



Climate Change
Performance
Index

Results 2017

Jan Burck, Franziska Marten, Christoph Bals



Imprint

Germanwatch - Bonn Office

Kaiserstraße 201
D-53113 Bonn, Germany
Ph.: +49 (0) 228 - 60492-0
Fax: +49 (0) 228 - 60492-19

Germanwatch - Berlin Office

Stresemannstraße 72
D-10963 Berlin, Germany
Ph.: +49 (0) 30 - 28 88 356-0
Fax: +49 (0) 30 - 28 88 356-1

E-mail: info@germanwatch.org
www.germanwatch.org



Authors: Jan Burck, Franziska Marten,
Christoph Bals, Andrea Dertinger, Thea Uhlich

Editing: Birgit Kolboske, Lindy Divarci,
Gerold Kier, Daniela Baum

Maps: Laura Krings and Tina Gotthardt/
Benjamin Hennig (Worldmapper Ltd.)

Design: Dietmar Putscher

Printed on 100% recycled paper

November 2016

Purchase Order Number: 17-2-03e

ISBN 978-3-943704-50-1

This publication can be downloaded at:
www.germanwatch.org/en/ccpi

With financial support from
the Barthel Foundation



CAN

Climate Action Network Europe
Rue d'Edimbourg 26
B-1050 Brussels, Belgium

Ph.: +32 (0) 28 94 46 70
E-mail: info@caneurope.org
www.caneurope.org



Contents

Foreword	3
1. Key Country Results	4
2. Key Developments: The Global Energy Revolution has Started. Countries Must Speed Up their Action.	7
3. About the CCPI	9
3.1 Changes Since the Last Edition	9
Global Developments of Absolute Energy-Related CO₂ Emissions and Renewable Energy	11
4. Overall Results • CCPI 2017	12
4.1 CCPI World Map 2017	14
4.2 Partial Results • Emissions Level	16
4.3 Partial Results • Development of Emissions	18
4.4 Partial Results • Renewable Energies	20
4.5 Partial Results • Efficiency	22
4.6 Partial Results • Climate Policy	24
5. Country Example: Morocco	26
6. Country Group Performances – The EU	28
7. Country Group Results	32
8. Sources and Further Reading Recommendations	35

Foreword

Dear Reader,

Recognizing the urgency to take immediate action in protecting the global climate, the 21st Conference of the Parties, held in December 2015 in Paris, made a groundbreaking achievement in adopting the goal to limit global warming to “well below” 2°C and to pursue efforts to limit warming to a 1.5°C. Under the Paris Agreement, climate action was anchored in the context of international law. This requires countries to make their own unique contribution to the prevention of dangerous climate change. The next crucial step to follow this agreement is the rapid implementation by the signing parties of concrete measures to make their individual contributions to the global goal. For the past 12 years, the Climate Change Performance Index (CCPI) has been keeping track of countries’ efforts in combating climate change. The varying initial positions, interests and strategies of the numerous countries make it difficult to distinguish their strengths and weaknesses and the CCPI has been an important tool in contributing to a clearer understanding of national and international climate policy.

To demonstrate existing measures more accurately and to encourage steps toward effective climate policy, the CCPI methodology was evaluated in 2012 and continues to be im-

proved. The integration of emissions data from deforestation and forest degradation was one of the major steps in this process, made possible due to the data provided by the FAO Global Forest Resource Assessment 2015. Deforestation and forest degradation are another important source of anthropogenic CO₂ alongside energy-based emissions. By including these emissions in the data, we are able to present a more comprehensive view of man-made impacts on the world’s climate.

The following publication is issued by Germanwatch and Climate Action Network Europe. However, only with the help of around 280 energy and climate experts from all over the world are we able to include a review of each country’s national and international policies. The review charts the efforts that have been made to avoid climate change, and also evaluates the various countries’ current efforts regarding the implementation of the Paris Agreement, starting from this year. We greatly appreciate these experts for their time, efforts and knowledge in contributing to this publication. The experts are mainly representatives of NGOs who work within their respective countries, fighting for the implementation of the climate policy that we all so desperately need.



Wendel Trio
(Director of CAN Europe)



Klaus Milke
(Chairman of the Board, Germanwatch)

1. Key Country Results

After a historic success in agreeing on a new international climate treaty in 2015 in Paris, the success of the Paris Agreement must now be measured by the implementation of mitigation targets on a national level. As in all past editions of the CCPI, the places 1 to 3 remain unoccupied because even after the Paris Agreement came into force, no country has yet done enough to prevent the dangerous impacts of climate change. The following overview highlights the performance of 22 selected countries (with current rankings in colored and last year's rankings in grey boxes) and for the EU. The results for all 58 countries can be found in chapter 4.

France 4 8

The host of last year's UN climate summit has made its way to the top of the CCPI 2017. The top three countries on the list are very close to each other without great disparities in their overall score, yet France managed to increase its rating with slight improvements in both emissions categories and the policy section. The exceptional diplomatic success that facilitated the new international climate treaty was acknowledged by national climate experts and rewarded with a good performance in the international policy ranking. At national level, experts criticize the rather unambitious climate policies: fossil fuel subsidies amount to 13 billion € each year and the development of renewable energies is falling behind the trajectory of achieving the 2020 objective.

Sweden 5 6

Sweden moved up to the fifth place in this year's CCPI ranking. The country profits from a relatively low emissions level and a low carbon intensity of the energy supply. Whilst having promoted investments in renewable energy in the past, the country's positive development in this sector has slowed down in recent years. According to national climate experts, Sweden's goal of achieving 100 percent renewable electricity by 2040 is widely supported by the Swedish parliament; yet its implementation still remains unclear due to the country's lack of a sufficient policy framework.

UK 6 5

The United Kingdom dropped to rank six in this year's CCPI and lost some ground in its overall score. Like Sweden and some other European countries, the UK's relatively high score stems from a lag effect: excepting a bold promise to phase out coal power and a commitment to offshore wind, for which the UK deserves credit, policy from 5 to 10 years ago is responsible for low carbon investment and the UK's falling emissions. Experts agree that future carbon reductions are at real risk: the government has failed to deliver a policy framework for renewables from 2017 onward so that the UK Treasury expects investment in renewables to

fall 96% by 2020. The continuation of several other important policies, including the carbon floor price and zero carbon homes, also seems to be at risk. If no significant policy changes are forthcoming next year, we can expect the UK's downward trajectory in the CCPI to accelerate.

Morocco 8 10

Morocco continues its upward trend from the last years securing rank 8 in the CCPI 2017 and thus its position in the top ten. The host country of this year's UN climate summit COP22 is profiting from a low emissions level and a good climate policy evaluation. Experts appreciate the country's massive development plans for renewable energy, but also alert to the fact that at the same time Morocco continues to assess the possibilities of exploiting domestic oil shales as well as nuclear energy. Making use of its enormous potential for solar and wind energy could allow Morocco to stabilise its rising CO₂ emissions over the next years. The CCPI 2017 dedicates its "Country Example" to the host of COP22 (see page 26).

Denmark 13 4

After leading the CCPI ranking for five consecutive years, Denmark had to surrender its position and dropped significantly to rank 13. When it comes to emissions development, renewable energy and energy efficiency the country still performs within the top group, reflecting the results of progressive climate policies in the past. The driving factor for Denmark's setback is its policy rating. The country suffered major losses in this area relegating it to the bottom group in the policy category. Country experts criticized that the new government no longer actively supports many of the country's former targets. This affects, for example, the planned phase-out of coal by 2030, the 100 percent renewables target for the electricity and heat sector by 2035 and the 40 percent greenhouse gas reduction by 2020. Furthermore, the government tries to pull out of already agreed offshore wind turbine constructions as well as investments in railway electrification supporting highway construction instead. By doing so, the current government sets out to curtail existing agreements to reduce emissions.

India 20 23

Although, India belongs to the ten largest CO₂ emitting countries, per capita emissions are still relatively low, resulting in a good performance in this category. Nevertheless, emissions are rapidly increasing. 25 percent of the growing energy supply is covered by renewables, but there still is room for improvements. National experts value that the Indian government runs one of the largest renewable capacity expansion programmes in the world, which leads to a good policy performance for the country.

Ireland 21 12

With an unchangingly poor policy ranking and growing emission levels, induced by a post-crisis regeneration of its economy, Ireland fell back to rank 21. Moreover the country deteriorated in the energy efficiency sector, where it is now situated in the middle field. When it comes to renewable energy, Ireland's performance still ranks it in the upper group due to a relatively good development path in this sector.

Indonesia 22 19

Indonesia lost three places dropping to rank 22, but still remains in the group of moderate performers. Except for the field of climate policy Indonesia slightly worsened in every category of the CCPI. According to national experts, the Indonesian government is well engaged in international climate diplomacy, and experts predict that the country has the national potential for a 2°C compatible development. To reach this goal Indonesia would have to improve in particular its forest protection policies, given that it has the highest deforestation-related emissions of all countries in the ranking.

Mexico 28 26

Mexico remains in the group of moderate performers. Compared to last year, there have been very few changes in any category. The country performs relatively well at the emissions level but still has a very poor performance in renewable energy; it is one of only two countries with a negative trend in this category. If Mexico pursues recent announcements for a massive expansion in wind and solar energy, this will be reflected in the next CCPI editions.

Germany 29 27

Germany continued its downward trend in this year's CCPI. Although the country remains in the group of relatively good performers with respect to renewable energies (rank 18), Germany is not on track to reach its 2020 emissions reduction targets. Experts criticise Germany's current domestic negotiations on its long-term climate strategy, which is supposed to lay the foundation for the implementation of Germany's part of the Paris goals. According to the experts, the negotiations have been dominated and continuously delayed by the self-serving interests of the coal industry and some of the other energy-intensive industries. To climb up the ranking in the coming years, Germany will have to increase its ambition on sectoral targets for emissions reduction and come forward with an adequate plan to phase out coal.

Poland 35 34

After climbing up the ranking in last year's edition, Poland slightly lost ground and finds itself on rank 35. Although the country is a relatively poor performer in the overall ranking, its position regarding renewable energy is still good (rank

11). Yet experts criticize the new parliament for slowing down the national renewable action plan. Another point of (their) criticism is the lack of proactive Polish climate policies, manifested in only carrying out EU regulations. Without any additional ambitious climate policies in place, it will be hard for Poland to reduce its relatively high emissions level and climb up the ranking in the coming years.

Argentina 36 49

Argentina climbs up 13 places thus leaving behind the groups of very poor performers, now joining the category of poor performers. Mainly responsible for this improvement is the progress the country has made in the renewable energy sector. Yet due to the latest change in government, national experts consider Argentina's future development as uncertain.

Brazil 40 42

Though climbing up two ranks Brazil still remains in the middle of the poor performing group. It made its largest improvements in the efficiency category, and managed to improve its policy rating. Brazilian experts credited the country for being the only major developing country that included absolute emissions reduction goals in its Nationally Determined Contribution. Regarding emissions, however, the Brazil remains at the bottom of the poor performing group, and moreover loses ground in the renewable energy section of the CCPI ranking.

USA 43 35

The United States lost some ground in almost every index category, landing on rank 43. Although it is the world's second largest emitter, CO₂ per capita emissions have been falling since the economic recession in 2007 but have experienced a slight upturn in 2014. As national experts assert, much more needs to be done to shift the country's emission curve downward. In particular, the limitation of currently rising methane emissions, which are due to a shift from coal to shale gas extraction, would constitute an important step toward this goal. National experts have a differing opinion on their country's performance in international policy contexts. While most of them stress that under the Obama administration, the US played a key leadership role in reaching global climate agreements, coming forward with bilateral announcements with decisive partners such as China, India, Mexico and Brazil, some experts criticised their country for hindering ambition on loss and damage within the Paris Agreement. With the results of the presidential elections of November 8, the future of recent progress in US climate policy is in real danger of regression.

Ukraine 45 46

Ukraine climbed one place to rank 45. Besides this slight improvement in the overall ranking, the country lost ground

in the renewables category and dropped six places to rank 55 into the group of very poor performing countries. National experts criticize that the key actors in combating climate change and supporting renewable energy are biased by vested interests. Yet it was conceded that the Paris Agreement made some impact on the government, and that the country managed to decrease residential energy use by decreasing subsidies for heat, gas and electricity.

China

48 48

China is the world's largest CO₂ emitter and responsible for a share of 28 percent of global energy-related CO₂. After escaping the group of very poor performers in the last year, there is no change in China's ranking in the CCPI 2017; the country remains on rank 48 among the poor performers. China's positive trend in the development of renewable energy—which according to national energy experts is in line with the goal of a 20 per cent share of its primary energy supply from renewable sources—is reflected by an improvement of four places in this category. National experts are positive about the possibility of CO₂ emissions peaking before 2030, that is, earlier as planned.

Turkey

51 51

There is no change in Turkey's ranking, which remains at 51 in the group of very poor performing countries. Turkey finds itself on the very bottom of the CCPI's climate policy ranking. The country still has a relatively low emissions level compared to the large emitters but its emissions are increasing at a very fast pace. Despite some positive developments and great potential in the field of renewable energies, Turkey has been building a large number of new coal-fired power plants. National experts criticise that the funding of most projects aiming at climate protection comes from international institutions rather than national budgets.

Russia

53 53

Russia remains on rank 53 and did not manage to escape the group of very poor performers by continuing its slight upward trend from last year. A high emissions level and a deteriorating emissions trend prevent Russia from improving its ranking. Russia is one of altogether only three countries in the CCPI that is reducing its renewable energy supply primarily due to less electricity production from large hydro power stations. Although Russia has dropped one place in the policy section of the ranking, national experts praise its comparatively progressive and constructive role within the G20.

Canada

55 56

Without significant movements in either direction, Canada remains in the bottom group of most CCPI categories. The only sector where the country ranks in the middle field is the emissions development but even there it lost some ground,

still struggling with the consequences of the sluggishness of its former government. With the new government in place, Canada achieved sizeable gains in the policy rating, climbing twenty-four places to rank 24. National experts expect a series of policy announcements at national level in the coming months, and subsequently the situation to improve. Though federal coordinated efforts still remain scarce due to Canada's high degree of decentralization, existing provincial measures make quite an important contribution to the country's move into the right direction.

Australia

57 57

Australia maintained its ranking in the CCPI, which is at 57 in the group of very poor performing countries. As in the year before the country slightly improved in the categories emission development and renewable energy but dropped, however, in energy efficiency. In the policy ranking Australia climbed two places. Experts pointed out that a wide gap existed between the country's national and federal policies: while the former were rather unambitious and uninspired; the latter managed to some extent to take independent action.

Japan

60 58

Japan once again dropped two places and finds itself in the next to last position of the CCPI. However, in the renewable energy section the country showed an upward trend, thus securing a moderate ranking by climbing up 12 places to rank 35. Despite this improvement national experts criticize their government for reactivating nuclear energy as more or less only alternative to fossil fuels, instead of sufficiently promoting renewable energy. Japan's performance in national as well as international climate policy remains very poor.

Saudi Arabia

61 61

No improvement for Saudi Arabia in the overall ranking of the CCPI: the country remains at the bottom of the ranking. Due to its relatively constructive performance at COP21 in Paris, Saudi Arabia received a slightly improved rating for not blocking the new international climate treaty. At national level, the country has a high potential for renewable energy, which could secure its energy safety in the future. By starting to exploit this potential instead of relying on its oil reserves, the country could improve its CCPI score in editions to come.

EU

While many EU countries still show a good performance in the CCPI, national experts from several member states are concerned that the Union is giving up its leadership role in international climate protection. The EU as such as well as many of its member states are currently failing to deliver on their mitigation targets as well as in ambition—and subsequent action—to stay “well below” the limit of 2°C or even 1.5°C warming agreed upon in Paris last year. The CCPI 2017

takes a closer look at the performance of EU countries in its chapter six “Country Group Performances” (see page 28 ff).

Paris Ratification

The threshold number of countries needed to ratify the Paris Agreement was achieved on October 5, 2016. The following CCPI countries helped bring the Paris Agreement into force (as of November 9, 2016): Algeria, Argentina, Australia, Austria, Belarus, Brazil, Canada, China, Denmark, Estonia, France,

Germany, Greece, Hungary, Iceland, India, Indonesia, Ireland, Italy, Japan, Korea, Luxembourg, Malta, Mexico, Morocco, New Zealand, Norway, Poland, Portugal, Saudi Arabia, Singapore, Slovak Republic, South Africa, Sweden, Thailand, Ukraine and USA. Some important CCPI countries have not yet ratified the Agreement: Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Egypt, Finland, Iran, Kazakhstan, Latvia, Lithuania, Malaysia, Netherlands, Romania, Russia, Slovenia, Spain, Switzerland, Turkey and United Kingdom. Some of the listed countries have signalled their intent to ratify the Paris Agreement by the end of 2016.

