The Global Green Economy Index ™

GGEI 2016

Measuring National Performance in the Green Economy

5th Edition - September 2016

DUAL CITIZEN LLC

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ABOUT DUAL CITIZEN LLC

Dual Citizen advises clients on how to leverage data analytics and strategic communications to further their growth and development agendas. We work with government ministries, international organizations and private firms on consulting assignments and by sub-contracting with strategic partners. To support this work, we publish the Global Green Economy Index™ (GGEI), measuring the performance of 80 countries and 50 cities in the green economy and how experts assess that performance. Insights and data from the GGEI inform policymakers, international organizations and private clients with intelligence to advance their reputation and performance in the green economy.

For more information, please visit www.dualcitizeninc.com and follow us on Twitter @DualCitizenInc.

EXECUTIVE SUMMARY

This 5th edition of the Global Green Economy Index (GGEI) is a data-driven analysis of how 80 countries perform in the global green economy, as well as how expert practitioners rank this performance. Since its launch in 2010, the GGEI has signaled which countries are making progress towards greener economies, and which ones are not. The comparison of national green performance and perceptions of it revealed through the GGEI framework is more important than ever today. This is because while there is far greater public and political focus on climate change and green growth now than when the GGEI was first published, often the commitments and targets communicated by leaders do not match the reality.

This report will provide an overview of the newest GGEI results from the 5th edition, as well as more detail on how our research and data can enrich the work of others in this space. Our partners utilize the GGEI to benchmark their green performance, communicate areas requiring improvement, and show diverse stakeholders how they too can promote progress. Highlights from the 2016 GGEI results include:

TOP PERFORMERS

- **Sweden** is again the top performing country in the 2016 GGEI, followed by the other "Nordics" and **Switzerland**, **Germany**, and **Austria**. Amidst these strong results, the GGEI identified areas where these countries can improve their green performance further. These opportunities – focused around innovation, green branding and carbon efficiency - could propel their national green performance forward even more in the future.

- Developing countries in Africa and Latin America–including **Ethiopia**, **Zambia**, **Brazil**, and **Costa Rica**– also perform well in this new GGEI edition, ranking in the top fifteen for performance. While Brazil and Costa Rica receive similarly strong results on our perception survey, Ethiopia and Zambia do not, suggesting a need for better green branding and communications in these two African countries.

- Like in 2014, **Copenhagen** is the top green city, followed by **Stockholm**, **Vancouver**, **Oslo** and **Singapore**. This new GGEI only collected perception values for green cities as lack of data availability continues to impede our efforts to develop a comprehensive green city performance index. Given the significant role of cities in the global green economy, city-level data development is an urgent priority.

LAGGARDS

- No country in Asia ranks well for performance on this new GGEI, with the exception of **Cambodia**, which was the most improved country as compared to the last edition, rising 22 spots to 20th overall. **China**, **India**, **Indonesia**, **Japan** and **South Korea** do better on the perception side of the GGEI, but continue to register concerning performance results.

- While many European Union (EU) members perform near the top of this GGEI edition, others including the **Czech Republic**, **Estonia**, **Poland**, **Romania** and **Slovakia** rank near the bottom. These results are

worrisome and suggest uneven national green performance across the EU.

- Many of the countries with high annual GDP growth today rank poorly on the GGEI, further highlighting the limits to GDP as a growth indicator. These countries are mostly in Asia (**Malaysia**, **Thailand**, **Philippines**) and Africa (**Nigeria**, **Tanzania**).

- Countries with a high reliance on fossil fuel extraction and export generally perform poorly on the GGEI, with a few exceptions. **Kuwait**, **Qatar**, **Saudi Arabia** and **Russia** all perform poorly while **Norway** and **Canada** do much better.

CONTINUING TRENDS

- Rapidly growing economies, **China** and **India** continue to show performance weakness on the GGEI Markets & Investment dimension. Given the large investment required to achieve their climate targets, green investment promotion, cleantech innovation, and corporate sustainability should be developed further.

- The **United States** ranks near the top of the GGEI perception survey and it is widely viewed as a vital market for green investment and innovation, yet overall the U.S. continues to have mediocre performance results, ranking 30th of the 80 countries covered. However, the GGEI found that U.S. company-level initiatives to green supply chains and reduce carbon footprints are accelerating.

- Despite having a new prime minister, **Australia** continues to register a poor result on this new GGEI, ranking 55th of the 80 countries covered for performance. While green markets there are showing some strength, the overall carbon intensity of the Australian economy remains extremely high.

- Hosting the annual Conference of Parties (COP) can positively impact the host country's green brand. Yet this short-term image boost does not always translate to improved green performance in the longer-term, as demonstrated by the low GGEI performance results for **Poland** (COP19), **Qatar** (COP18) and **South Africa** (COP17).

- The **United Kingdom's** GGEI performance continues to lag behind its EU peers, ranking 25th of the 80 countries covered. While the UK does very well on both the perception and performance side of the Markets & Investment dimension, inconsistent policies supporting renewable energy and green growth continue to hurt the UK on other parts of the GGEI.

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INTRODUCTION

We are pleased to present results from the 5th edition of the Global Green Economy Index (GGEI). Since its first publication in 2010, the GGEI has provided a data-driven analysis of national green economic performance and how expert practitioners assess it. With the benefit of our historical data, this new GGEI can begin to indicate not only how countries are performing today, but also the progress (or lack thereof) being made towards greener growth models.

This new GGEI comes at a critical moment as countries–including China and the United States–begin to ratify the historic global climate agreement reached at the COP21 in Paris. This agreement offers the most promising framework yet to motivate and coordinate efforts by governments, businesses, investors and civil society to achieve ambitious emission reduction targets.

