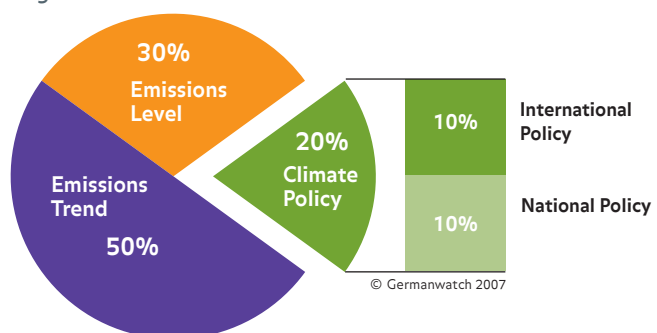


Figure 7  
The figure shows how differently experts rated the national and international climate policy of the ten largest CO<sub>2</sub> emitters. China's relatively good result is remarkable. It can be explained by its recently strong domestic and international engagement for renewable energy, the new climate protection regulations in the transport sector and its nowadays relatively constructive role in the UN climate negotiations.

prove by up to 20 positions. Moreover, this partial rating is crucial for a country's ranking in upcoming editions of the CCPI because only an active climate policy today enables the realization of a lower level of CO<sub>2</sub> emissions in the future and thereby the creation of a positive trend. The effectiveness of a climate policy must be measured by its ability to affect emissions trends.

Figure 8



### 3. COUNTRY COMPARISON: INDIA – CHINA

The proceeding industrialisation and the rapid economic growth in China and to a lower extent in India, substantially affect the development of CO<sub>2</sub> emissions in case that the growth is supplied with energy from fossil fuel combustion. In both countries, energy generation through fossil fuel combustion has strongly increased along with economic growth, particularly regarding the use of coal. It is expected that coal-fired power plants will continue to supply the growing energy demand in future years. In fact, the two countries together account for 72 percent of the anticipated increase in the global demand for coal over the time period from 2004 to 2030.<sup>13</sup>

Coal is the most CO<sub>2</sub>-intense fossil fuel, and the projected rise of its share in the global energy mix (without CO<sub>2</sub> capture and storage)<sup>14</sup> therefore reflects a dangerous setback regarding global climate protection. Even more if coal is not burned as efficient as possible.

However, the per capita emissions in both countries are below the world average<sup>15</sup> and in the case of India much lower.

The development of effective climate policies in emerging countries is of particular importance,

since their state of industrialisation is characterised by significant investment decisions which, for example, determine energy supply over a long period of time.

That is why the examination of the positions of emerging economies in the ranking and their contributions to the dynamics of international climate politics are of particular interest. The constructive cooperation of industrialised and newly industrialising countries is a necessary requirement for the realisation of an effective global climate protection strategy.

The CCPI recognises the special economic situation of newly industrialising countries by adjusting the development paths that are considered in the target-performance comparison, which is part of the evaluation of emissions trends. India, for example, as one of the top five countries benefits from the fact that its strong population growth has not been accompanied by a proportionally strong rise in emissions. This circumstance positively affects per-capita emissions trends. The observed increase of emissions turned out lower than anticipated in the target scenario. Per capita emissions in China are three times higher than in India but do not yet exceed the "accepted level".

Table 4: China in the CCPI 2008

Indicator			Score*	Rank (1-56)	Weight	Rank
<b>Emissions Levels</b>		CO <sub>2</sub> per Primary Energy Unit	13.2	50	15.0%	<b>41</b>
		Primary Energy per GDP Unit	74.0	35	7.5%	
		Primary Energy per Capita	93.1	7	7.5%	
<b>Sectoral Emissions Trends</b>	Energy	Electricity	23.2	55	8.0%	<b>53</b>
		Renewables	13.4	30	8.0%	
	Transport	International Aviation	31.5	50	4.0%	
		Road Traffic	11.4	50	4.0%	
	Residential	Private Households	51.9	38	4.0%	
	Industry	Manufacturing and Construction	34.5	52	7.0%	
Target Performance Comparison since 1990			55.6	20	15.0%	
<b>Climate Policy</b>		International	66.7	18	10%	<b>7</b>
		National	85.1	8	10%	
<b>Total</b>			<b>47.0</b>		<b>100%</b>	<b>40</b>

\*Minimum: 0, maximum: 100

© Germanwatch 2007

<sup>13</sup> Energy Information Administration (2007).

<sup>14</sup> It is becoming clear that the 450 ppm limit cannot be maintained without this technology and its specific risks.