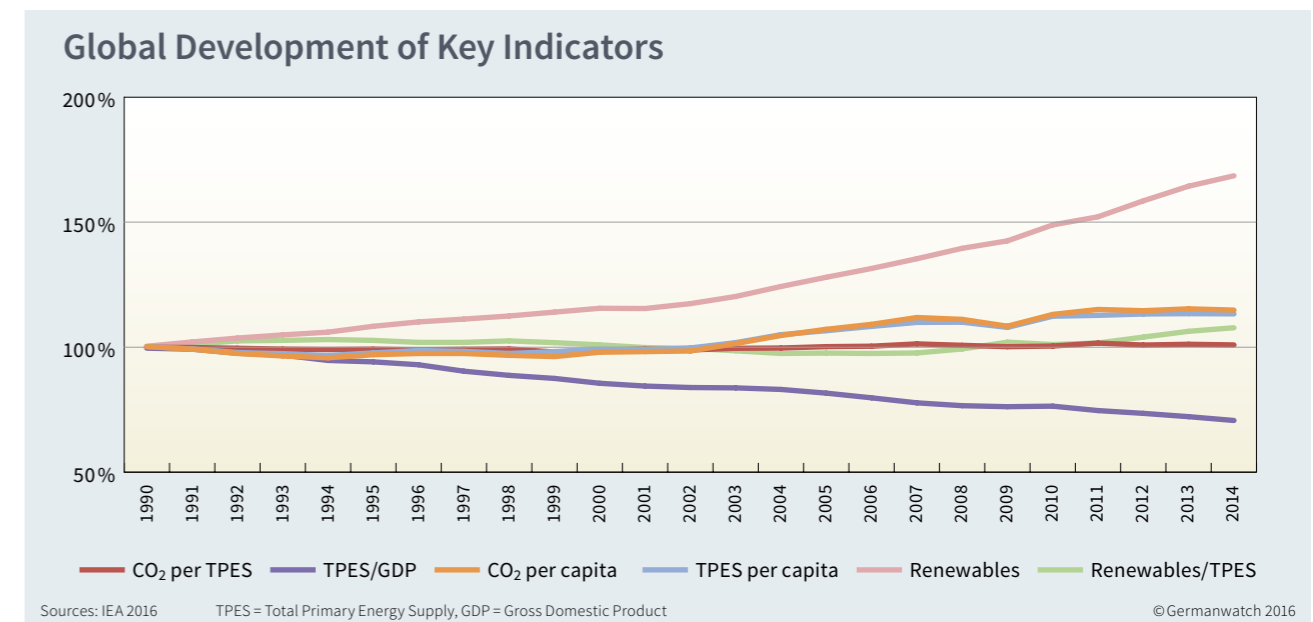
2. Key Developments: The Global Energy Revolution has Started. Countries Must Speed Up their Action.

The Paris Agreement constitutes a milestone in international climate policy and sets the frame for scaling up ambition for climate protection. As one of the key targets, world governments have decided to limit global warming to “well below” 2°C, or even 1.5°C. International law now requires countries to deliver on their targets and implement policies to reach them. At the same time, national and cooperative activities are expected to fill the gap between the Paris temperature limit and existing national targets.

Although some EU countries are still ranked high in the index, they find themselves standing at a crossroads. Often profiting from older policies set out when the EU was leading climate protection efforts, they have partly failed to meet their targets and are about to fail in scaling up ambition to

a level necessary to meet their responsibilities. Some developing countries like Morocco, India and South Africa are starting to catch up and are already making great efforts in the fields of renewables and energy efficiency. All countries are now expected to put forward national emissions reduction plans, and the G20 countries have to take a leading role in doing so by 2018.

As an instrument for measuring the individual efforts of countries in combating climate change, the CCPI 2017 shows only a slight further increase in global energy-related CO₂ emissions. Compared to 2013, emission growth has slowed significantly in 2014. The latest data from 2015 even indicates a near halt in emissions increase.¹



¹ BP, 2016

While the energy intensity of the global economy continues to fall, which means a steady decoupling of energy supply from the GDP, the carbon intensity of energy supply still shows a flat curve (see figure on p. 7). To start a decarbonisation trend on a global level, we would have to see a decline in both indicators. In some important countries, a slow decarbonisation of the energy sector can be observed, which sends a strong signal of hope: In China, the carbon intensity of energy supply seems to have reached a peak and we now see a downward trend; a downward trend can also be observed in Russia, Korea, the US, the EU as a whole, and especially in Italy, Germany, the UK and to some extent also in France.

For a stable decarbonisation of the global energy sector, two components play a crucial role: **A shift from fossil fuels to renewable energy** and an **increase in energy efficiency**. In both of these areas, positive developments can already be observed.

Promising signs for a global energy transition:

1. Renewable energy taking the lead in investments

In the transition from a fossil fuel based energy supply to renewable energy, the CCPI has documented promising tendencies in the past, and signals continue to be positive. Almost all index countries maintain double-digit growth rates and only three countries show a slightly negative tendency.² The International Energy Agency (IEA) documented a “historical turning point”: In recent years, investments in renewable energies have already surpassed investments in fossil fuels. For the first time, we now see more newly installed capacity in renewables than in all fossils combined. Due to the fluctuation of wind and solar energy, this development does not yet indicate a greater addition of “new renewable” electricity than fossil electricity, but this turning point could also be reached in the foreseeable future.

The IEA further documented a geographical shift in the promotion of a global energy transition from industrialised to emerging economies, where around 60% of the newly installed capacity has been set up. This development is beginning to be reflected in the index results: While some of the biggest winners in this year’s ranking are emerging economies, in particular some European countries and the USA are losing ground.

2. Oil consumption about to peak

Many observers were surprised to note that the simultaneous drop in oil prices and the success story of renewables did not lead to an increase in the demand for oil. The so-called green paradox, which assumes that clean energy leads to a decrease in oil prices and thus to an increasing demand for oil, does not seem to have materialized in the

energy market. The rapid decrease in renewable energy costs and low interest rates—both very relevant factors for capital-intensive renewable energy investment—are among the reasons for this development.

3. Coal in the defence

In line with the vast expansion of renewable energies, the global consumption of coal fell in 2015 by 1.8% and is now on the lowest level since 2005. Both of the world’s largest emitters, China and the US, show a decline in coal consumption. China recently released plans to abandon its planned construction of 30 coal-fired power plants.

4. Carbon price signals

The price of carbon has an important impact on investments in renewable energies and energy efficiency. Stopping fossil fuel subsidies—as a negative signal for carbon prices—is crucial to enable climate friendly spending and facilitate a shift from brown to green investments. Within the G20, which plays a crucial role in promoting effective policies to enable a global energy transition, some countries have already announced the phasing-out of fossil fuel subsidies and adopted a wide array of carbon pricing schemes. Although the current price of carbon in the respective countries, with an average of less than USD 10 per tCO₂e for 85% of emissions, is still far too low to facilitate a departure from carbon-intensive economies, it is nevertheless sufficient to stay within the 1.5°C to 2°C limit.

5. Positive price developments of energy efficiency technologies

For a rapid drop in emissions, the consumption of energy must become more efficient. Over the past years, several positive technological developments have taken place that have increased energy efficiency.

The price of LED lighting has fallen to less than USD 10 per light bulb, while its efficiency factor has risen steadily to up to 80% (compared to an efficiency of 10% for a comparable conventional light bulb).³ Concerning general appliances, prices have tended to fall while energy efficiency has increased. In addition, investments to achieve greater energy efficiency in the building sector have become less affected by falling fuel prices as technologies have matured and become cheaper.

As a result of these developments, the conclusion can be drawn that although the global energy revolution has already started, it has to speed up to prevent dangerous climate change.

The CCPI aims to measure the actions of countries in implementing and fulfilling the promises made at the UN climate summit in Paris.

² The negative tendencies in Algeria, Russia and Mexico are mainly caused by less consumption of hydro energy, which was caused, for example, by heavy droughts in Algeria.

³ IEA Energy Efficiency Market Report 2016 [https://www.iea.org/eemr16/files/medium-term-energy-efficiency-2016_WEB.PDF]

3. About the CCPI

The Climate Change Performance Index is an instrument designed to enhance transparency in international climate politics. Its aim is to put political and social pressure on those countries which have, up until now, failed to take ambitious action on climate protection. It also aims to highlight those countries with best practice climate policies.

On the basis of standardised criteria, the index evaluates and compares the climate protection performance of 58 countries that together are responsible for about 90% of global energy-related CO₂ emissions. There are other countries with a good or even higher climate protection performance, but due to methodological reasons, their inclusion is not possible. However, it would be interesting to have a closer look on their climate protection efforts, since some of them are very proactive. In 2013, after seven years of publication, the CCPI has been thoroughly evaluated. This evaluation has had two major outcomes. From then on, it has been possible to include emissions from deforestation and forest degradation, albeit not with the same quality of data as energy-related emissions.⁴ The second achievement was a new structure and weighting of the individual indicators with a much stronger focus on renewable energy and efficiency as the most prominent mitigation strategies.

The methodology is primarily centered on objective indicators. Thereby, 80% of the evaluation is based on indicators

of emissions (30% for emissions levels and 30% for recent development of emissions), efficiency (5% level of efficiency and 5% recent development in efficiency) and renewable energy (8% recent development and 2% share of total primary energy supply).⁵ The remaining 20% of the CCPI evaluation is based on national and international climate policy assessments by about 280 experts from the respective countries. An example of the methodology of the CCPI can be found in chapter 5 “Country Example” and extensive explanations are available in the brochure “The Climate Change Performance Index: Background and Methodology”.⁶

Similar to last year, the average scores for national and international policies are weak. Most experts are not satisfied with the efforts of their governments with regard to the “well below” 2°C or even 1.5°C limit.

The CCPI ranking is qualified in relative terms (better-worse) rather than absolute terms. Therefore, even those countries with high rankings have no reason to sit back and relax. On the contrary, the results illustrate that even if all countries were as involved as the current front runners, efforts would not yet be sufficient to prevent dangerous climate change. Hence, again this year, no country was awarded the rank of 1st, 2nd or 3rd.

3.1 Changes Since the Last Edition

Not only the CCPI methodology is subjected to a continuous revision process, so is the underlying data provided by the International Energy Agency (IEA), too. It is important to notice the retrospective changes that influence the comparability of results presented in the different index years. IEA has begun to use the guidelines of IPCC from 2006, which leads to different results in emissions calculation. Therefore, most of the data reported by the IEA has changed, affecting each country differently.

Revisions to data: People’s Republic of China

China also corrected its reported data for the last years: it published new and revised energy statistics for 2013, as well as revised statistics for the years 2000 to 2012. In 2015, the

IEA used these new statistics to revise its 2011-2013 data, based on these newly available figures. In 2016 the IEA also used the revised data from 2000-2010.

New forestry Data (FAO)

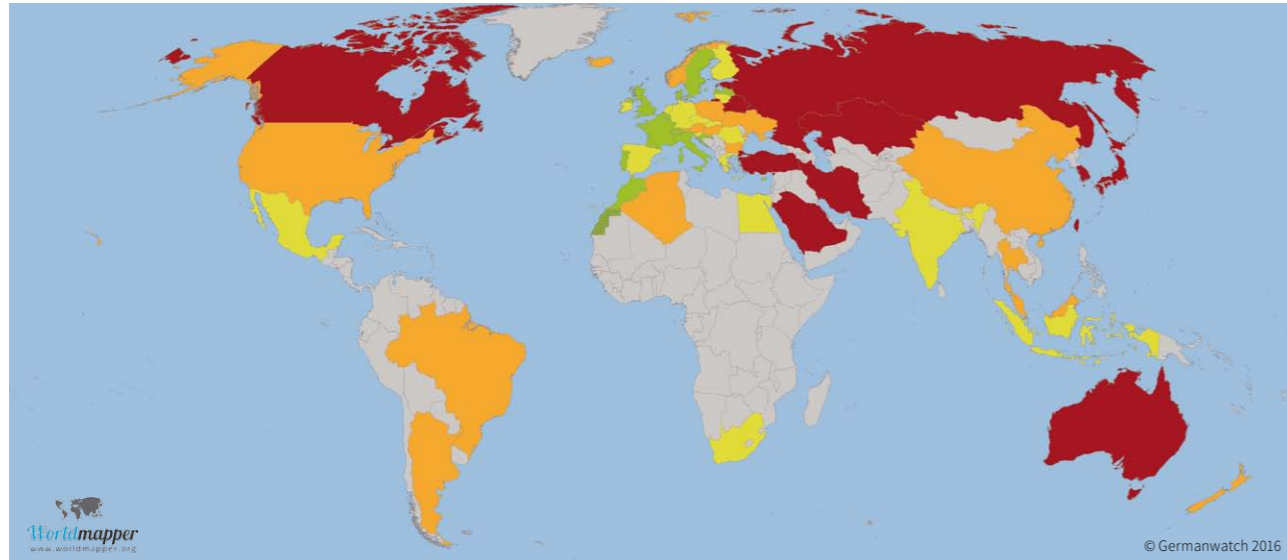
The new FAO Global Forest Resource Assessment 2015 with emissions data from deforestation and forest degradation for the years 2010 to 2015 was published in September 2015. It is now possible to include updated emissions data for deforestation and forest degradation. Data from non-living biomass and drained peatlands remain excluded, as the availability of reliable data is still insufficient. As soon as better data is available, we plan to include them in the CCPI.

⁴ Data used in the CCPI includes only CO₂ emissions from living biomass. Emissions from soils and deadwood are not accounted for. Furthermore, the data from the FAO Global Forest Resources Assessment is only updated every 5 years.

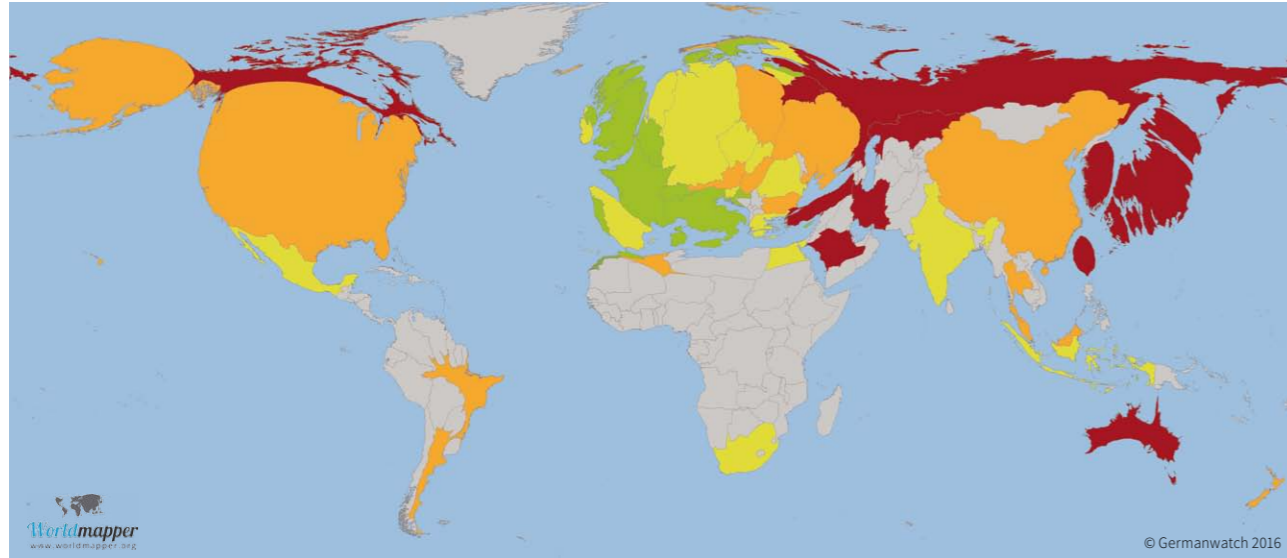
⁵ Regarding the emissions trends, the CCPI 2017 compares the time period between 2009 and 2014. For the emissions level, data from the last three years with available data (2012 to 2014) is taken into account.