Behind these important commitments and targets, there is an urgent need for data and insight to help decipher how to most effectively realize this transformation to a low carbon global economy. This new GGEI presents one such framework, offering an integrated performance assessment of climate change, the environment, efficiency sectors and investment to better understand where nations stand today and what they can improve on or leverage to do better in the future.

Some exciting enhancements to this new 5th edition of the GGEI include:

- The GGEI now covers 80 countries and 50 cities, including all members of the European Union, OECD, and G20.
- It integrates new indicators measuring corporate sustainability efforts and levels of national resource efficiency.
- It presents brief country profiles for each of the 80 countries covered, including their performance on the four main GGEI dimensions.

Over its 5-year existence, the GGEI has been enriched greatly by the global community of experts and engaged citizens who have shared the report and partners who provide financial support. Your engagement helps make this product better in each successive edition, so please continue providing it. And for prospective future partners, p. 19 of this report gives more information on some ways to engage with and support the GGEI.

We very much hope you enjoy the results and insights presented on the following pages. As always, I look forward to hearing your reactions.

Jeremy Tamanini
Founder, Dual Citizen LLC
Jeremy@dualcitizeninc.com

COUNTRIES AND CITIES COVERED

The 5th edition of the GGEI covers 80 countries, including the entire European Union. The new GGEI also collected perception scores for 50 cities, taken roughly from the original list of C40 cities. We hope future editions of the GGEI will cover more countries and cities. This expansion is dependent upon funding support from our partners and data availability.

AFRICA


Burkina Faso


Ethiopia • Addis Ababa


Ghana


Kenya


Mauritius


Morocco • Casablanca


Mozambique


Nigeria • Lagos


Rwanda


Senegal


South Africa • Johannesburg


Tanzania


Zambia

ASIA


Azerbaijan


Bangladesh • Dhaka


Cambodia


China • Beijing • Hong Kong • Shanghai


India • Mumbai • New Delhi


Indonesia • Jakarta


Israel


Japan • Tokyo


Jordan


Kuwait


Malaysia


Mongolia


Oman


Philippines


Qatar


Republic of Korea • Seoul


Saudi Arabia


Singapore


Taiwan


Thailand • Bangkok


Turkey • Istanbul


UAE • Abu Dhabi


Vietnam • Hanoi

EUROPE


Austria


Belgium


Bulgaria


Croatia

Czech Republic

Cyprus

Denmark • Copenhagen

Estonia

Finland • Helsinki

France • Paris

Germany • Berlin

Greece • Athens

Hungary

Iceland • Reykjavík

Ireland • Dublin

Italy • Rome

Latvia

Lithuania

Luxembourg

Malta

Netherlands

Norway • Oslo

Poland • Warsaw

Portugal

Romania

Russian Federation • Moscow

Slovakia

Slovenia

Spain • Madrid

Sweden • Stockholm

Switzerland

United Kingdom • London

LATIN AMERICA & THE CARIBBEAN

Argentina • Buenos Aires

Brazil • Rio de Janeiro • São Paulo

Chile

Colombia • Bogotá

Costa Rica

Mexico • Mexico City

Panama

Peru • Lima

Uruguay

NORTH AMERICA

Canada • Toronto • Vancouver

United States of America
• Chicago • Houston • Los Angeles
• New York • Philadelphia • Portland
• San Francisco • Washington DC