<sup>15</sup> World average is 4.22 t, India has 1.05 t, China 3.89 t CO<sub>2</sub> and the USA 20 t energy related emissions per capita.

Emerging countries can significantly improve their index score through positive domestic impulses and constructive contributions to international climate policies.

The exemplary calculation shows that the CCPI provides a differentiated analysis in each of the three evaluation categories even for the difficult position of emerging nations.

Generally, it is important that the final result of the CCPI is calculated based on the average score, not the average rank. The ranking only illustrates the ordinal hierarchy of the countries' performances; it does not reveal information about how strongly performances differ between two countries. This can only be obtained from the actual scores. Consequently, the ranks regarding particular indicators may vary quite significantly from the final result. Examples for single results that have a major impact are the low primary energy consumption of India and the comparatively posi-

tive rating of China's policy. The also positive rating of China's primary energy consumption per capita is compensated by their high CO<sub>2</sub> emissions per primary energy unit.

India's ranking position benefits from different indicators. Especially the target-performance comparison and the primary energy use per capita in India are outstanding.

China's weaker position in the Index is due to the poor performance in nearly all trend indicators. China's emissions growth between 1998 and 2005 was about 60 percent.<sup>16</sup> However, the "Should-Is-Indicator" shows that China did not exceed its per-capita emissions allowance yet.

The relatively good grades for the national and international policy for China give hope that the Chinese delegation will engage constructively in the negotiations at Bali and reach its ambitious targets by increasing its energy efficiency.

Table 5: India in the CCPI 2008

Indicator			Score*	Rank (1-56)	Weight	Rank
<b>Emissions Levels</b>		CO <sub>2</sub> per Primary Energy Unit	42.2	17	15.0%	<b>8</b>
		Primary Energy per GDP Unit	84.8	19	7.5%	
		Primary Energy per Capita	99.4	2	7.5%	
<b>Sectoral Emissions Trends</b>	Energy	Electricity	55.1	42	8.0%	<b>4</b>
		Renewables	12.2	34	8.0%	
	Transport	International Aviation	55.2	39	4.0%	
		Road Traffic	66.1	12	4.0%	
	Residential	Private Households	56.1	30	4.0%	
Industry	Manufacturing and Construction	67.7	24	7.0%		
Target Performance Comparison since 1990			78.4	4	15.0%	
<b>Climate Policy</b>		International	47.7	41	10%	<b>14</b>
		National	85.1	8	10%	
<b>Total</b>			62.4		<b>100%</b>	<b>5</b>

\*Minimum: 0, maximum: 100

© Germanwatch 2007

<sup>16</sup> In the same time India raised its emissions about 32%.

## 4. CLIMATE CHANGE PERFORMANCE INDEX BY COUNTRY GROUP

The following tables show countries categorised by groups which permit a comparison of emitters with more or less similar basic conditions.

Table 6: Climate Change Performance Index for OECD Member Countries

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
1	Sweden	65.6	17	Denmark	57.3	39	Poland	47.2
2	Germany	64.5	18	France	56.8	41	Italy	47.0
3	Iceland	62.6	19	Slovak Republic	56.5	42	Japan	46.9
4	Mexico	62.5	21	Turkey	55.7	43	Greece	46.8
6	Hungary	61.0	25	Czech Republic	51.9	44	Ireland	46.4
7	United Kingdom	59.2	29	Spain	50.1	51	Korea, Rep.	41.3
9	Switzerland	59.0	30	Netherlands	50.1	52	Luxembourg	39.2
12	Belgium	57.9	31	New Zealand	50.0	53	Canada	37.6
13	Portugal	57.9	36	Finland	49.1	54	Australia	35.5
16	Norway	57.6	37	Austria	48.7	55	USA	33.4

© Germanwatch 2007

Members of the Kyoto Protocol    Without Kyoto Commitment    Refused to Ratify the Kyoto Protocol

Table 7: Climate Change Performance Index for EU Member Countries

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
1	Sweden	65.6	18	France	56.8	35	Estonia	49.2
2	Germany	64.5	19	Slovak Republic	56.5	36	Finland	49.1
6	Hungary	61.0	20	Lithuania	55.9	37	Austria	48.7
7	United Kingdom	59.2	22	Bulgaria	55.5	39	Poland	47.2
11	Latvia	58.1	24	Slovenia	54.2	41	Italy	47.0
12	Belgium	57.9	25	Czech Republic	51.9	43	Greece	46.8
13	Portugal	57.9	27	Romania	51.5	44	Ireland	46.4
14	Malta	57.8	29	Spain	50.1	45	Cyprus	46.0
17	Denmark	57.3	30	Netherlands	50.1	52	Luxembourg	39.2