⁶ www.germanwatch.org/en/ccpi_bame

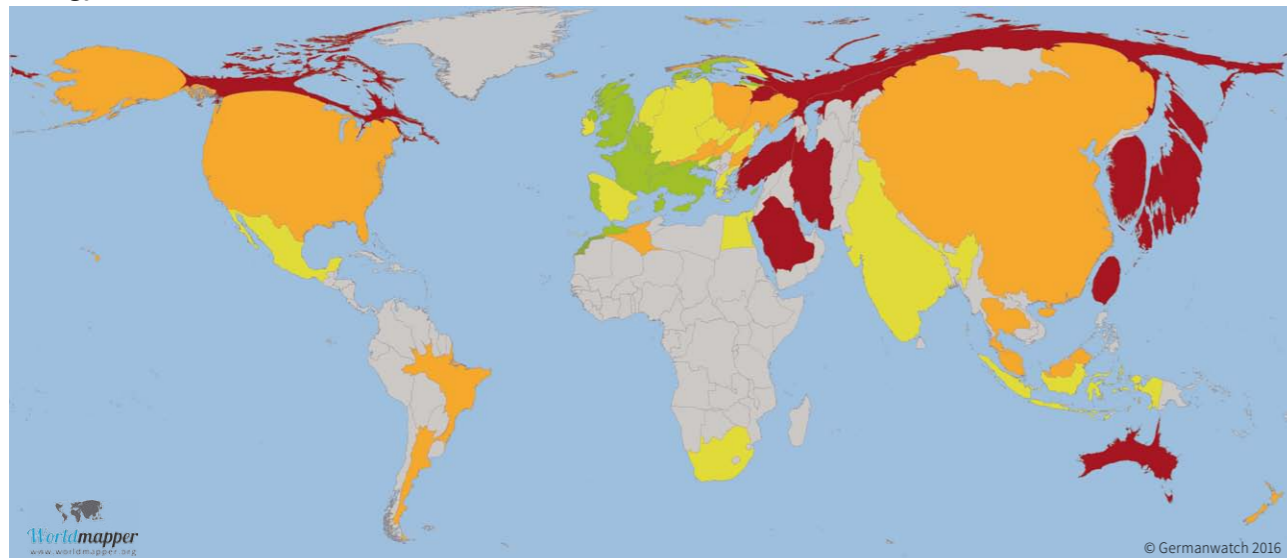
Reference Map: CCPI World Map 2017



Energy-Related CO₂ Emissions in 1990



Energy-Related CO₂ Emissions in 2014



Performance ■ Very good ■ Good ■ Moderate ■ Poor ■ Very poor

Global Developments of Absolute Energy-Related CO₂ Emissions and Renewable Energy

On the maps displayed here, territories of the countries covered in the CCPI are re-sized on each map according to the absolute amount of energy-related CO₂ emissions in the years 1990 and 2014 and Renewable Energies in 1990 and 2014. The maps, also known as cartograms, re-size the territories of the CCPI countries proportionally according to their share of the global CO₂ emissions (left page) and their share of the global energy supply of renewable energies (right page).

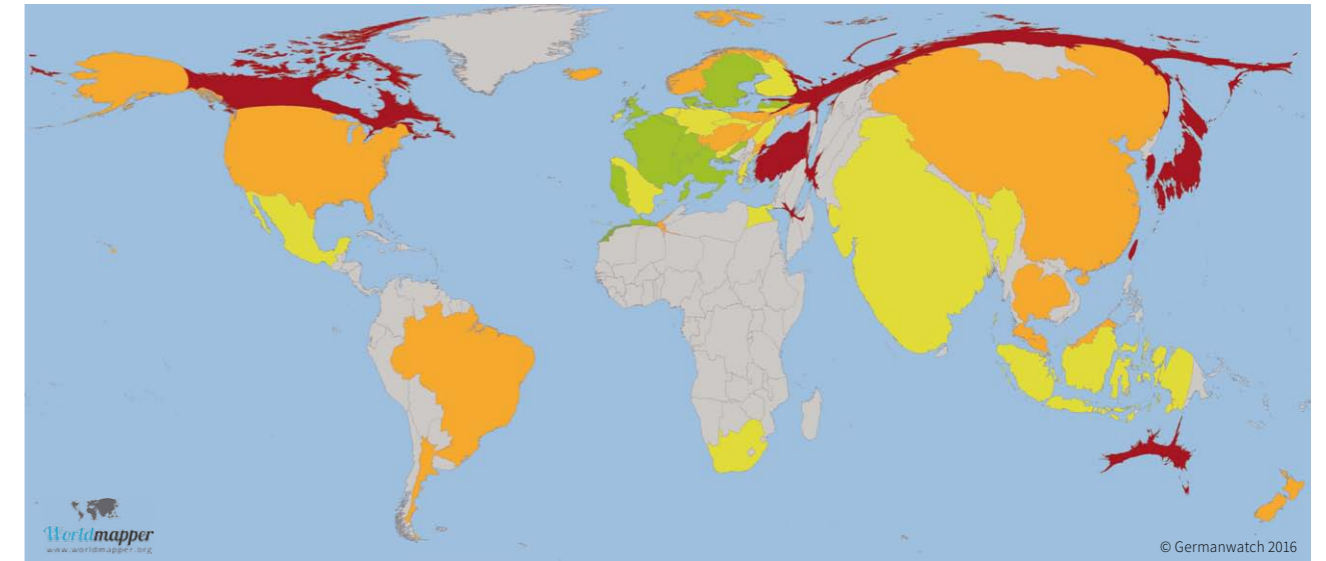
The CO₂ Emission maps show that many European countries such as Germany and the UK have had an over-proportional part of the global emissions in 1990 (compared to their size) and reduced their share slightly by 2014. The US and China are clearly seen as the major emitters in 2014. Together they are

responsible for more than 44% of the global energy-related CO₂ emissions in 2014. The maps do not show the differences in per capita emissions between the countries. They vary among the CCPI countries between 1.6 t per capita in India and Morocco, 6.6 t in China, 8.9 t in Germany and 16.2 t in the USA.

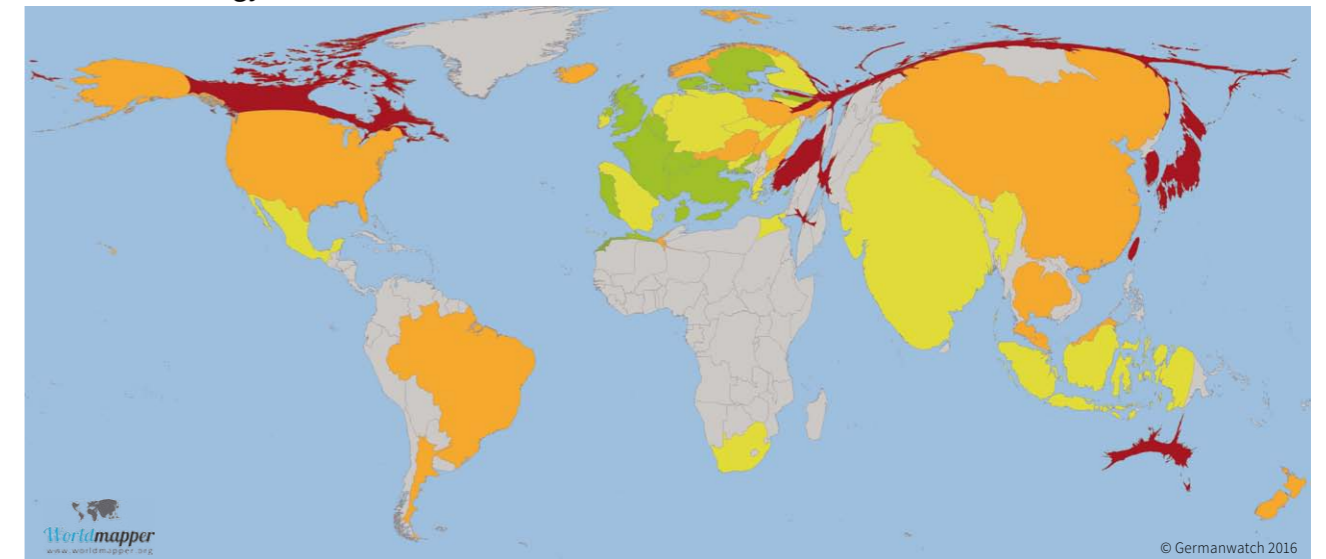
The Renewable Energy maps emphasise on the one hand countries with a relatively high share of renewables including Norway, Sweden and Iceland, as well as the strong growth of renewables from 1990 to 2014 in countries such as Germany, China and Denmark.

If you want to see more graphs and maps from this analysis, please visit: www.germanwatch.org/en/ccpi

Renewable Energy in 1990



Renewable Energy in 2014



The authors are well aware of the disputed situation in the Western Sahara, its history and the different claims among all parties concerned. The dashed border in the maps on pages 10-11 and 14-25 visualizes that the region is considered a non-self-governing territory under international law by the United Nations. The authors continue to raise awareness on fair solutions that allow Moroccan and Sahrawi people to co-exist in dignity and peace.

4. Overall Results • CCPI 2017

Rank	Country	Score**	
1*			
2			
3			
4	▲ France	66.17	
5	▲ Sweden	66.15	
6	▼ United Kingdom	66.10	
7	▲ Cyprus	64.28	
8	▲ Morocco	63.28	
9	▲ Luxembourg	62.86	
10	▲ Malta	62.51	
11	▲ Portugal	62.47	
12	▼ Belgium	62.08	
13	▼ Denmark	61.87	
14	▲ Switzerland	61.66	
15	▼ Latvia	61.20	
16	▲ Italy	60.72	
17	▲ Croatia	60.66	
18	▼ Romania	60.33	
19	▲ Lithuania	59.75	
20	▲ India	59.08	
21	▼ Ireland	59.02	
22	▼ Indonesia	58.86	
23	▼ Egypt	58.75	
24	▲ Czech Republic	58.52	
25	▲ Greece	58.29	
26	▼ Slovak Republic	57.69	
27	▲ Netherlands	57.10	
28	▼ Mexico	57.02	
29	▼ Germany	56.58	
30	▲ Slovenia	56.55	
31	▼ Finland	56.28	

* None of the countries achieved positions one to three. No country is doing enough to prevent dangerous climate change.

** rounded

↳ comparison with previous year

© Germanwatch 2016

Rank	Country	Score**	
32	▲ South Africa	56.17	
33	▼ Spain	56.14	
34	▼ Hungary	55.05	
35	▼ Poland	53.68	
36	▲ Argentina	53.15	
37	▲ Bulgaria	53.06	
38	▼ Norway	52.90	
39	▼ Iceland	52.55	
40	▲ Brazil	52.46	
41	▲ Austria	52.00	
42	▲ Thailand	51.91	
43	▼ United States	51.04	
44	▼ Malaysia	50.96	
45	▲ Ukraine	50.88	
46	▼ New Zealand	50.48	
47	▼ Algeria	48.46	
48	- China	47.49	
49	▼ Belarus	46.86	
50	- Estonia	46.04	
51	- Turkey	45.54	
52	- Chinese Taipei	44.76	
53	- Russian Federation	44.30	
54	- Singapore	43.97	
55	▲ Canada	43.06	
56	▼ Iran	43.05	
57	- Australia	40.66	
58	▲ Korea	38.11	
59	▲ Kazakhstan	36.87	
60	▼ Japan	35.93	
61	- Saudi Arabia	25.45	

Index Categories

- Emissions Level (30% weighting)
- Development of Emissions (30% weighting)
- Renewable Energies (10% weighting)
- Efficiency (10% weighting)
- Climate Policy (20% weighting)

Rating

- Very good
- Good
- Moderate
- Poor
- Very poor

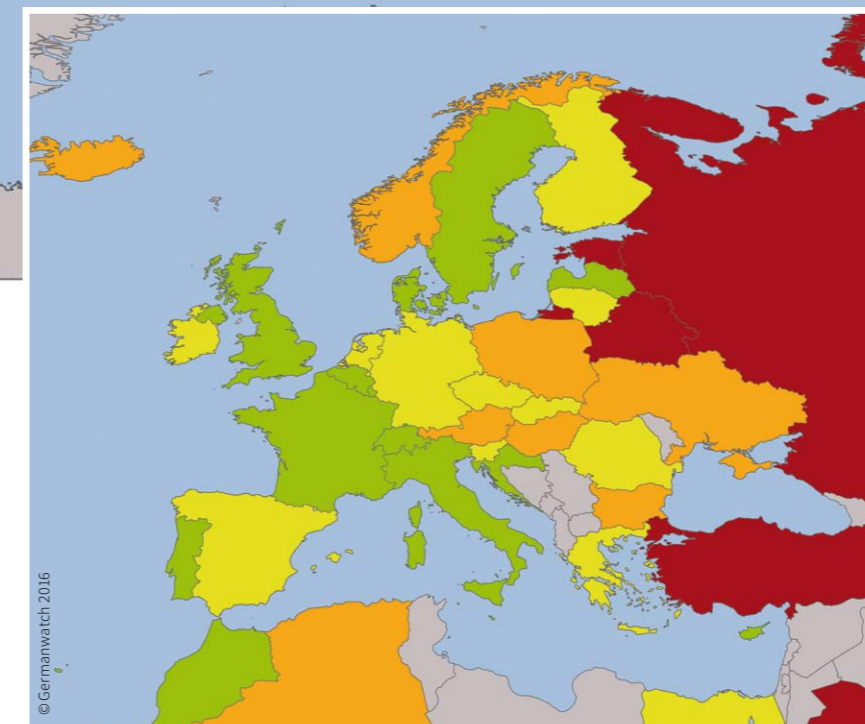
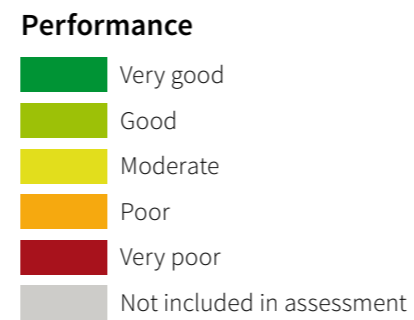
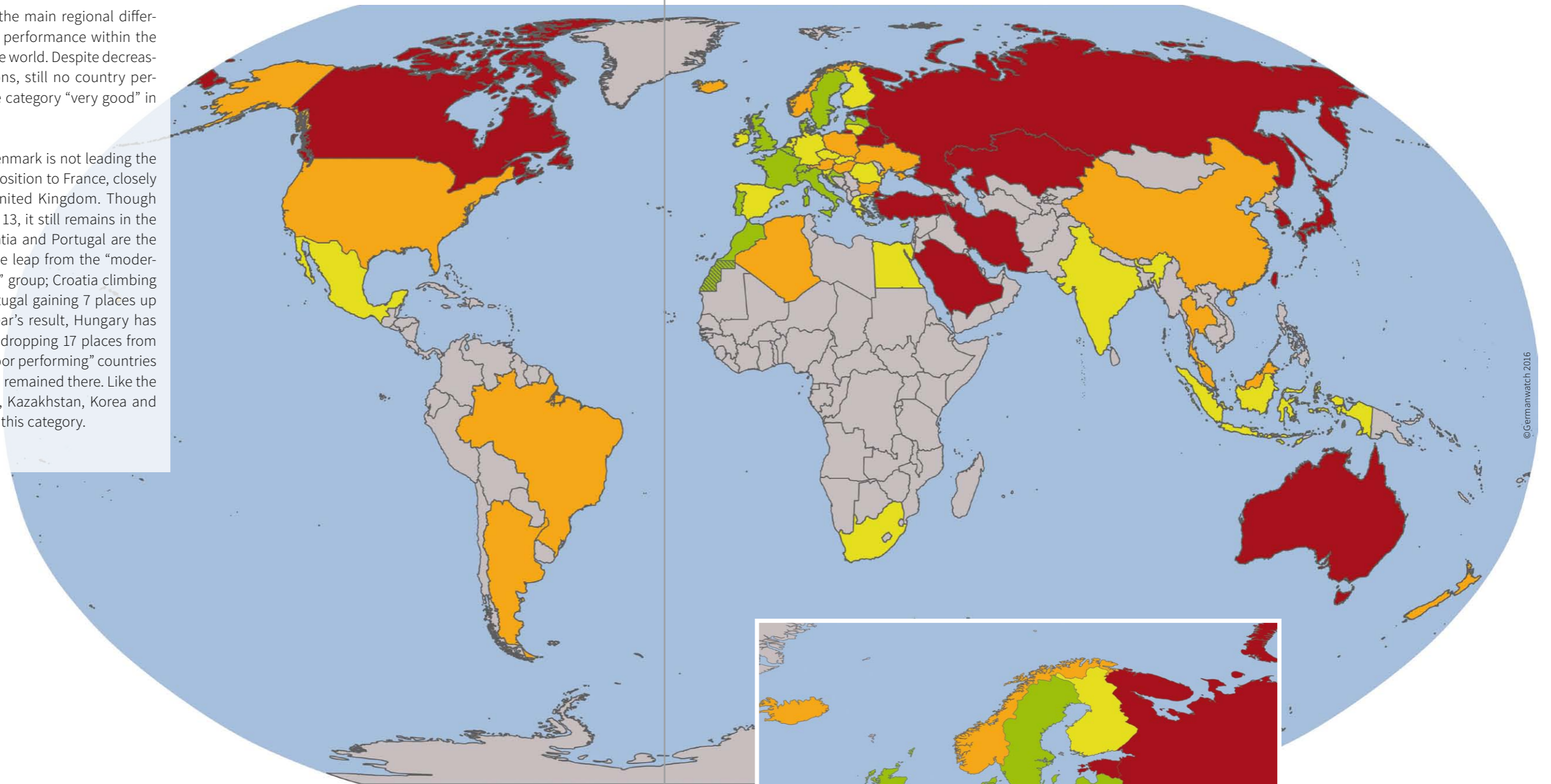
↳ comparison with previous year