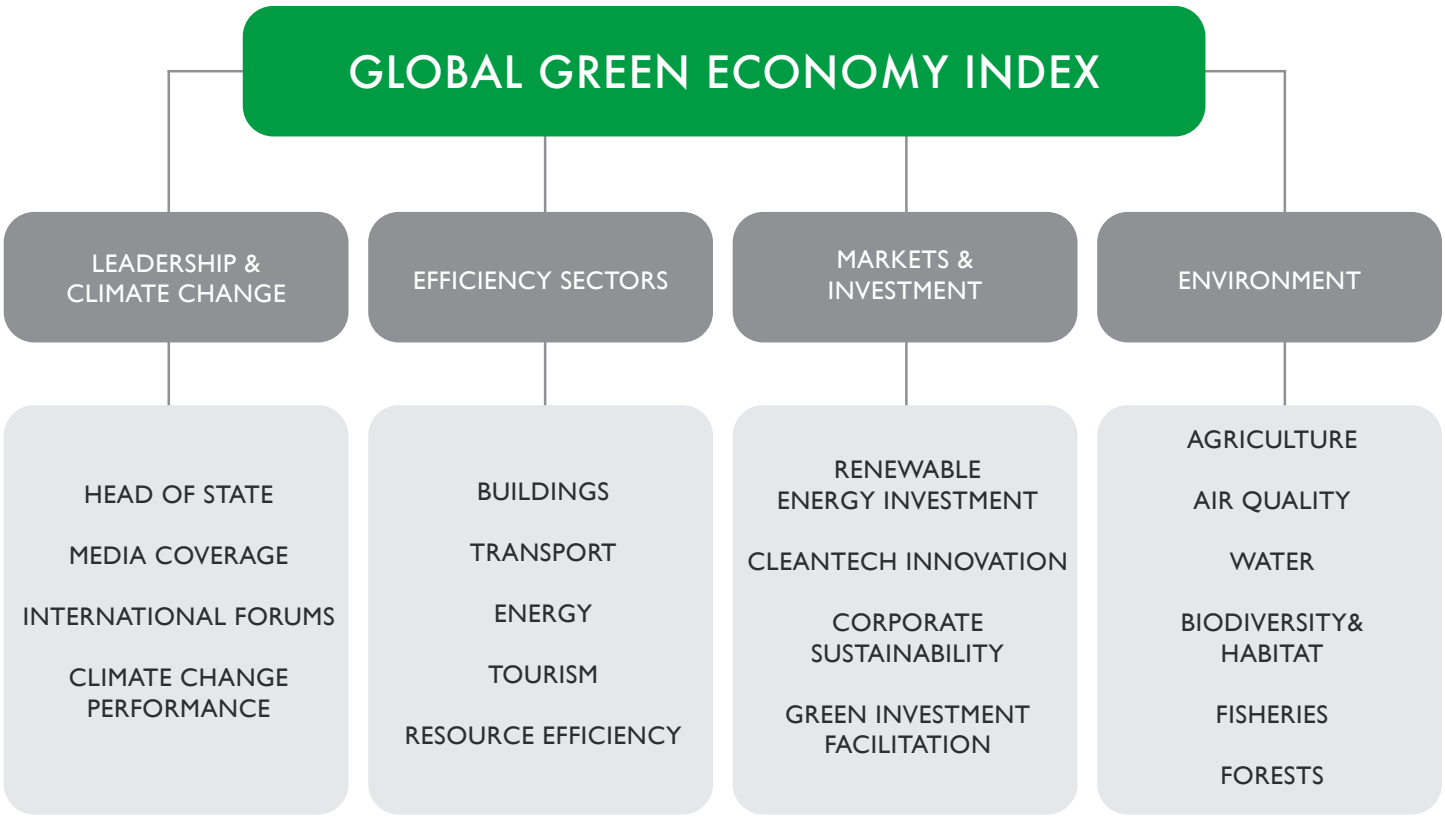
OCEANIA

Australia • Melbourne • Sydney

New Zealand

PERFORMANCE INDEX

The performance index of the 2016 GGEI is defined by 32 underlying indicators and datasets, each contained within one of the four main dimensions of leadership & climate change, efficiency sectors, markets & investment and the environment. The chart below presents a general structure of these four main dimensions and their associated sub-categories. Appendix A of this report provides more detail on each type of data reference, its weighting, a brief description and the source. Our website provides a more in-depth discussion of the data selection process, our approach to weighting, data aggregation and links to the original sources where possible. To access this online, please visit www.dualcitizeninc.com and click on the GGEI > Performance Index tab.



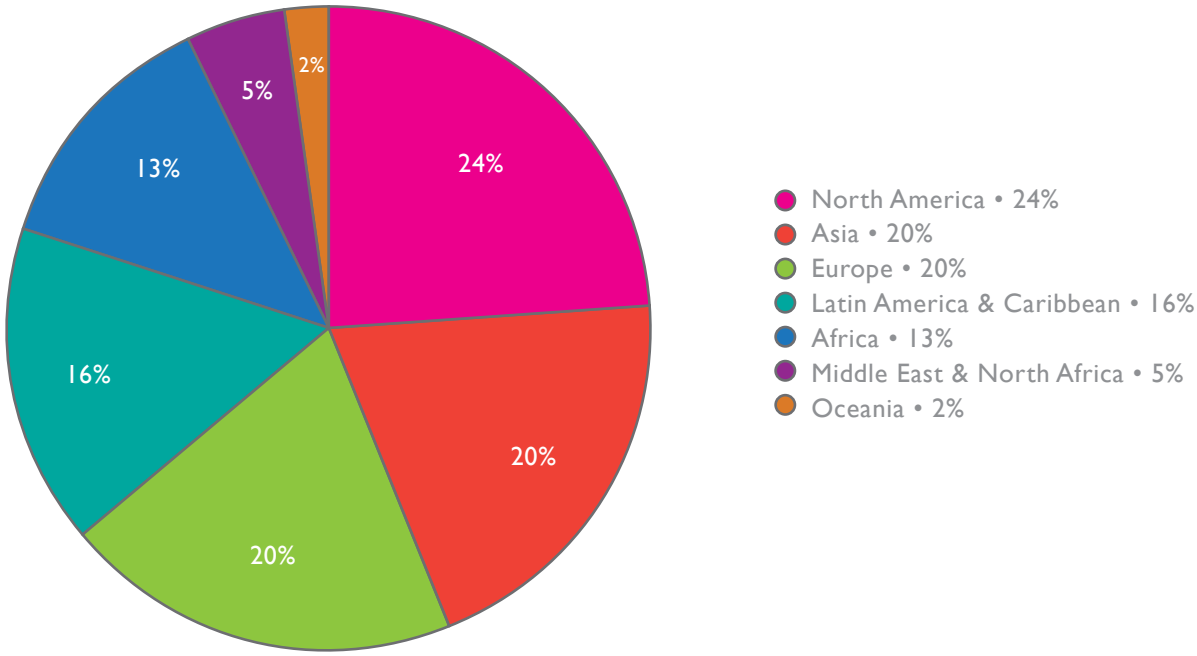
PERCEPTION SURVEY

The perception survey for the 2016 GGEI was conducted from April 18, 2016 through June 10, 2016, and polled targeted respondents on how they assessed national green performance on the four main dimensions of leadership & climate change, efficiency sectors, markets & investment, and the environment. Since its first publication in 2010, Dual Citizen LLC has developed targeted lists for each of these four dimensions with qualified practitioners working globally on issues relevant to green economy and green growth.

This survey segmentation is necessary to gather qualified perceptions based upon a real understanding of the topics at hand. The green economy is quite complex conceptually and many practitioners may be experts on one component of it, yet possess more limited knowledge around another. For example, an expert practitioner working on forests may not have a similar level of expertise around cleantech innovation or investment flows in renewable energy markets. Beyond the structure of the GGEI survey, this finding reinforces the need for a framework like the GGEI to better understand information flows and how perceptions vary about different aspects of the green economy.