© Germanwatch 2007

Table 8: Climate Change Performance Index for Countries in Transition

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
6	Hungary	61.0	24	Slovenia	54.2	38	Belarus	47.8
11	Latvia	58.1	25	Czech Republic	51.9	39	Poland	47.2
19	Slovak Republic	56.5	27	Romania	51.5	47	Ukraine	44.7
20	Lithuania	55.9	32	Croatia	49.7	48	Kazakhstan	44.6
22	Bulgaria	55.5	35	Estonia	49.2	50	Russia	43.9

© Germanwatch 2007

Table 9: Climate Change Performance Index for Newly Industrialising Countries

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
4	Mexico	62.5	23	Morocco	54.8	40	China	47.0
5	India	62.4	26	Thailand	51.7	46	Singapore	45.4
8	Braszil	59.0	28	Algeria	50.5	49	Malaysia	44.2
10	Argentina	58.5	33	South Africa	49.5			
15	Indonesia	57.6	34	Iran	49.4			

© Germanwatch 2007

Table 10: Climate Change Performance Index for ASEAN Member Countries plus India, China, Japan and Korea, Republic

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
5	India	62.4	40	China	47.0	49	Malaysia	44.2
15	Indonesia	57.6	42	Japan	46.9	51	Korea, Rep.	41.3
26	Thailand	51.7	46	Singapore	45.4			

© Germanwatch 2007

## 5. DEVELOPMENT AND APPLICATION OF THE CCPI

The Climate Change Performance Index (CCPI) was introduced to a professional audience for the first time at the 11th global climate summit in Montreal 2005 (COP11 of the United Nations Framework Convention on Climate Change). The feedback received from the international experts was included in the final version. The growing importance of the index was obvious in the following year at the COP 12 in Nairobi when journalists from around 70 countries reported on the presentation of its second edition. On the occasion of the G8 summit in Heiligendamm a special edition of the index was published including an updated assessment of the 13 participating countries.<sup>15</sup>

**The CCPI, however, is not intended to be used only by experts, but by everybody. It helps to shed light on the shared responsibilities, kept and broken promises, and encouraging first steps towards effective international climate politics.**

Since 2006, Germanwatch has been cooperating with the rating agency oekom research. They use the CCPI analysis for their sustainable country ranking. We hope that the CCPI provides an incentive to significantly intensify climate protection efforts. We will continue to present the index every year at the UN climate summit.

We would be pleased to give you more detailed information about the possibilities with regard to a specific analysis for a particular country. Moreover, you are welcome to sign up to our mailing list which provides information on further developments of the CCPI.

If you are interested, please call **+49-228-60492-21** or send an e-mail to **burck@germanwatch.org**.

<sup>15</sup> The G8+5 Climate Change Performance Index can be downloaded from: <http://www.germanwatch.org/klima/g8ksi07.pdf>.

## 6. ANNEX: CALCULATION METHOD

The CCPI calculation method is based on an OECD guidance for creating performance indicators.<sup>16</sup> For the standardisation of the partial indicators, the method "distance from the best and worst performers" was used;

$$\text{Score} = 100 \left( \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}} \right)$$

where the positioning is in relation to the global maximum and minimum and the index takes values between 0 (laggard) and 100 (leader). This method of normalisation is often used by rating agencies in the finance sector.

The following formula was used for calculating the final result of the CCPI:

$$I = \sum_{i=1}^n w_i X_i \quad \mathbf{I}: \text{CCPI}, \mathbf{X}_i: \text{normalised variable}$$

$w_i$ : weight of the  $X_i$ ,  $\sum_{i=1}^n w_i = 1$  and  $0 \leq w_i \leq 1$ ,  
 $i: 1, \dots, n$ .