© Germanwatch 2016

4.1 CCPI World Map 2017

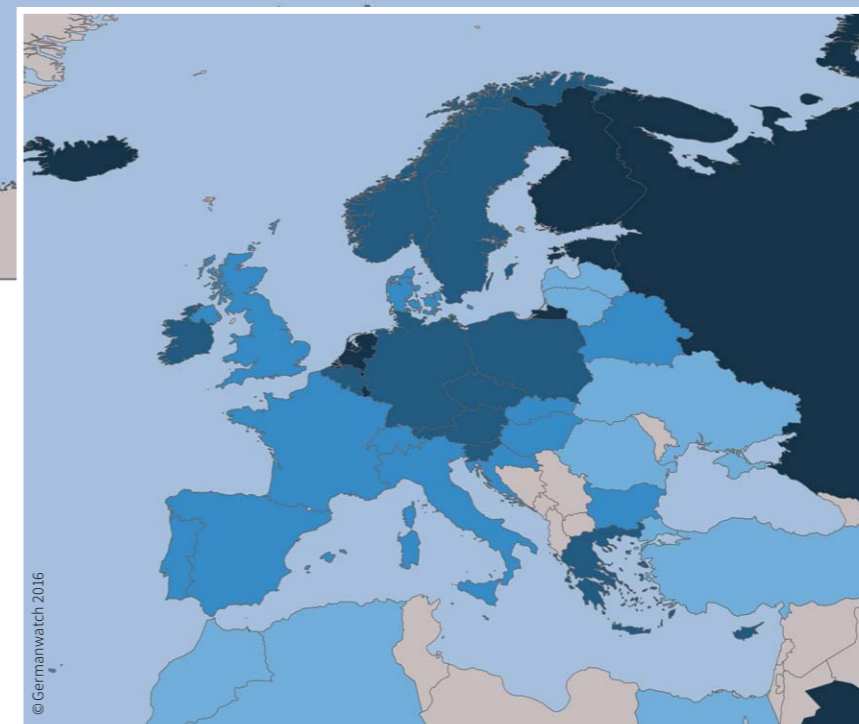
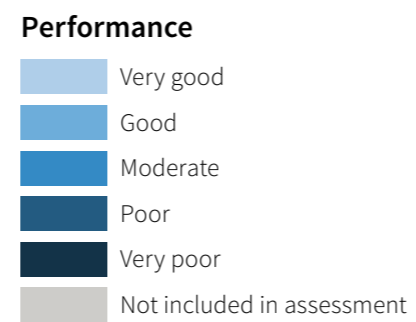
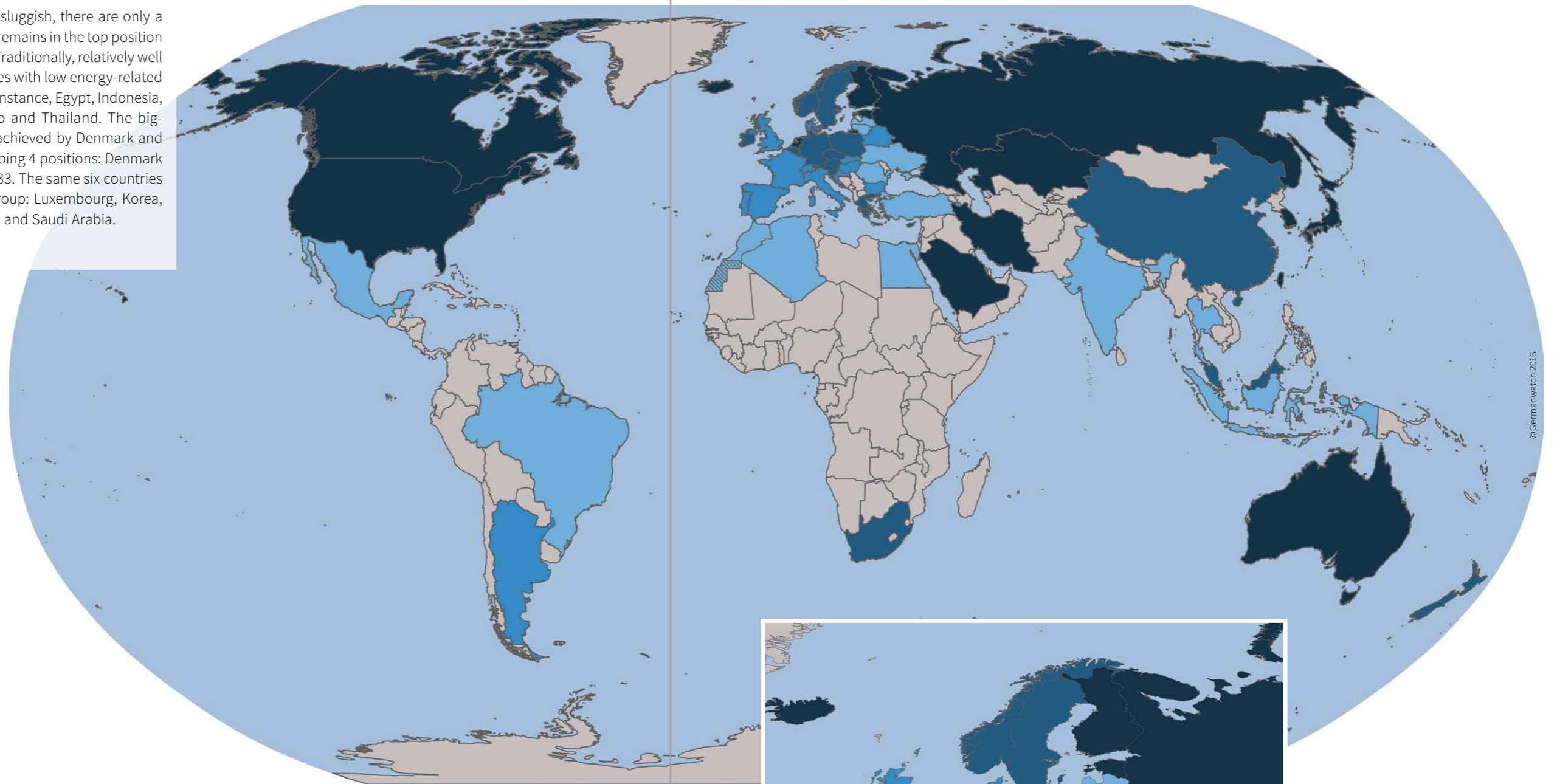
The CCPI 2017 results illustrate the main regional differences in climate protection and performance within the 58 evaluated countries around the world. Despite decreasing growth rates in CO₂ emissions, still no country performed well enough to reach the category “very good” in this year’s index.

For the first time in five years, Denmark is not leading the list but had to concede the top position to France, closely followed by Sweden and the United Kingdom. Though Denmark dropped down to rank 13, it still remains in the “good performance” group. Croatia and Portugal are the only countries to accomplish the leap from the “moderate” into the “good performance” group; Croatia climbing up 11 places to rank 17 and Portugal gaining 7 places up to rank 11. Compared to last year’s result, Hungary has deteriorated most drastically by dropping 17 places from rank 17 to 34. Most of the “very poor performing” countries failed to improve their scores and remained there. Like the year before Saudi Arabia, Japan, Kazakhstan, Korea and Australia form the bottom five of this category.



4.2 Partial Results • Emissions Level

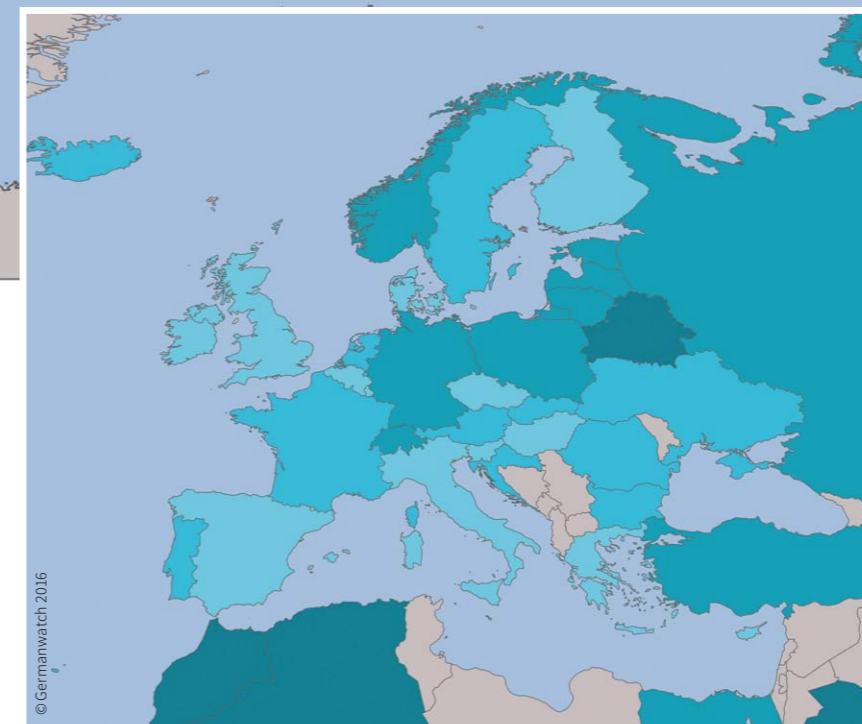
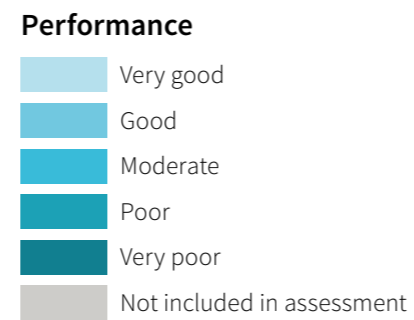
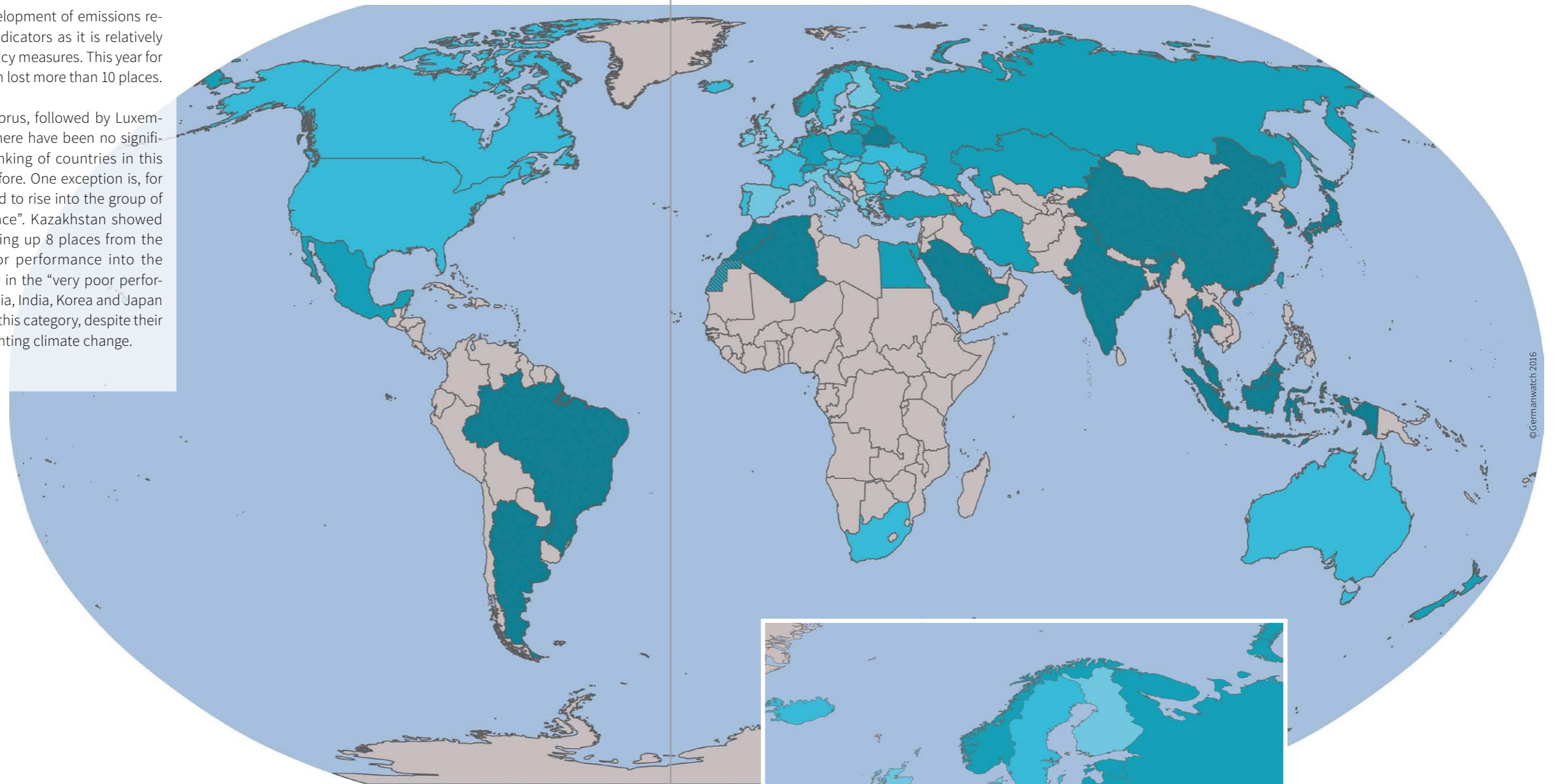
Since this category is the most sluggish, there are only a few changes to report. Romania remains in the top position followed by Morocco and India. Traditionally, relatively well performing countries are the ones with low energy-related CO₂ emissions per capita, as for instance, Egypt, Indonesia, Brazil, Turkey, Morocco, Mexico and Thailand. The biggest improvements have been achieved by Denmark and Slovenia with both of them climbing 4 positions: Denmark to rank 26 and Slovenia to rank 33. The same six countries as last year form the bottom group: Luxembourg, Korea, United States, Australia, Canada and Saudi Arabia.



4.3 Partial Results • Development of Emissions

The section measuring the development of emissions remains one of the index's key indicators as it is relatively sensitive to effective climate policy measures. This year for instance New Zealand and Japan lost more than 10 places.