The GGEI research team also made extensive efforts to increase the geographic diversity of respondents to the survey, and we are proud to share that these efforts were successful. As the graph below illustrates, we were able to increase the response rate from Asia to 20% (from 15% in the last edition), Africa to 13% (from 9% in the last edition), and Latin America & the Caribbean to 16% (from 13% in the last edition). Our website provides a more in-depth discussion of the survey creation process, respondent selection, survey design and distribution. To access this online, please visit www.dualcitizeninc.com and click on the GGEI > Perception Survey tab.

2016 GGEI PERCEPTION SURVEY RESPONDENTS



RESULTS

The overall results from the 2016 GGEI reveal both encouraging signs and worrisome trends relevant to policymakers in the governments being measured, as well as international organizations, civil society and private actors interacting with them. Now in its 5th edition, this new GGEI also illuminates where nations are making actual progress towards a green economy model, as well as cases where countries are moving in the opposite direction, sometimes in contrast to rhetorical commitments to pursue more sustainable development and green growth.

As was the case in the last GGEI in 2014, this new edition confirms again that a block of European countries including the "Nordics" (Denmark, Finland, Iceland, Norway and Sweden) and Austria, Germany and Switzerland continue to lead the rankings, both in terms of performance and perceptions of that performance by expert practitioners. As the GGEI is a relative measure, these strong results should not signal there isn't still significant work to do in these countries to orient growth and the economy to greener pathways. But they do suggest where the most lasting successes have been realized to date.

These top performers should not imply that only richer, developed countries achieve strong GGEI results. In fact, Brazil, Costa Rica and Zambia all perform well on this new GGEI, with Zambia realizing one of the largest improvements (+16) between the 2014 and 2016 editions. But unlike the case for the European leaders, most developing countries still struggle to reach the top of the GGEI perception survey. As nations will continue to require greater climate-related investments in the next decade, better communicating opportunities in these green markets will be more vital than ever.

In parallel to these strong performers, the 2016 GGEI clearly illustrates that many countries – some being among the fastest growing economies in the world – remain "stuck" in dirty, unsustainable economic models. Despite their leadership at the recent COP21 in Paris, both China and the United States continue to rank poorly on the GGEI, even though they both realize better perception results as targets for green investment and innovation. With the exception of Norway and Canada, most countries highly reliant on fossil fuel exports also perform poorly, with Russia, Azerbaijan, Nigeria and most of the Gulf Cooperation Council (GCC) countries falling near the bottom of the GGEI performance measure.

Many rapidly growing economies reveal similar findings, with some exceptions. According to the IMF World Economic Outlook, India, Bangladesh and Senegal should realize GDP growth between 6-8% in 2016. Yet in a trend that has been observed in previous editions, these countries perform poorly on the new GGEI, raising the question of what kind of growth these nations are realizing and how sustainable it is. Interestingly, Cambodia realized the highest improvement on the GGEI compared to 2014, rising 22 spots to rank 20th overall. Given that Cambodia is projected to grow at 7% in 2016, it represents a possible model for how green growth can be integrated in similar developing countries.

These overall findings are just the beginning of the snapshot the 2016 GGEI provides on the state of the global green economy today and the progress countries are making within it. After presenting the full overall performance and perception results for the 80 countries covered on this new GGEI, this report will explain how they play out on the four main dimensions of the index: Leadership & Climate Change, Efficiency Sectors, Markets & Investment and the Environment.

Perception Rank	Country	Score	Performance Rank	Country	Score
1	Germany	97.74	1	Sweden	77.61
2	United States	94.70	2	Norway	69.11
3	Denmark	93.84	3	Finland	67.83
4	Sweden	93.65	4	Switzerland	67.63
5	Norway	88.95	5	Germany	66.01
6	Canada	85.59	6	Austria	65.23
7	United Kingdom	82.73	7	Iceland	63.68
8	Netherlands	77.58	8	Zambia	62.00
9	Japan	75.94	9	Denmark	61.84
10	Finland	74.47	10	Brazil	60.29
11	France	72.66	11	Costa Rica	58.69
12	China	72.10	12	Canada	58.00
13	Costa Rica	69.79	13	France	56.76
14	Switzerland	69.55	14	Ethiopia	56.46
15	New Zealand	69.24	15	Italy	56.21
16	Australia	62.82	16	Portugal	55.86
17	Iceland	61.76	17	Netherlands	55.61
18	Brazil	59.66	18	Colombia	55.00
19	India	58.03	19	Uruguay	54.70
20	South Africa	53.18	20	Cambodia	54.10
21	Austria	51.80	21	Spain	53.88
22	Spain	51.36	22	Slovenia	53.76
23	South Korea	49.62	23	Rwanda	53.18
24	Israel	47.55	24	New Zealand	53.03
25	Kenya	45.88	25	United Kingdom	52.96
26	Ireland	41.81	26	Hungary	52.75
27	Colombia	41.65	27	Philippines	52.60
28	UAE	41.57	28	Luxembourg	52.18
29	Italy	41.33	29	Peru	51.60
30	Chile	41.31	30	United States	51.53
31	Mexico	38.82	31	Kenya	51.25
32	Belgium	38.20	32	Chile	51.11
33	Peru	37.01	33	Ireland	50.93
34	Indonesia	36.97	34	Japan	50.60
35	Morocco	36.77	35	Morocco	50.35
36	Mauritius	36.42	36	Croatia	50.32
37	Portugal	36.22	37	Belgium	50.23
38	Thailand	36.14	38	Thailand	49.89
39	Ghana	35.71	39	Panama	49.65
40	Philippines	35.13	40	Turkey	49.63