## 7. ADDITIONAL LITERATURE AND DATA SOURCES



- Baumert, K.A., Herzog, T. & Pershing, J. (2005): Navigating the Numbers, World Resources Institute. [http://pdf.wri.org/navigating\\_numbers.pdf](http://pdf.wri.org/navigating_numbers.pdf)
- BMU (2007): Renewable Energy Sources in Numbers – national and international development. Only available in German. <http://www.bmu.de/allgemein/doc/2720.php>
- Energy Information Administration (2007): International Energy Outlook 2007. [http://www.eia.doe.gov/oiaf/ieo/pdf/0484\(2007\).pdf](http://www.eia.doe.gov/oiaf/ieo/pdf/0484(2007).pdf)
- Freudenberg (2003): Composite Indicators of Country Performance: A Critical Assessment. STI Working Paper 2003/16. Paris.
- Hohmeyer, O. (1989): Soziale Kosten des Energieverbrauchs: externe Effekte des Elektrizitätsverbrauchs in der Bundesrepublik Deutschland. Springer, Berlin/Heidelberg.
- IEA (2007a): CO<sub>2</sub> Emissions from Fuel Combustion. Paris.
- IEA (2007b): Renewables Information. Paris.
- IPCC (1997): Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. <http://www.ipcc-nggip.iges.or.jp/public/public.htm>
- IPCC (2007a): Climate Change 2007: The Physical Science Basis. Summary for Policymakers. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. <http://www.ipcc.ch>
- IPCC (2007b): Climate Change 2007: Mitigation of Climate Change. Summary for Policymakers. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. <http://www.ipcc.ch>
- Höhne; Phylipsen; Ullrich; Blok. (2005): Options for the second commitment period of the Kyoto Protocol. Climate Change. Nr. 02/2005. Umweltbundesamt. <http://www.umweltdaten.de/publikationen/fpdf-l/2847.pdf>
- Meinshausen (2005): On the risk of overshooting 2°C. Paper presented at Scientific Symposium "Avoiding Dangerous Climate Change", MetOffice, Exeter, 1-3 February 2005. [http://www.pik-potsdam.de/~mmalte/simcap/publications/meinshausenm\\_risk\\_of\\_overshooting\\_final\\_webversion.pdf](http://www.pik-potsdam.de/~mmalte/simcap/publications/meinshausenm_risk_of_overshooting_final_webversion.pdf)
- Schellnhuber, H. J. (Hrsg.) (2006): Avoiding Dangerous Climate Change. Cambridge University Press, Cambridge. <http://www.pik-potsdam.de/members/cramer/pdfs/avoidingdangerousclimatechange.pdf/view>
- WBGU (2003a): World in Transition – towards sustainable Energy Systems. Flagship Report. [http://www.wbgu.de/wbgu\\_jg2003\\_engl.html](http://www.wbgu.de/wbgu_jg2003_engl.html)
- WBGU (2003b): Climate Protection Strategies for the 21st Century. Kyoto and Beyond, Special Report, Berlin. [http://www.wbgu.de/wbgu\\_sn2003\\_engl.html](http://www.wbgu.de/wbgu_sn2003_engl.html)
- Stern, N. (2006): Stern Review on the economics of climate change. UK Treasury. [http://www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/stern\\_review\\_report.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm)
- WMO (2007): WMO statement on the status of the global climate in 2006. [http://www.wmo.int/pages/publications/showcase/documents/WMO\\_1016\\_E.pdf](http://www.wmo.int/pages/publications/showcase/documents/WMO_1016_E.pdf)
- WRI (2005a): CAIT: Greenhouse Gas Sources & Methods. <http://cait.wri.org>
- WRI (2005b): CAIT: Indicator Framework Paper. <http://cait.wri.org>

## GERMANWATCH

---

We are an independent, non-profit and non-governmental North-South Initiative. Since 1991, we have been active on the German, European and international level concerning issues such as trade, environment and North-South relations. Complex problems require innovative solutions. Germanwatch prepares the ground for necessary policy changes in the North which preserve the interests of people in the South. On a regular basis, we present significant information to decision-makers and supporters. Most of the funding for Germanwatch comes from donations, membership fees and project grants.

### Our central goals are:

- Effective and fair instruments as well as economic incentives for climate protection
- Ecologically and socially sound investments
- Compliance of multinational companies with social and ecological standards
- Fair world trade and fair chances for developing countries by cutting back dumping and subsidies in world trade.

You can also help to achieve these goals and become a member of Germanwatch or support us with your donation:

Bank für Sozialwirtschaft AG  
BIC/Swift: BFSWDE31BER  
IBAN: DE33 1002 0500 0003 212300

For further information, please contact one of our offices:

### Germanwatch - Bonn Office

Dr. Werner-Schuster-Haus  
Kaiserstr. 201  
D-53113 Bonn  
Ph.: +49 (0)228 / 60492-0  
Fax: +49 (0)228 / 60492-19

### Germanwatch - Berlin Office

Vossstr. 1  
D-10117 Berlin  
Ph.: +49 (0)30 / 288 8356-0  
Fax: +49 (0)30 / 288 8356-1

E-mail: [info@germanwatch.org](mailto:info@germanwatch.org)  
or visit our website:  
[www.germanwatch.org](http://www.germanwatch.org)