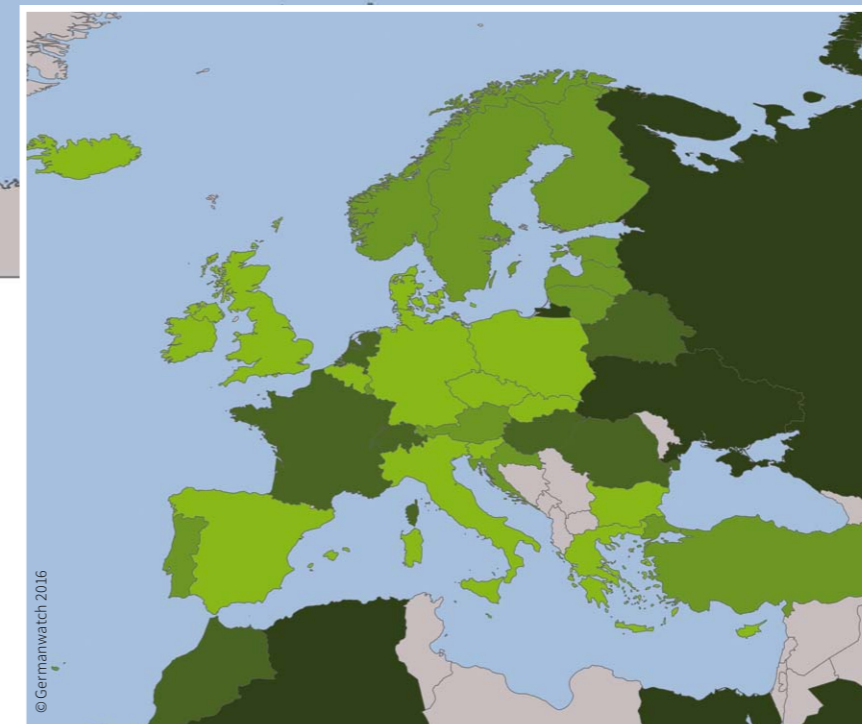
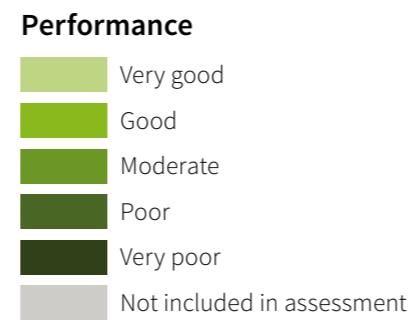
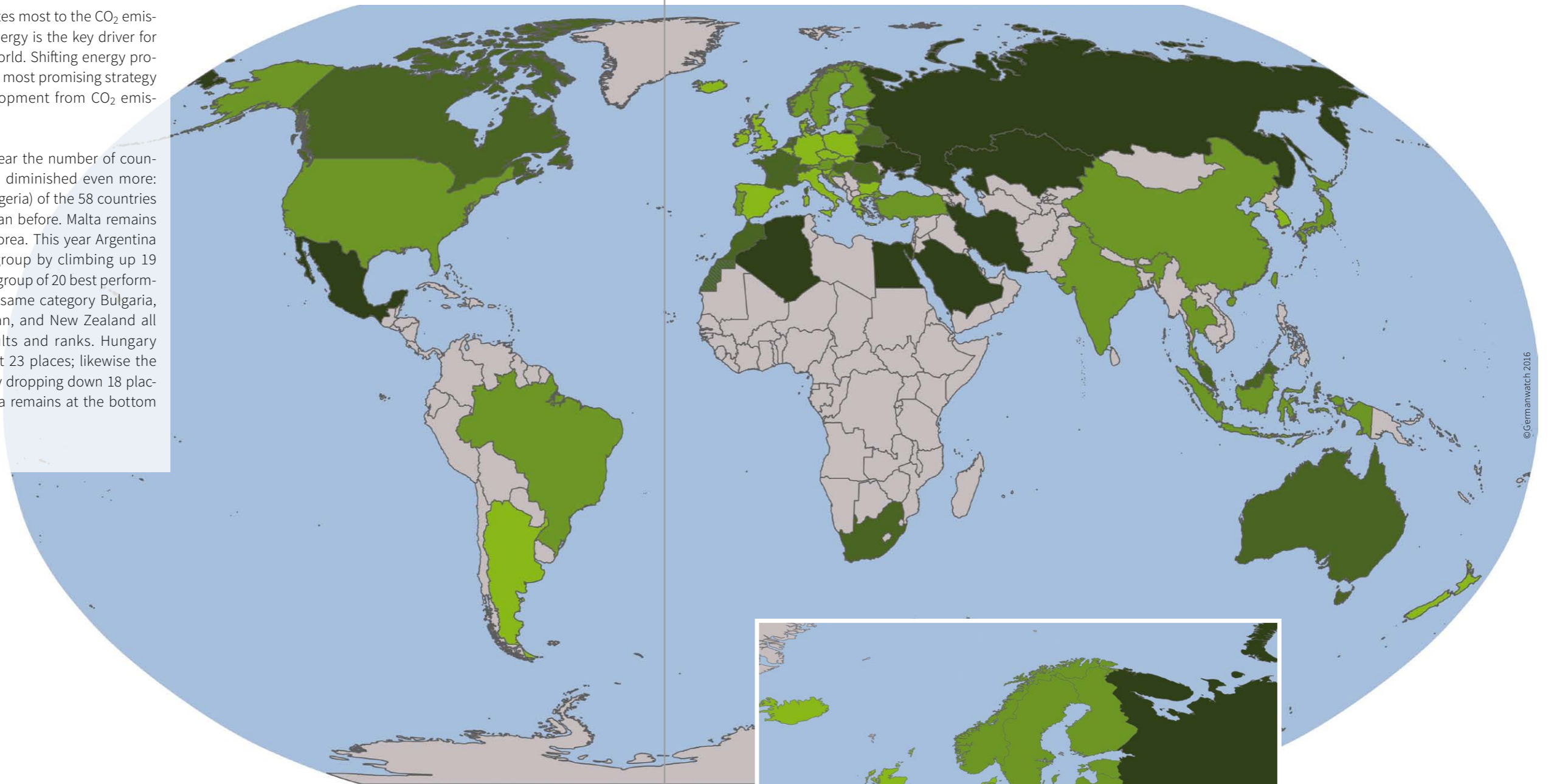
This year's list is headed by Cyprus, followed by Luxembourg and Greece. In general there have been no significant changes regarding the ranking of countries in this group compared to the year before. One exception is, for instance, Slovenia who managed to rise into the group of countries with "good performance". Kazakhstan showed the biggest development, leaping up 8 places from the bottom of countries with poor performance into the middle of the group. Alarming in the "very poor performance" group China, Saudi Arabia, India, Korea and Japan remain among the bottom 10 of this category, despite their pronounced responsibility in fighting climate change.



4.4 Partial Results • Renewable Energies

Since the energy sector contributes most to the CO₂ emissions of a country, renewable energy is the key driver for the transition to a sustainable world. Shifting energy production to renewables is also the most promising strategy for decoupling economic development from CO₂ emissions.

In comparison to the previous year the number of countries showing a backward trend diminished even more: this year only two (Turkey and Algeria) of the 58 countries used less renewable energies than before. Malta remains on top of the list, followed by Korea. This year Argentina joined the “good” performing group by climbing up 19 places. Germany returned to the group of 20 best performing countries on rank 18. In the same category Bulgaria, Denmark, Finland, Greece, Japan, and New Zealand all managed to improve their results and ranks. Hungary has dropped drastically and lost 23 places; likewise the Netherlands lost more ground by dropping down 18 places. As already mentioned, Algeria remains at the bottom of the list.

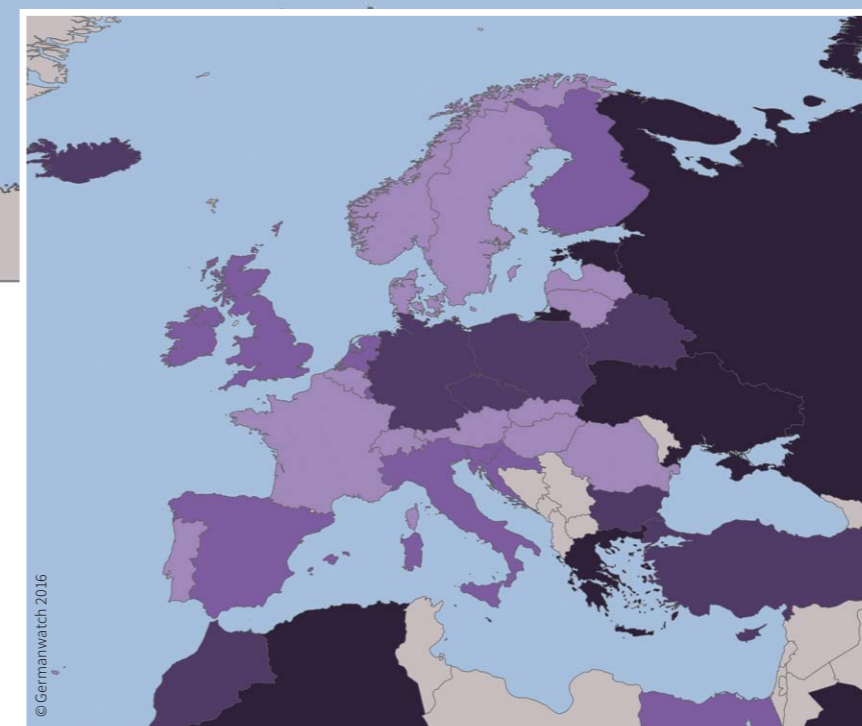
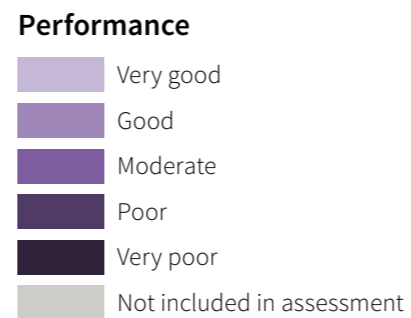
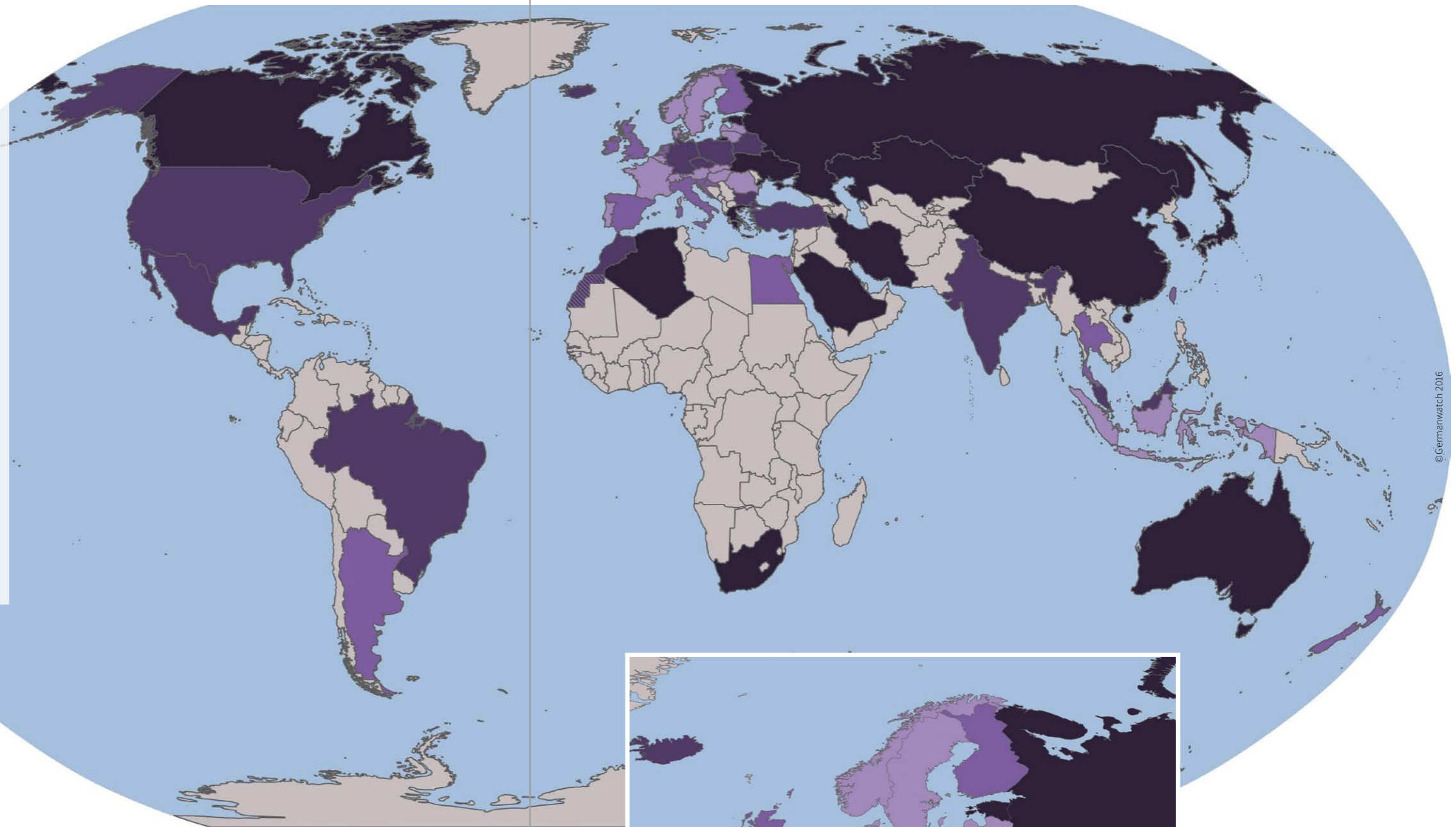


4.5 Partial Results • Efficiency

This section of the CCPI assesses the current level and development of the carbon intensity of primary energy supply on the one hand, and the energy intensity of a country's economy on the other. Together with the large-scale deployment of renewable energies, improvements in energy efficiency are crucial for a global reduction of greenhouse gas emissions. The enhancement of energy efficiency level is closely associated with long-term economic benefits and is therefore one of the major strategies for tackling climate change.

This year Lithuania replaces Sweden at the top of the list by climbing up 11 places. Norway and Latvia also achieved major improvements and leapt into the “good performance” group. As in the previous year, this group is still dominated by some European countries as well as Singapore and Indonesia. Spain and New Zealand dropped into the group of moderate performers. There are no significant changes in the group of very poor performers compared to last year.

Asian and African countries in particular still have untapped potential for improving their efficiency. Both for climate protection efforts and for economic reasons, it is crucial that these countries compensate economic growth for improvements in efficiency levels.