Perception Rank	Country	Score	Performance Rank	Country	Score
41	Senegal	34.96	41	Lithuania	49.62
42	Malaysia	34.77	42	Greece	49.47
43	Bangladesh	34.61	43	Nigeria	48.76
44	Slovenia	34.33	44	Mexico	48.63
45	Burkina Faso	34.19	45	UAE	48.50
46	Tanzania	34.18	46	South Korea	48.41
47	Rwanda	33.94	47	Taiwan	48.37
48	Argentina	33.42	48	Latvia	47.45
49	Nigeria	33.37	49	Mozambique	47.14
50	Jordan	32.72	50	Malta	46.64
51	Russian Federation	32.59	51	Burkina Faso	46.43
52	Uruguay	32.57	52	Bulgaria	45.78
53	Ethiopia	32.56	53	Tanzania	45.75
54	Turkey	32.28	54	Senegal	44.36
55	Greece	32.14	55	Australia	44.28
56	Poland	32.13	56	Israel	44.20
57	Qatar	31.79	57	Azerbaijan	43.73
58	Luxembourg	31.77	58	Ghana	43.28
59	Slovak Republic	31.72	59	South Africa	42.86
60	Mozambique	31.28	60	Jordan	42.59
61	Taiwan	31.23	61	Czech Republic	42.39
62	Saudi Arabia	31.20	62	Slovak Republic	42.11
63	Vietnam	31.08	63	Cyprus	41.99
64	Cambodia	30.90	64	China	41.77
65	Oman	30.63	65	Malaysia	41.31
66	Panama	30.58	66	Vietnam	41.30
67	Mongolia	30.57	67	Mauritius	40.51
68	Croatia	30.29	68	India	40.43
69	Malta	30.22	69	Romania	40.04
70	Estonia	30.17	70	Poland	39.35
71	Czech Republic	30.13	71	Argentina	39.23
72	Kuwait	30.07	72	Oman	39.19
73	Hungary	29.82	73	Bangladesh	39.09
74	Lithuania	29.78	74	Russian Federation	38.08
75	Latvia	29.66	75	Indonesia	37.73
76	Azerbaijan	29.25	76	Estonia	37.09
77	Bulgaria	28.88	77	Kuwait	36.45
78	Romania	28.87	78	Qatar	36.33
79	Zambia	28.84	79	Mongolia	35.01
80	Cyprus	28.50	80	Saudi Arabia	31.34

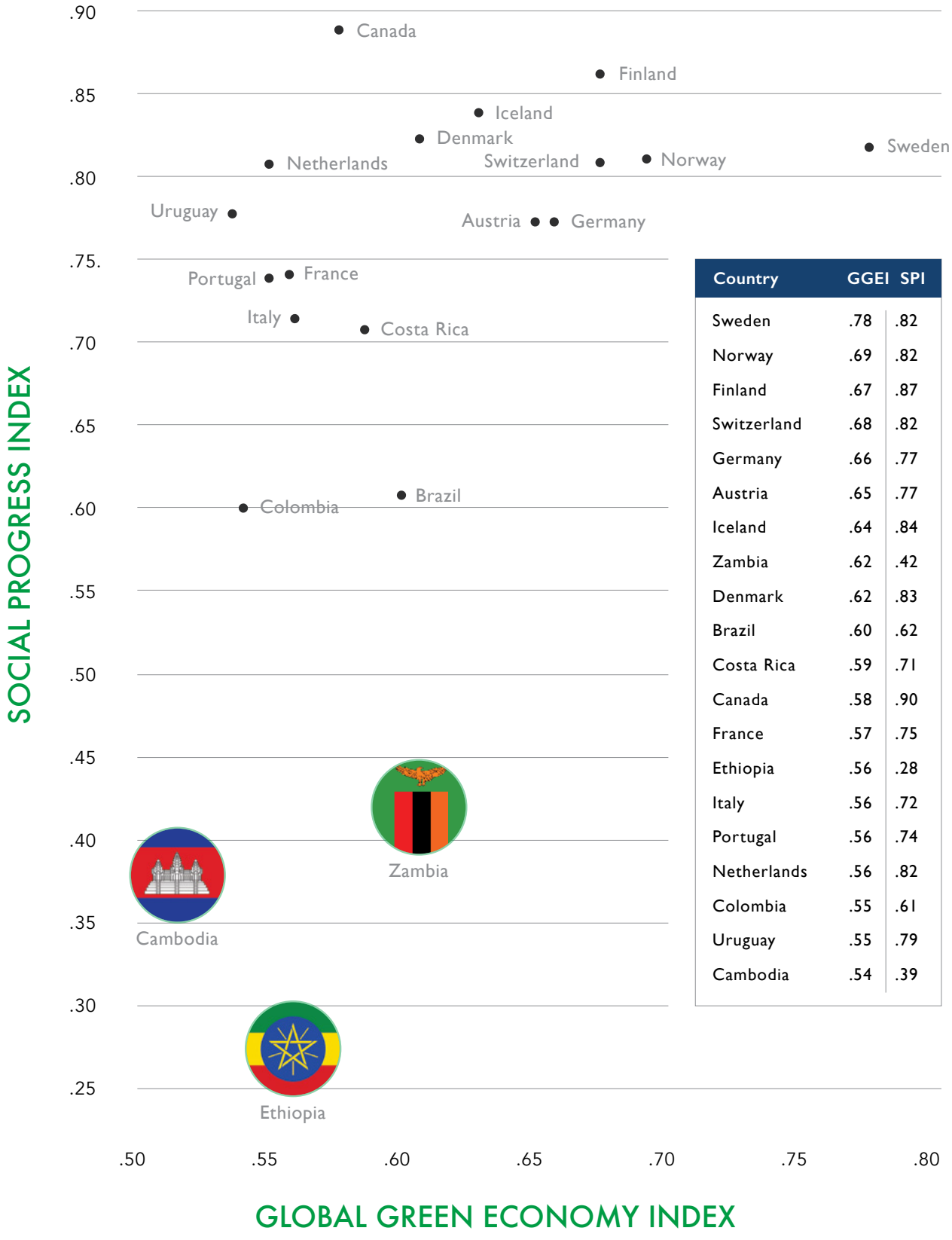
All global indices must make choices around data selection, weighting and integration of diverse data types in order to cover complex topics like the green economy. In doing this, they become useful as comparative tools that illuminate relative performance, between countries or in relation to a standard benchmark. Indices like the GGEI can also be signals, revealing areas that require policy interventions, investment, or more localized data to better understand, as well as successful case studies that other actors can learn from to improve their performance in the future.