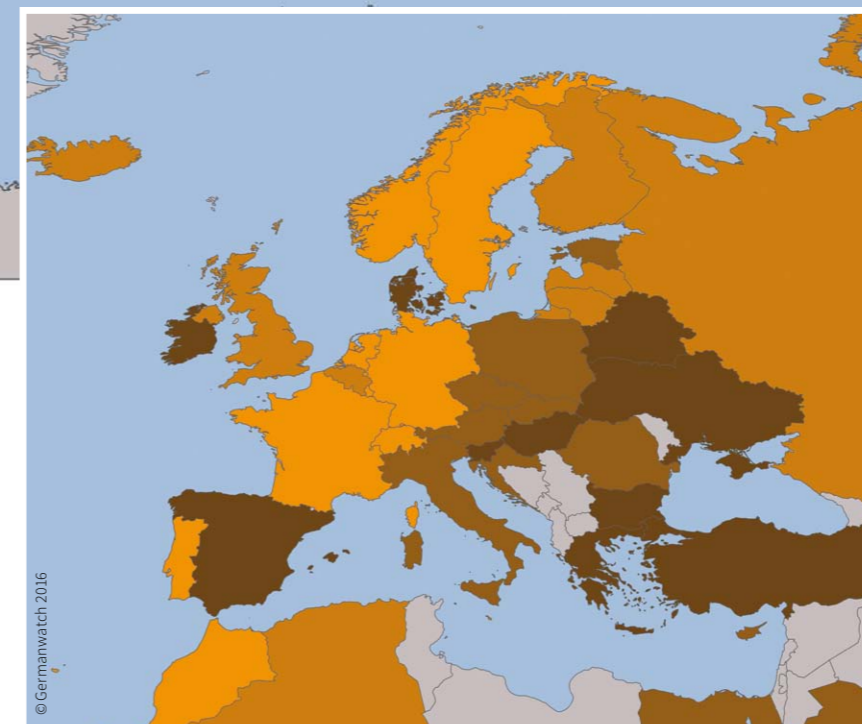
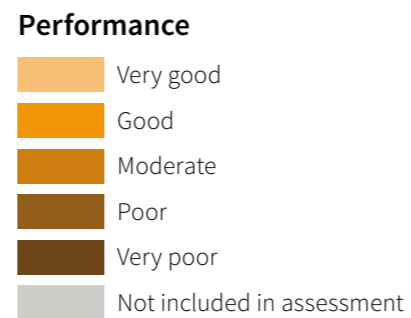
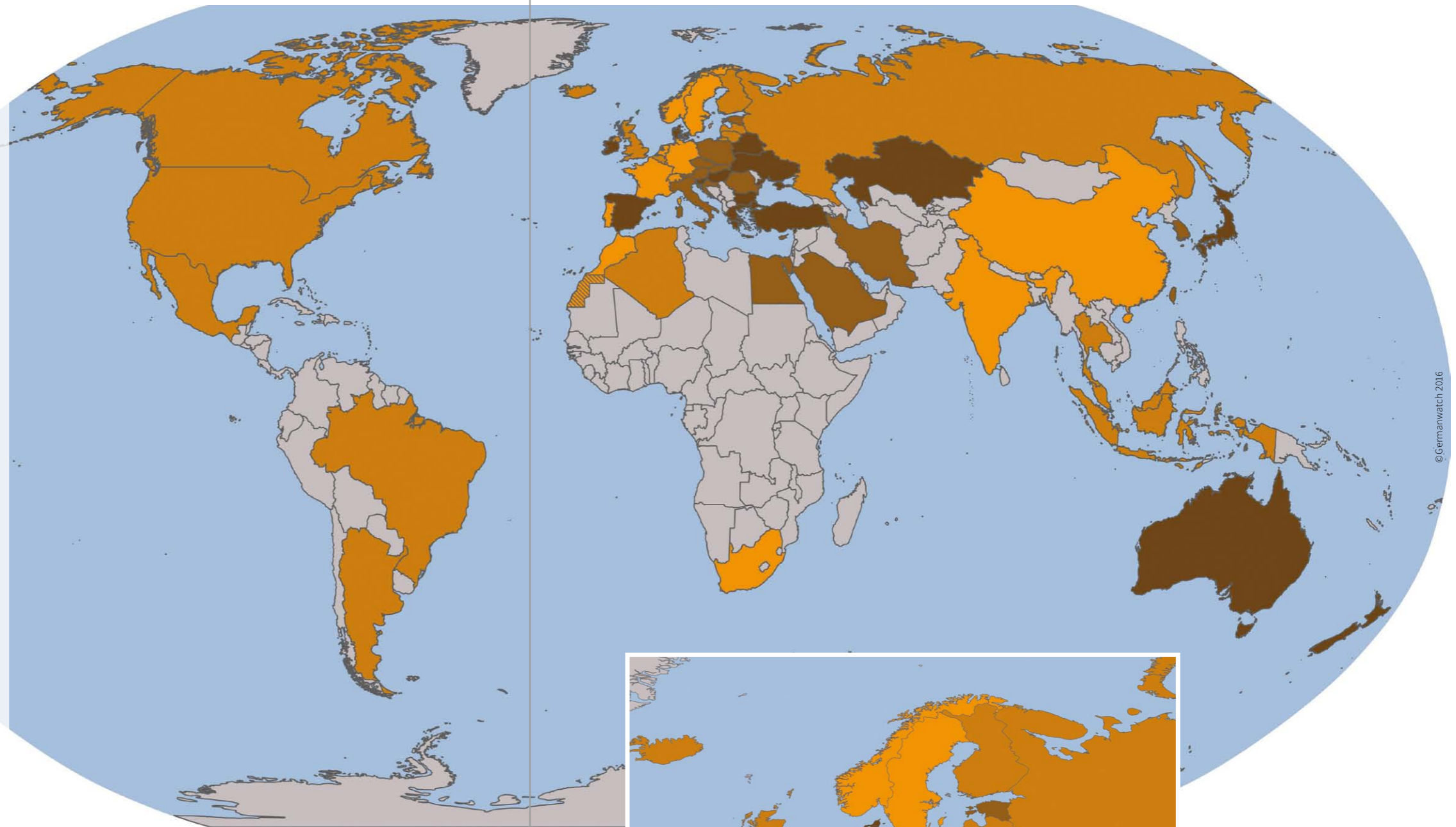


4.6 Partial Results • Climate Policy

Reflecting efforts towards an efficient and low-carbon society, this map portrays the evaluation and results of climate policy within the countries observed. About 280 experts from non-governmental organisations contributed to the CCPI 2017 with an evaluation of those policies. While all recent underlying data of the other categories is from 2014 (except for deforestation and forest degradation data from the FAO 2015 report), the expert evaluations reflect up-to-date developments.

The policy data allows countries with an overall poor performance to be rewarded as soon as a shift in policies is observed (e.g. due to change of government or of the current government's climate policy). If those trends prove to be correct, these countries are expected to improve even more in the next years and their efforts should be reflected in the emissions data.

China lost its lead in the policy section to Morocco, which is now the best performer. South Africa, the Netherlands, Portugal and Switzerland show potential of rising into the good performing group, with an outstanding performance improvement of South Africa climbing up 16 places. India, Sweden, Luxembourg, Norway and Germany managed to hold their positions in this section. Previously good performers Algeria, Belgium and the United Kingdom dropped into the group of countries with a moderate performance. Denmark experienced the most significant losses in this category: from last year's moderate rank 16, it now dropped 37 places into the category of countries with a very poor performance.



5. Country Example: Morocco

To demonstrate the CCPI's methodology, every year we describe the score of one of the 58 countries in which interesting developments are taking place and which merits a closer look. This year we describe sector by sector the performance of the host of this year's climate summit, Morocco.

For some years now, Morocco has been one of the leading countries in the CCPI and is currently the only "good" performing non-EU country. In this year's index, the country climbed again two ranks to reach rank eight. The country has put forward an ambitious Nationally Determined Contribution to be implemented by 2030 from 2010 levels with an unconditional component of 13% greenhouse gas reduction below the business-as-usual (BAU) scenario, and a second conditional component aiming at 32% below BAU. The condition is that it will receive US \$35 billion by 2030 for financial, technical and capacity-building support through climate finance mechanisms.

Coming from a very low emissions level (rank 5 in the index), the country's performance is among one of the worst regarding emissions development (rank 52). Despite being responsible for less than 0.2% of global greenhouse gas emissions, and with its annual per capita emissions of three tons, only about one quarter of the average of industrialized countries, the kingdom's greenhouse gas emissions have risen by more than 4% annually between 1994 and 2012.⁷ Between 2009 and 2014, energy-related CO₂ emissions increased by 16%.⁸ One reason for this is that Morocco's energy system is still dominated by imported fossil fuels, which in 2012 accounted for more than 85% of its electricity generation (coal 57%, gas 20% and oil 9%).⁹ At the same time, the country enjoys favourable conditions for wind, solar and hydro energy, and has thus revealed ambitious plans to exploit those renewable resources. Plans are therefore being made to increase the total installed

capacity of renewables in the electricity sector from a share of 34% in 2015 to 42% by 2020 and to 52% by 2030. While hydro power was the dominant renewable energy source in 2015, the kingdom aims to achieve a target of 52% renewables in electricity, mainly by scaling up the share of both solar and wind energy to 20%. The current performance, based on developments up to 2014 in the renewables section of the CCPI 2017, is still worse than in other countries. However, national experts value the country's ambitious targets and its solid policy framework for their implementation, which has resulted in a leading position in the national policy ranking and a top-10 placement in international policy.

Although Morocco is one of the worst performing countries regarding its energy efficiency trend, its National Energy Strategy aims to further increase energy efficiency and thus to achieve 12% energy saving by 2020 and 15% by 2030, and also to reduce greenhouse gases in the transport sector by 35%.

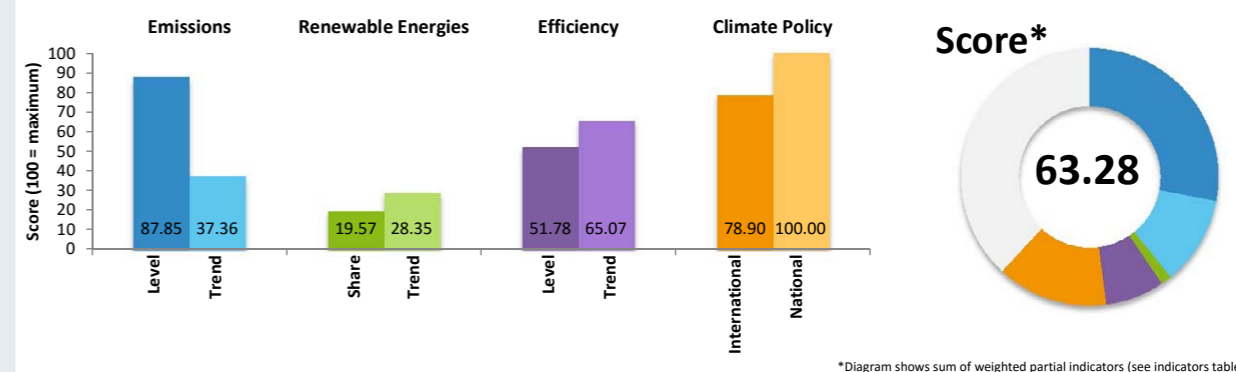
After the Paris Agreement, Morocco, like many other countries, finds itself at a crossroads when it comes to the implementation of its targets. While the country's roll-out plans for renewable energy are impressive, it is turning its attention at the same time to "clean" coal and nuclear energy, and also progressively exploring the extraction of unconventional domestic fossil fuel deposits both on and offshore.

Over the past years, Morocco has made substantial progress in electrification measures and provided more than 90% of its inhabitants with electricity, which to a large extent has replaced the use of unsustainable biomass. If Morocco chooses to follow its clean energy agenda and implement its Nationally Determined Contribution, the positive signals will be reflected in the upcoming CCPI editions and secure the kingdom's good position in the overall ranking.

⁷ MEMEE, 2016a, p. 90; Schinke and Klawitter, 2016
⁸ IEA 2016 (Index Data)
⁹ ONEE, 2016, p. 4; IEA 2015; Schinke and Klawitter, 2016

Country Scorecard Morocco

CCPI 2017
 Country Scorecard last year Rank
Morocco 10 8



Country Facts		2014
Population [million]		33.92
GDP per capita (PPP) [US\$]		7117.92
CO ₂ per capita [t]*		1.57
CO ₂ from forests per capita [t]		-0.04
CO ₂ per GDP [t/1000US\$]*		0.22
TPES per GDP [MJ/US\$]		3.29
CO ₂ per TPES [t/TJ]*		66.83
Share of Renewable Energy of TPES		8.81%

TPES= total primary energy supply
 PPP= purchasing power parity in prices of 2010
 * energy-related emissions only
 Source: IEA (2016) and FAO (2015)

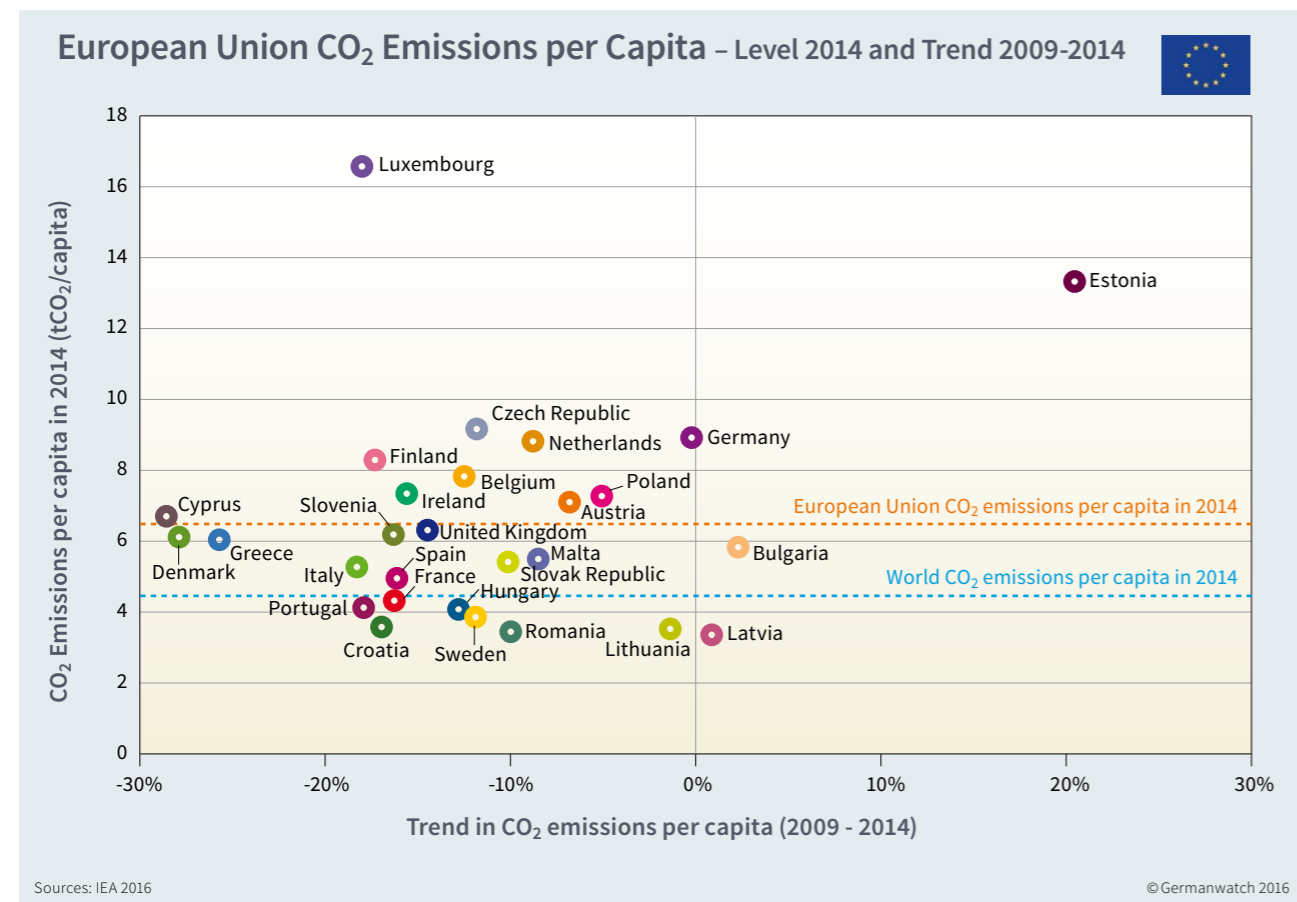
Indicators	Weighting	Score	Rank
Emissions Level			
Primary Energy Supply per Capita	7.5%	100.00	4
CO ₂ Emissions per Capita	7.5%	99.56	5
Target-Performance Comparison	10%	97.45	6
Emissions from Deforestation per Capita	5%	32.83	42
Development of Emissions			
CO ₂ Emissions from Electricity and Heat Production	10%	32.18	47
CO ₂ Emissions from Manufacturing and Industry	8%	50.54	52
CO ₂ Emissions from Residential Use and Buildings	4%	31.72	52
CO ₂ Emissions from Residential Use and Buildings	4%	9.11	58
CO ₂ Emissions from Aviation	4%	41.07	37
Renewable Energies			
Share of Renewable Energy in Total Primary Energy Supply	2%	19.57	35
Development of Energy Supply from Renewable Energy Sources	8%	28.35	43
Efficiency			
Efficiency Level	5%	51.78	38
Efficiency Trend	5%	65.07	56
Climate Policy			
International Climate Policy	10%	78.90	10
National Climate Policy	10%	100.00	4

6. Country Group Performances – The EU

A number of EU countries traditionally perform well in the Climate Change Performance Index, dominating not only the ranking's top 10 but also the group of "good" performing countries. The EU has long led global climate protection efforts and was among those who put this topic on the international agenda. For some years, however, the EU seems to have given up its leading role and has slowed down its actions. In response, climate experts from many EU countries are raising their concerns about the path forward on climate protection. Even though the Union and some of its member states have played a constructive role in the negotiation and realisation of the Paris Agreement, the EU's internal targets are unambitious and lack a policy framework that sends out loud, legal and long-term signals to member countries to fulfil their national targets. As a result, EU countries can be seen dismantling support schemes for renewable energies while continuing to subsidise and support fossil fuels, trying to find loopholes to shirk their responsibilities and to avoid taking any real action. For the implementation of the Paris