Much like other topics addressed by global indices like competitiveness, human development and innovation, the green economy is complex. Conceptually, it integrates economic, environmental and social factors. In practice, data selection along these three dimensions involves many trade-offs between the need to cover the 80 diverse countries in the GGEI, while at the same time referencing the best indicators for the topic at hand. To provide full transparency, we provide a summary table of the GGEI indicators and weighting in Appendix A of this report, and a more detailed description on our website here.

Since the GGEI was first published in 2010, the complexity of the green economy has not disappeared, but there are many more data-based tools and indices to leverage for better understanding it. The Environmental Performance Index (environment), the Climate Change Performance Index (climate) and the Social Progress Index (social) are three examples of other indices that provide more in-depth coverage of topics also addressed in the GGEI.

Because the social dimension of the green economy tends to be the most difficult one to decode–and the most challenging from a measurement point of view–the following graph provides readers with a comparison of the top performers from the GGEI and their performance result from the most recent Social Progress Index (SPI), released in 2016 by the Social Progress Imperative. The SPI measures national social performance along three main dimensions: Basic Human Needs, Foundations of Well Being and Opportunity.

As the following graph illustrates, many top performing GGEI countries correlate with SPI ones, including the Nordic countries and Austria, Germany and Switzerland. However, most of the developing countries that perform in the top 20 on the 2016 GGEI–including Cambodia, Ethiopia and Zambia–do not realize similarly strong results on the SPI. A more in-depth analysis of these differences in results may illuminate future insights into the type of growth that is occurring in these developing countries and how it is impacting social development.



Country	GGEI	SPI
Sweden	.78	.82
Norway	.69	.82
Finland	.67	.87
Switzerland	.68	.82
Germany	.66	.77
Austria	.65	.77
Iceland	.64	.84
Zambia	.62	.42
Denmark	.62	.83
Brazil	.60	.62
Costa Rica	.59	.71
Canada	.58	.90
France	.57	.75
Ethiopia	.56	.28
Italy	.56	.72
Portugal	.56	.74
Netherlands	.56	.82
Colombia	.55	.61
Uruguay	.55	.79
Cambodia	.54	.39

Figure 1: *Top performers on the 2016 GGEI and their corresponding aggregate score from the recently published Social Progress Index (SPI). Source: Social Progress Imperative.*

LEADERSHIP & CLIMATE CHANGE

Perception Rank	Country	Score	Performance Rank	Country	Score
1	Germany	99.99	1	Ethiopia	87.51
2	United States	98.67	2	Cambodia	84.78
3	France	96.91	3	Zambia	84.04
4	Denmark	94.43	4	Nigeria	82.95
5	Sweden	94.22	5	Mozambique	82.90
6	Norway	90.88	6	Costa Rica	81.76
7	Netherlands	86.65	7	Ghana	79.19
8	China	86.04	8	Senegal	77.10
9	Canada	80.75	9	Sweden	77.01
10	Costa Rica	80.23	10	Rwanda	76.79

Political leadership was on vivid display at the high profile COP21 in Paris last December 2015. Heads of state, the global media and the negotiations interacted in front of an international audience desperate for a climate agreement. As the COP21 illustrated, leadership and international institutions have a vital role to play in addressing climate change. The GGEI is the only index of its kind to provide qualitative assessments of the head of state in each country covered and how committed they are to combating climate change, as well as the behavior of delegations from each country participating in major climate meetings like the COP21.

As has been the case in the past with prior COP hosts, convening a high profile climate conference can often bring significant positive recognition to the host country. France, the host of the COP21, was no exception to this, ranking among the top countries for perception on this dimension of the GGEI. But only some COP hosts manage to preserve this positive aura in the years after they host it. Recent hosts Peru (COP20), Mexico (COP16) and Denmark (COP15) still rank well on the perception side of this dimension, while Poland (COP19), Qatar (COP18) and South Africa (COP17) do not.

Despite the importance of leadership, the most heavily weighted variable on this dimension of the GGEI is the one measuring climate change performance. The GGEI aggregates three emission intensity measures to define climate change performance: emissions per capita, emissions per unit of GDP and emissions per unit of primary energy. This indicator then constitutes 50% of each country's performance measure on this dimension, with the leadership ones constituting the other 50%.

As has already been stated, the green economy is a powerful model for understanding the underlying economic, environmental, political and market factors that drive a country's ability to transition to a greener growth pathway. Yet national leaders must ensure that these efforts also positively influence top-line climate change indicators, particularly as there is growing evidence that global temperature increases are already nearing the 1.5 degrees Celsius ceiling defined at the COP21 as an ambitious target.

The urgency of this task is underlined by an observation of some of the largest carbon economies responsible for more than 50% of global emissions. According to GGEI calculations, five of these twelve countries – including Brazil, Canada, India, Indonesia, and Japan - have experienced an increase in their emissions per unit of GDP between the last GGEI in 2014 and the current one.

Given the global priority to reduce emissions and realize growth in some of the world's largest economies, Dual Citizen LLC (in partnership with KnowlEdge srl) has modeled the economy-wide impacts of 12 countries achieving their emission reduction targets defined at the recent COP21. This systems approach considers previously announced policy interventions in these 12 markets and defines short and long-term impacts on the structure of the domestic energy sector, investment required, payback periods and employment. While our work thus far has looked primarily at national pledges and associated impacts, this approach can be adapted to more specific geographic or transaction-level assessments, with the goal of understanding the system-wide effects of investments or policy interventions. In practice, this would include state or regional-level assessments, or evaluations of specific transactions within these countries and their associated environmental, social, and governance (ESG) impacts. More information on the full report The Climate Moment: Anticipating New Energy Markets, Investment Risks & Opportunities and Jobs in the Low Carbon Economy and highlighted country profiles can be accessed here.

PERCENTAGE CHANGE IN EMISSIONS PER UNIT OF GDP

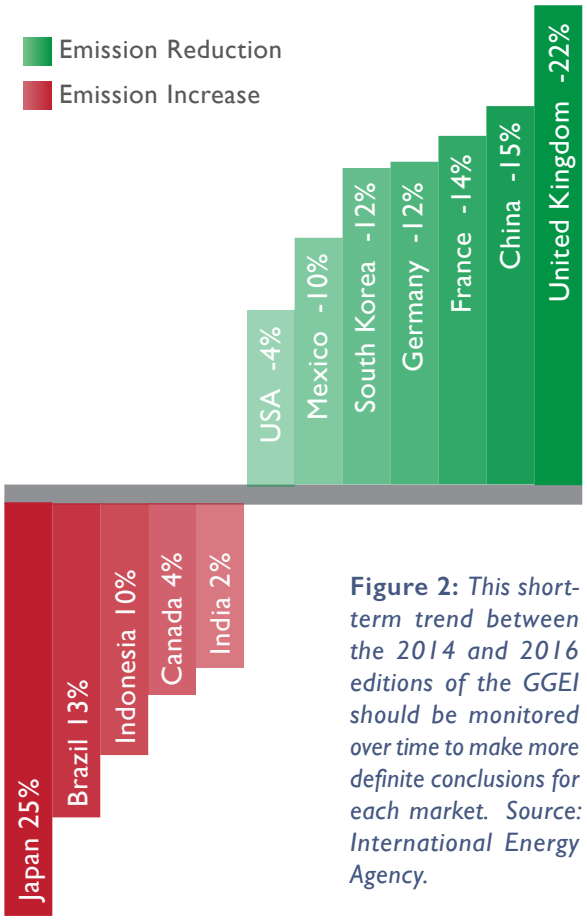


Figure 2: *This short-term trend between the 2014 and 2016 editions of the GGEI should be monitored over time to make more definite conclusions for each market. Source: International Energy Agency.*

EFFICIENCY SECTORS

Efficiency sectors like buildings, energy and transport are critical components to any successful green economy. Increasing the role of renewable energy and energy efficiency in these sectors is necessary to reduce their associated emissions and catalyze greener growth in the overall economy. The GGEI measures the extent to which LEED-certified sustainable building has penetrated each country's construction sector, the contribution of renewable energy to domestic electricity production and emissions from the transport sector. The GGEI also generates a qualitative measure of the extent to which tourism is sustainable and for the first time in this 2016 edition, a proxy measure of resource efficiency in each market covered.

The top performers on the Efficiency Sectors dimension generally mirror the overall results, with the Nordic countries, Austria, Germany and Switzerland receiving top ranks, something also found through the perception survey. Taiwan also performs well due to top scores on Buildings and Resource Efficiency, as do Costa Rica and Colombia due to high levels of renewable energy contribution. Thailand, Malta and Slovenia are showing progress at embedding sustainability to their tourism industries. South Korea and Belgium–due to high rates of recycling–receive strong results around Resource Efficiency.

The lowest performers on the Efficiency Sectors dimension also generally mirror the overall results, with economies centered on fossil fuels and many fast-growing countries failing to show much progress on this dimension. There are some exceptions: the United Arab Emirates outperforms other GCC states due to a high level of sustainable building; Canada and Norway perform well due to high levels of domestic renewable energy despite the global emissions linked to their oil and gas exports; and Cambodia is making progress around Buildings, Energy and Sustainable Tourism.

Perception Rank	Country	Score	Performance Rank	Country	Score
1	Germany	98.31	1	Sweden	88.30
2	Sweden	94.48	2	Finland	77.55
3	Norway	93.13	3	Norway	74.69
4	Canada	91.89	4	Austria	74.04
5	Japan	91.42	5	Iceland	73.72
6	Denmark	88.92	6	Germany	72.05
7	United States	84.20	7	Switzerland	71.57
8	United Kingdom	83.68	8	Denmark	70.12
9	Netherlands	83.21	9	Taiwan	69.79
10	Finland	79.61	10	Canada	66.98

By generating five distinct measurement approaches to the topics covered on the Efficiency Sectors dimension, the GGEI creates an integrated view of each economy. This is valuable because efficiency improvements across sectors do not necessarily improve in tandem. For example, some countries may have high pre-existing levels of renewable energy to electricity production but have rapidly growing emissions from the transport sector. Or, countries may have a high recycling rate but limited attention to sustainable building practices. Each efficiency sector covered in the GGEI contributes to national emissions and greening them should be approached from an integrated, economy-wide perspective.