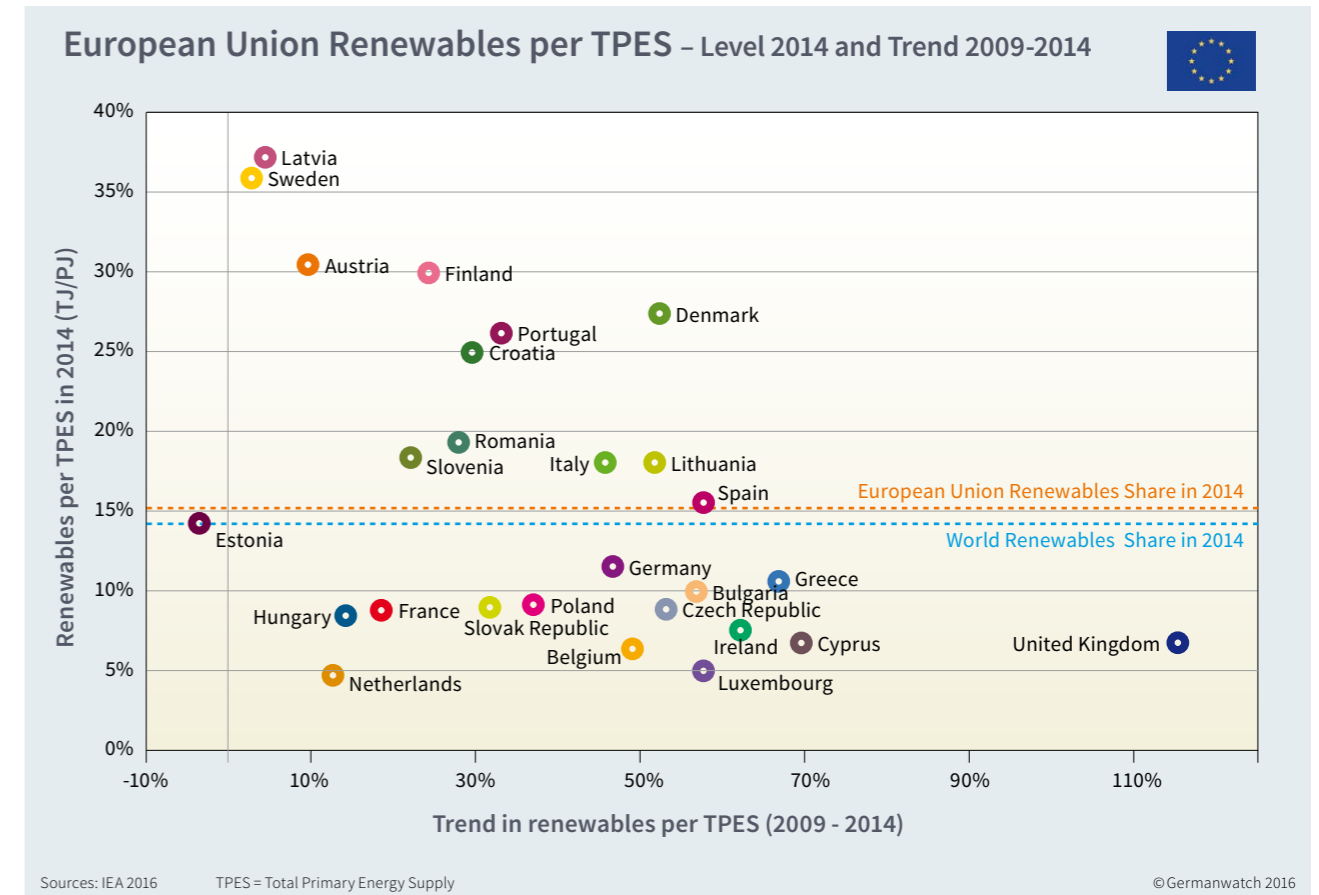
Agreement, countries will have to put forward both long-term strategies and short-term targets as well as stringent policies, which, as many experts criticise, most EU countries are now failing to do, or if they do, their goals lag far behind the countries' individual capacities.

Also in Sweden and the UK, two of the leading countries in the CCPI, experts are unsatisfied with their governments for not putting forward sufficient policies to sustain the progress made in the past and who instead, for example, cut back on support mechanisms for renewable energies. Both countries have earned their good ranking positions mainly from old ambitious policies that led to relatively good progress in emissions reductions. Denmark, the leading country in the previous CCPI edition, has dropped dramatically since policy evaluations went down due to the reversal of important policies and the questioning of existing targets in the energy sector.



Per capita emissions for most EU countries continue to decrease. Nevertheless, per capita CO₂ emissions in many of the member states are still very high and above the global average. Only three EU countries, Estonia, Bulgaria and Latvia, show an increase in per capita emissions in the five year trend. Germany, as one of the EU's largest per capita emitters and the only EU country among the global top-10 emitters of absolute CO₂ emissions, has only managed to achieve a slight decrease in per capita emissions and shows

one of the worst emissions developments within the EU in the last five years. This will only change if the use of coal is reduced substantially in the next years. Some of the countries with a drastic reduction in emissions, like Greece, continue to suffer from economic crisis. With an almost 30% decline, Denmark shows a very positive picture and is profiting from the very ambitious climate and energy policies of the former government.



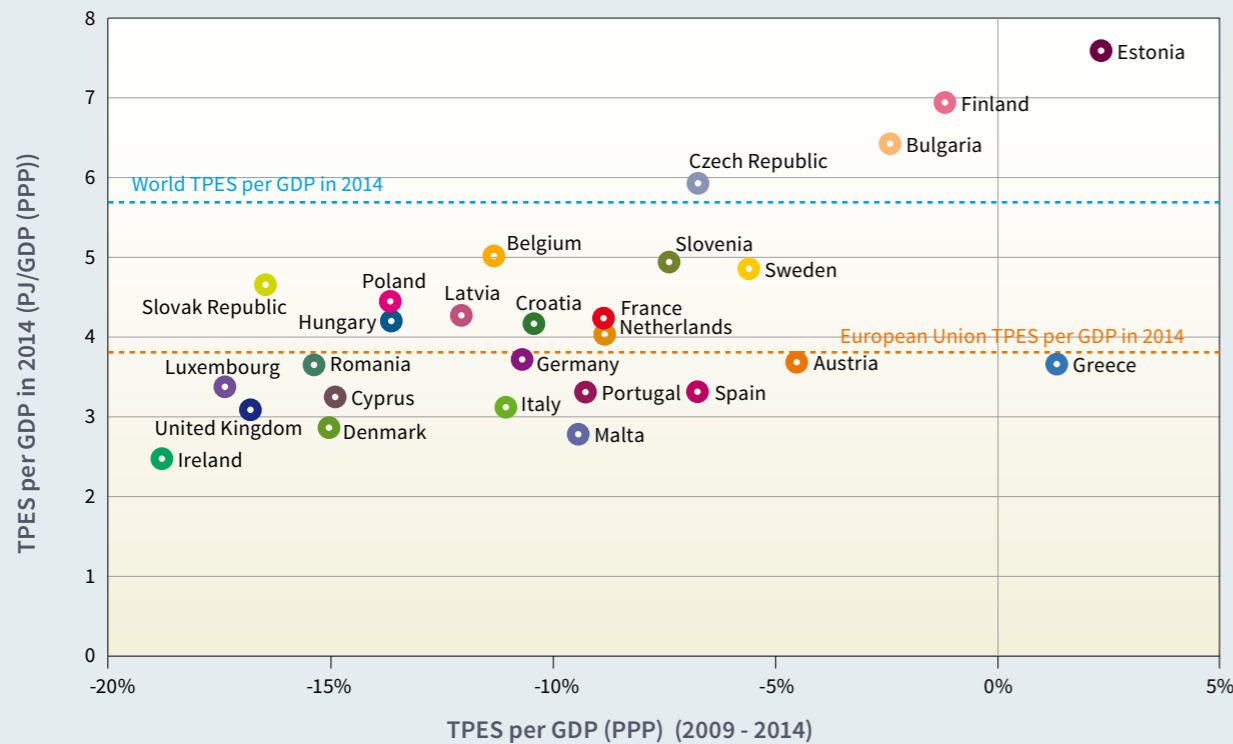
Sources: IEA 2016 TPES = Total Primary Energy Supply © Germanwatch 2016
Not included Malta: Trend 1749.21% (Level 2009: 0% / 2014: 2%)

The EU average share of renewable energy in primary energy supply has been raised by countries like Latvia and Sweden, who have a large share of hydro power in their energy supply and is hence slightly above the global average.

There are tendencies toward a geographical shift in the transition from fossil fuels to clean energy; developing countries are starting to catch up and the EU is quickly losing its leading role in the renewables sector. Many EU countries, such as Germany, the UK, Denmark and Sweden, which in the past had proactive policies promoting renewable energy, are about to or have already diminished their support mechanisms. This could substantially influence the further development of renewables in the EU.

Simultaneous to their emissions development, almost all EU countries have increased their share of renewable energies (RE) in total primary energy supply (TPES). Despite Estonia, with a slightly negative trend in RE/TPES, and Sweden (+2.9%), Latvia (+ 4.5%) and Austria (+ 9.8%), all member states show double-digit growth rates, and the UK has even more than doubled its share between 2009 and 2014.

European Union TPES per GDP – Level 2014 and Trend 2009-2014



Sources: IEA 2016 TPES = Total Primary Energy Supply, GDP = Gross Domestic Product

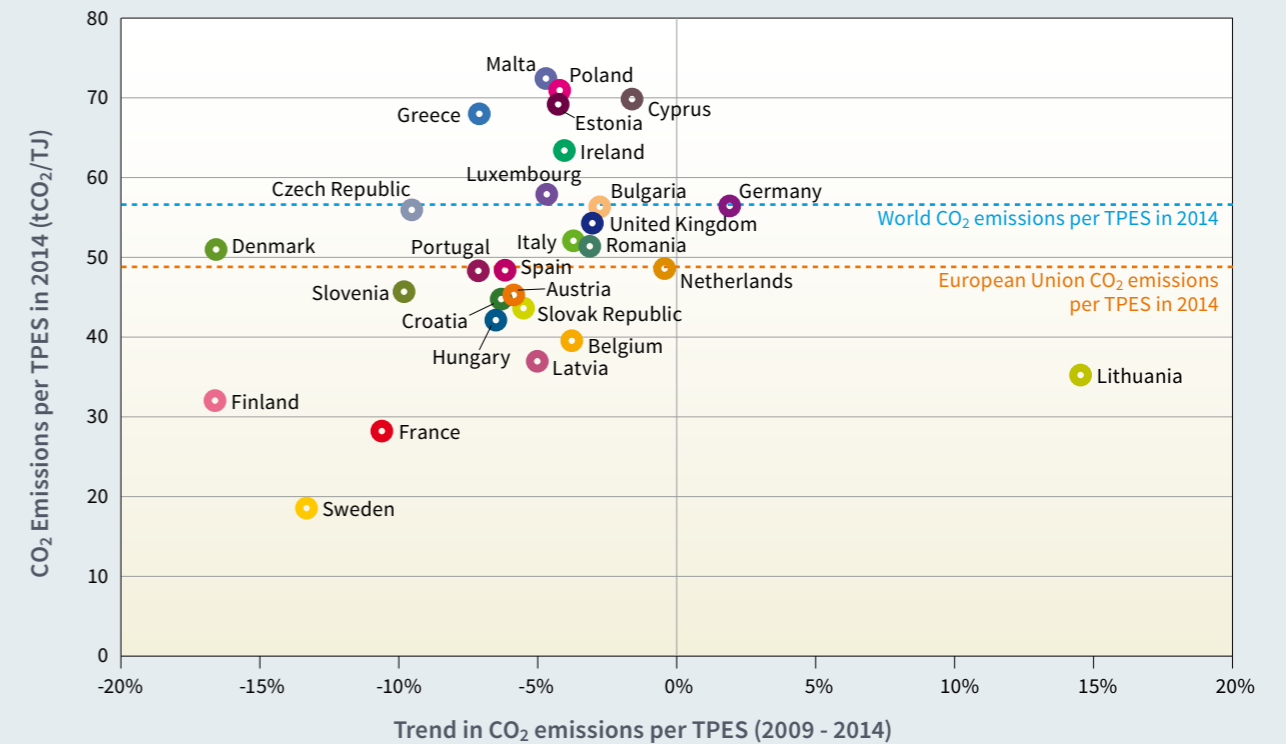
© Germanwatch 2016

Not included Lithuania: Trend -33.10% (Level 2009: 5.99 / 2014: 4.01)

The indicator TPES/GDP reflects the energy intensity of a country's economy. Together with the indicator CO₂/TPES, the energy intensity of the economy gives the decarbonisation progress of countries.

In line with the global trend of energy efficiency and with a steady shift from production-based to service-oriented economies in many EU countries, the European energy intensity is steadily declining and far below the global average. Only Czech Republic, Bulgaria, Finland and Estonia are above the global average, and only Estonia and Greece show a growing trend in the period between 2009 and 2014.

European Union CO₂ Emissions per TPES – Level 2014 and Trend 2009-2014



Sources: IEA 2016 TPES = Total Primary Energy Supply

© Germanwatch 2016

In order to report a global decarbonisation, we would have to see a decline in the carbon intensity of primary energy supply and in the energy intensity of the global economy. Globally, however, the carbon intensity indicator shows a flat curve (see figure on p. 7). Within the EU, positive trends can be seen in some countries. The EU average of carbon intensity is below the world average. Within the EU, we see Sweden, France and Finland with a relatively low carbon

intensity level and only Germany and Lithuania with growing values. The strongest decarbonisation trends can be observed in some Scandinavian countries: Finland, Denmark and Sweden. Denmark is reducing its carbon intensity from a significantly higher level, but is still reliant on coal as a dominant energy source. In France and Sweden, the relatively low level of carbon intensity is influenced by their reliance on nuclear and hydro energy.

7. Country Group Results

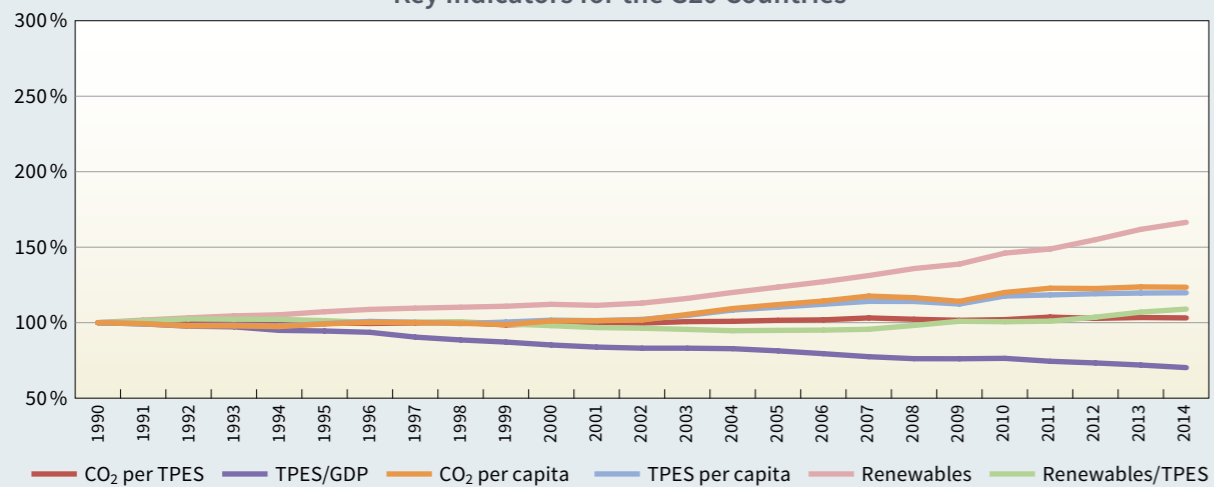
The following tables show countries categorised by groups which enables a comparison of emitters with more or less similar basic conditions.

Climate Change Performance Index for G20 Countries

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
4	France	66.17	32	South Africa	56.17	55	Canada	43.06
6	United Kingdom	66.10	36	Argentina	53.15	57	Australia	40.66
16	Italy	60.72	40	Brazil	52.46	58	Korea	38.11
20	India	59.08	43	United States	51.04	60	Japan	35.93
22	Indonesia	58.86	48	China	47.49	61	Saudi Arabia	25.45
28	Mexico	57.02	51	Turkey	45.54			
29	Germany	56.58	53	Russian Federation	44.30			

* Not included: European Union (The European Union is part of the G20 Countries.)

Key Indicators for the G20 Countries

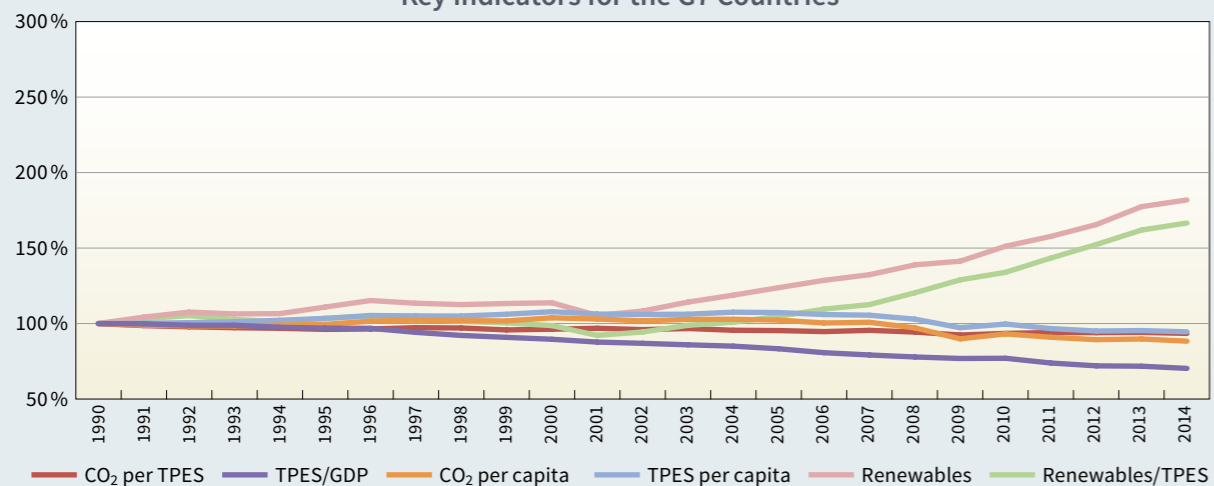


Sources: IEA 2016 TPES = Total Primary Energy Supply, GDP = Gross Domestic Product © Germanwatch 2016

Climate Change Performance Index for G7 Countries

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
4	France	66.17	29	Germany	56.58	60	Japan	35.93
6	United Kingdom	66.10	43	United States	51.04			
16	Italy	60.72	55	Canada	43.06			

Key Indicators for the G7 Countries

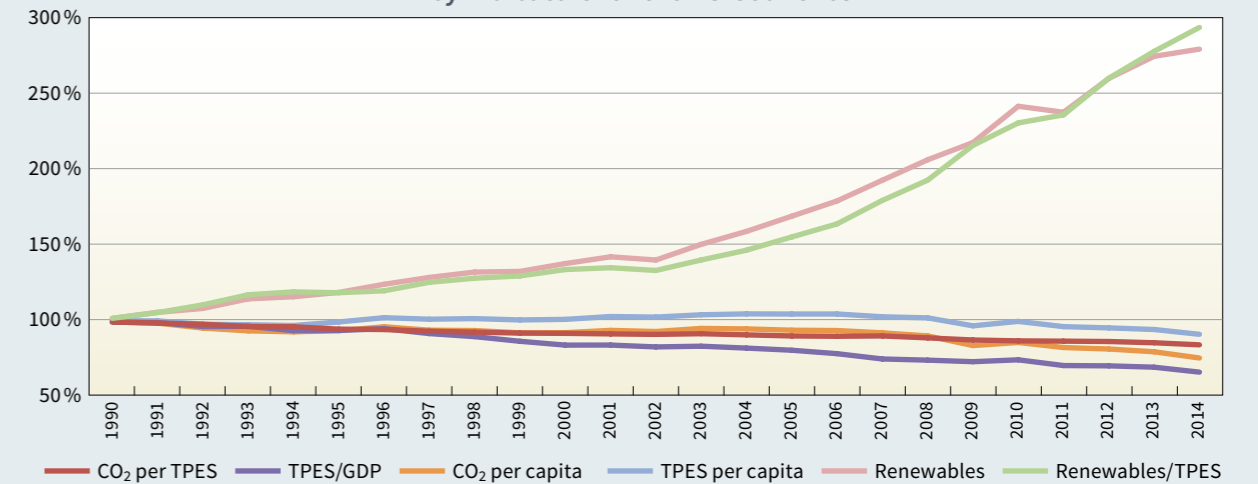


Sources: IEA 2016 TPES = Total Primary Energy Supply, GDP = Gross Domestic Product © Germanwatch 2016

Climate Change Performance Index for EU Countries

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
4	France	66.17	16	Italy	60.72	30	Slovenia	56.55
5	Sweden	66.15	17	Croatia	60.66	31	Finland	56.28
6	United Kingdom	66.10	18	Romania	60.33	33	Spain	56.14
7	Cyprus	64.28	19	Lithuania	59.75	34	Hungary	55.05
9	Luxembourg	62.86	21	Ireland	59.02	35	Poland	53.68
10	Malta	62.51	24	Czech Republic	58.52	37	Bulgaria	53.06
11	Portugal	62.47	25	Greece	58.29	41	Austria	52.00
12	Belgium	62.08	26	Slovak Republic	57.69	50	Estonia	46.04
13	Denmark	61.87	27	Netherlands	57.10			
15	Latvia	61.20	29	Germany	56.58			

Key Indicators for the EU Countries

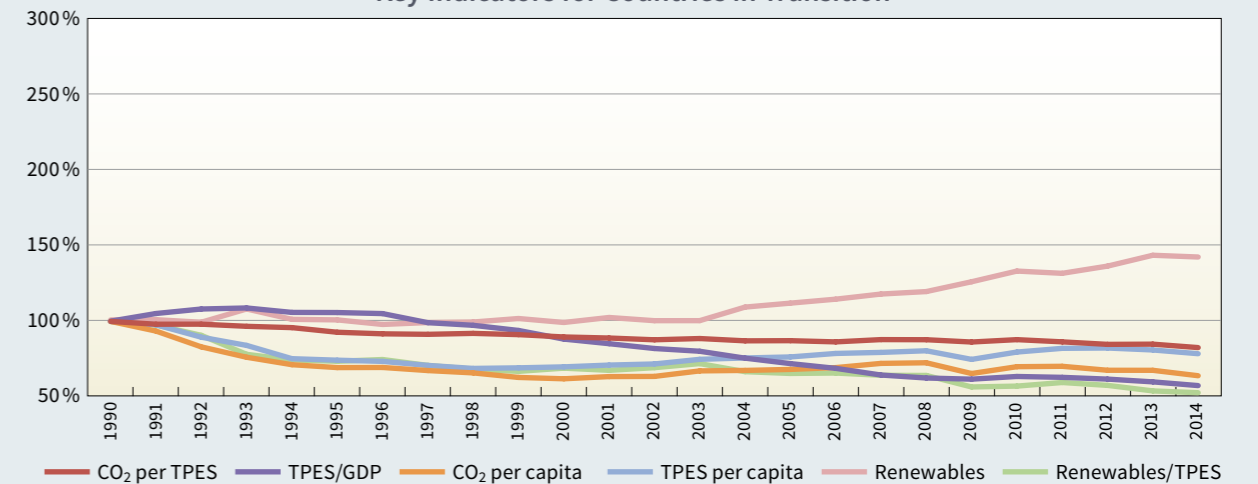


Sources: IEA 2016 TPES = Total Primary Energy Supply, GDP = Gross Domestic Product © Germanwatch 2016

Climate Change Performance Index for Countries in Transition

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
15	Latvia	61.20	26	Slovak Republic	57.69	45	Ukraine	50.88
17	Croatia	60.66	30	Slovenia	56.55	49	Belarus	46.86
18	Romania	60.33	34	Hungary	55.05	50	Estonia	46.04
19	Lithuania	59.75	35	Poland	53.68	53	Russian Federation	44.30
24	Czech Republic	58.52	37	Bulgaria	53.06	59	Kazakhstan	36.87

Key Indicators for Countries in Transition

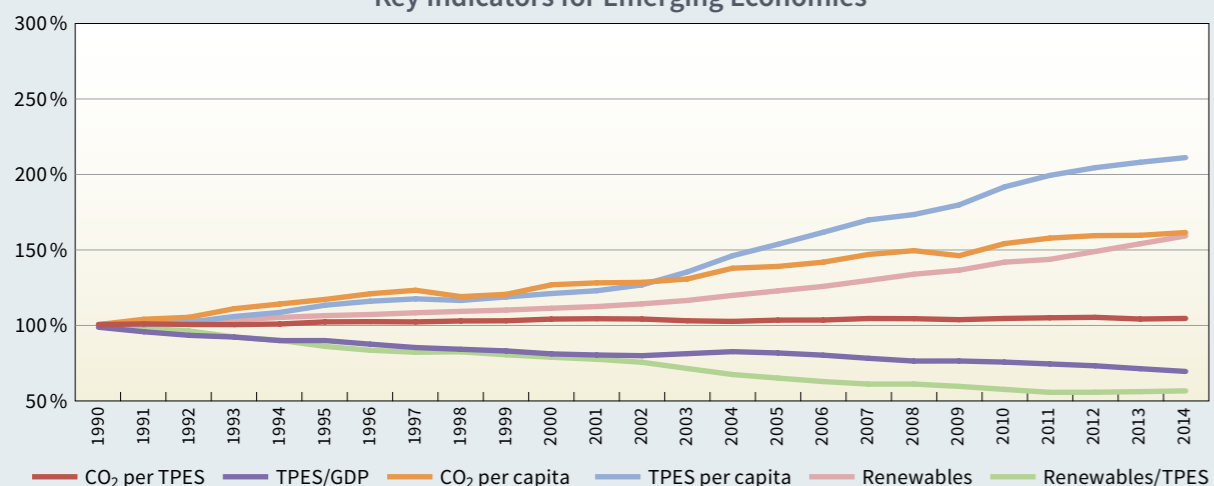


Sources: IEA 2016 TPES = Total Primary Energy Supply, GDP = Gross Domestic Product © Germanwatch 2016

Climate Change Performance Index for Emerging Economies

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
8	Morocco	63.28	36	Argentina	53.15	51	Turkey	45.54
20	India	59.08	40	Brazil	52.46	52	Chinese Taipei	44.76
22	Indonesia	58.86	42	Thailand	51.91	54	Singapore	43.97
23	Egypt	58.75	44	Malaysia	50.96	56	Iran	43.05
28	Mexico	57.02	47	Algeria	48.46	58	Korea	38.11
32	South Africa	56.17	48	China	47.49	61	Saudi Arabia	25.45

Key Indicators for Emerging Economies



Sources: IEA 2016 TPES = Total Primary Energy Supply, GDP = Gross Domestic Product © Germanwatch 2016

Key Data for the 10 Largest CO₂ Emitters

Country	CCPI Rank 2017	CCPI Rank 2016	Share of Global GDP	Share of World Population	Share of Global CO ₂ Emissions*	Share of Global Primary Energy Supply
India	20	23	6.81%	17.87%	6.24%	6.02%
Germany	29	27	3.39%	1.12%	2.23%	2.23%
United States	43	35	15.94%	4.40%	15.99%	16.18%
China	48	48	16.98%	18.92%	28.21%	22.38%
Russian Federation	53	53	3.18%	1.98%	4.53%	5.19%
Canada	55	56	1.48%	0.49%	1.71%	2.04%
Iran	56	55	1.25%	1.08%	1.72%	1.73%
Korea	58	59	1.67%	0.70%	1.75%	1.96%
Japan	60	58	4.38%	1.75%	3.67%	3.22%
Saudi Arabia	61	61	1.48%	0.43%	1.56%	1.56%
Total			56.54%	48.74%	67.62%	62.52%

*energy-related emissions

© Germanwatch 2016

8. Sources and Further Reading Recommendations

- BP (2016): Coal – 2015 in review. <http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/coal.html> [1.11.2016].
- Burck; Hermwille; Bals (2016): The Climate Change Performance Index: Background and Methodology. www.germanwatch.org/en/ccpi_bame
- Climate Transparency (2015): G20: A turning point? Available at: <http://www.climate-transparency.org/g20-climateperformance> [accessed: 01.11.2016]
- Climate Transparency (2016): G20 Report, From Brown to Green. Available at: <http://www.climate-transparency.org/g20-brown-to-green> [accessed: 01.11.2016]
- FAO (2015): Global Forest Resource Assessment 2015. Rome. Available at: www.fao.org/forest-resources-assessment/en/ [accessed: 1.11.2016]
- Freudenberg (2003): Composite Indicators of Country Performance: A Critical Assessment. STI Working Paper 2003/16. Paris.
- Howarth; Santoro; Ingraffea (2011): Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations. In: Climatic Change, 106/4, 679-690.
- IEA (2016a): CO₂ Emissions from Fuel Combustion. Paris.
- IEA (2016b): Renewables Information. Paris.
- IEA (2016c): World CO₂ Emissions from Fuel Combustion: Database Documentation. Paris. Available at: http://wds.iea.org/wds/pdf/Worldco2_Documentation.pdf [accessed: 1.11.2016]
- IEEFA (2015): Global Coal Consumption: Down an Additional 2-4% in 2015. Available at: <http://ieefa.org/global-coal-consumption-down-an-additional-2-4-percent-in-2015/> [accessed: 01.11.2016]
- IEA (2016): Medium-Term Energy Efficiency Market Reports 2016. Paris. Available at: <http://www.iea.org/publications/freepublications/publication/medium-term-energy-efficiency-market-report-2016.html> [accessed: 01.11.2016]
- IPCC (1997): Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. Available at: www.ipcc-nggip.iges.or.jp/public/gl/invs1.html [accessed: 30.11.2015]
- Meinshausen et al. (2009): Greenhouse-gas emission targets for limiting global warming to 2 °C. Nature 458/7242: 1158.
- Meinshausen (2005): On the risk of Overshooting 2 °C. Paper presented at Scientific Symposium “Avoiding Dangerous Climate Change”, MetOffice, Exeter, 1-3 February 2005. Available at: http://stabilisation.metoffice.com/14_Malte_Meinshausen.pdf [accessed: 1.11.2016]
- MEMEE (2016): 3eme communication nationale du Maroc a la Convention Cadre des Nations Unites sur les Changements Climatiques. Rabat. <http://unfccc.int/resource/docs/natc/marnc3.pdf> [accessed 01.11.2016].
- ONEE (2016): Trends, vision and challenges for the power sector – Moroccan Electrical System. http://cauemarrakech2016.com/sessions/session_1/Mr%20Tarik%20Hamane.pdf [accessed 01.11.2016]
- REN21 (2016): Renewables 2016 Global Status Report. Paris: REN21 Secretariat. Available at: <http://www.ren21.net/GSR-2016-Report-Full-report-EN> [accessed: 1.11.2016]
- Schinke; Klawitter (2016): Background Paper: Country Fact Sheet Morocco. Bonn. <https://germanwatch.org/en/download/15121.pdf> [accessed: 01.11.2016]

Germanwatch

Following the motto “Observing, Analysing, Acting”, Germanwatch has been actively promoting global equity and the preservation of livelihoods since 1991. In doing so, we focus on the politics and economics of the North and their worldwide consequences. The situation of marginalised people in the South is the starting point of our work. Together with our members and supporters as well as with other actors in civil society, we intend to represent a strong lobby for sustainable development. We attempt to approach our goals by advocating for the prevention of dangerous climate change, food security, and compliance of companies with human rights.

Germanwatch is funded by membership fees, donations, grants from “Stiftung Zukunftsfähigkeit” (Foundation for Sustainability) as well as grants from various other public and private donors.

You can also help achieve the goals of Germanwatch by becoming a member or by donating to:

Bank fuer Sozialwirtschaft AG

BIC/Swift: BFSWDE33BER

IBAN: DE33 1002 0500 0003 212300

CAN Europe

Climate Action Network Europe (CAN-E) is Europe’s largest coalition working on climate and energy issues. With over 120 member organisations in more than 30 European countries – representing over 44 million citizens – CAN Europe works to prevent dangerous climate change and promote sustainable climate and energy policy in Europe.

The Climate Action Network (CAN) is a worldwide network of over 950 Non-Governmental Organizations (NGOs) in more than 110 countries, working to promote government and individual action to limit human-induced climate change to ecologically sustainable levels.

The vision of CAN is a world striving actively towards and achieving the protection of the global climate in a manner that promotes equity and social justice between peoples, sustainable development of all communities, and protection of the global environment. CAN unites to work towards this vision.

CAN’s mission is to support and empower civil society organisations to influence the design and development of an effective global strategy to reduce greenhouse gas emissions and ensure its implementation at international, national and local levels in the promotion of equity and sustainable development.