Transport is a sub-category within Efficiency Sectors where sufficient historical data exist to better understand progress countries are making. As the following chart illustrates, some of the fastest growing emerging economies have also realized huge gains in emissions from their transport sectors. Most notably, China (+191%) and India (+137%) have seen significant increases over the past decade. While some of the top GGEI performers have managed to reduce emissions from transport over the same period, these reductions are much smaller.

EMISSIONS FROM TRANSPORT SECTOR (CHANGE 2001 TO 2013)

Figure 3: *Countries exhibiting progress at reducing emissions from transport should be examined more closely to reveal best practices and successful policy interventions. Source: International Energy Agency.*

Support & Partnership with the GGEI

The GGEI is sustained through funding partnerships from a diverse range of global firms and institutions. Increasing the financial support for the GGEI is critical to providing more country coverage, open data and other enhancements. Prospective clients interested in developing a partnership with the GGEI should contact Jeremy Tamanini by email Jeremy@dualcitizeninc.com. Some examples of partnership include:

•**Subscription** *Access full data results (perception + performance) from the GGEI for 80 countries and 50 cities. Some partners use these data to build outward facing data visualization platforms like the one recently launched by Denmark's State of Green.*

•**Reporting** *Receive an in-depth report interpreting the latest GGEI results for your country or city. This report can be used to educate domestic stakeholders at public conferences, like Italy's Stati Generali where the national GGEI results will be presented.*

•**Localization** *Adapt the GGEI structure, methodology and data to sub-national entities such as states, regions or cities. This approach can illuminate green economy dynamics within national borders and provide a more local perspective on performance and opportunity.*

•**Customization** *Integrate GGEI data and intelligence with other third-party datasets, particularly ones focused on corporate sustainability, environment, social and corporate governance (ESG) and impact investing.*

MARKETS & INVESTMENT

Green markets and investment flows have always been a central component of the GGEI. In the wake of the COP21 in Paris last December, consensus estimates suggested that around $1 trillion annually will be required to have a chance at keeping global emissions within the 2 degrees Celsius budget framework that has structured recent climate negotiations. These investments will come primarily from the private sector. All nations must position themselves to attract renewable energy investment as well as foster the conditions for cleantech innovation to prosper.

Some new countries enter the top ranks of the Markets & Investment dimension of the GGEI this edition. Japan – while revealing mediocre results overall on the GGEI – lands in the top 10 for both perception and performance. Despite falling a worrisome 19 spots on the GGEI overall, Ireland performs in the top 10 of this dimension as well, although the Irish market continues to lag behind in achieving recognition on the GGEI perception survey. And the Netherlands, which falls behind its main EU competitors overall, also performs well on this dimension.

While ranking near the top of the perception rankings, China and the United States' performance results leave room for improvement. China continues to install new renewable energy capacity at a rapid rate, but the United States is moving more slowly, perhaps due to the continued policy uncertainty in a U.S. Congress where some members still deny that climate change exists. In a more positive development, Kenya ranks in the top 10 for performance around cleantech innovation, an encouraging signal that developing countries can foster green innovations on par with their developed world peers.

Perception Rank	Country	Score	Performance Rank	Country	Score
1	Germany	99.97	1	Germany	89.23
2	Denmark	99.90	2	Finland	87.99
3	United Kingdom	98.39	3	Denmark	85.41
4	United States	97.54	4	Sweden	85.37
5	Sweden	91.76	5	Japan	79.31
6	China	91.59	6	Canada	77.83
7	Canada	86.37	7	United Kingdom	75.34
8	Finland	83.33	8	Ireland	73.90
9	Japan	81.39	9	Netherlands	72.14
10	Norway	80.14	10	Norway	70.79

Corporate Sustainability is an important addition to the Markets & Investment dimension of the GGEI this edition. While much of the GGEI focus is on governments and what they can do through policy interventions to further green growth, companies are assuming a bigger role in this space of late. Global and local companies have carbon and natural capital footprints, as well as supply chains that when reoriented to more sustainable pathways can have spillover effects on the local markets where they operate.

Data collection and measurement of corporate sustainability is still at a nascent stage, although firms like Trucost plc have already compiled a comprehensive database of public companies' natural capital footprints. National initiatives like the Fondazione per lo sviluppo sostenibile (Italy) have worked to quantify the extent to which green businesses exist across a wide range of sectors, using internationally accepted classification systems of the environmental goods and services sector (EGSS). Efforts like this demonstrate to corporate leadership the sectors that currently contribute to the green economy, and those that do not, helping to drive company-level progress.

In this GGEI edition, we started with a simpler approach to measuring corporate sustainability. Referencing the CDP (formerly Carbon Disclosure Project) database, we generated a score for each of the three largest companies in each country covered by the GGEI. This score looked at whether they provided climate and supply chain reporting to the CDP and if they had been recognized as an "A-List" company. While the GGEI approach does not quantitatively score the carbon and natural capital footprint of these companies yet, it serves as a signal around whether corporate sustainability reporting is starting to gain traction in each country, something that will hopefully lead to more robust data reporting in the future.

Our findings are instructive. In many countries with otherwise lackluster GGEI results – like the United States, Australia, Japan and South Korea - the corporate sector is more engaged with sustainability reporting. In many developing countries, there is limited evidence of sustainability reporting from top companies. The chart below illustrates the results from this topic on the GGEI for companies based in countries with a high reliance on fossil fuel extraction, as well as for the top performing countries of Germany, Switzerland and the United States.

SELECT CORPORATE SUSTAINABILITY RESULTS

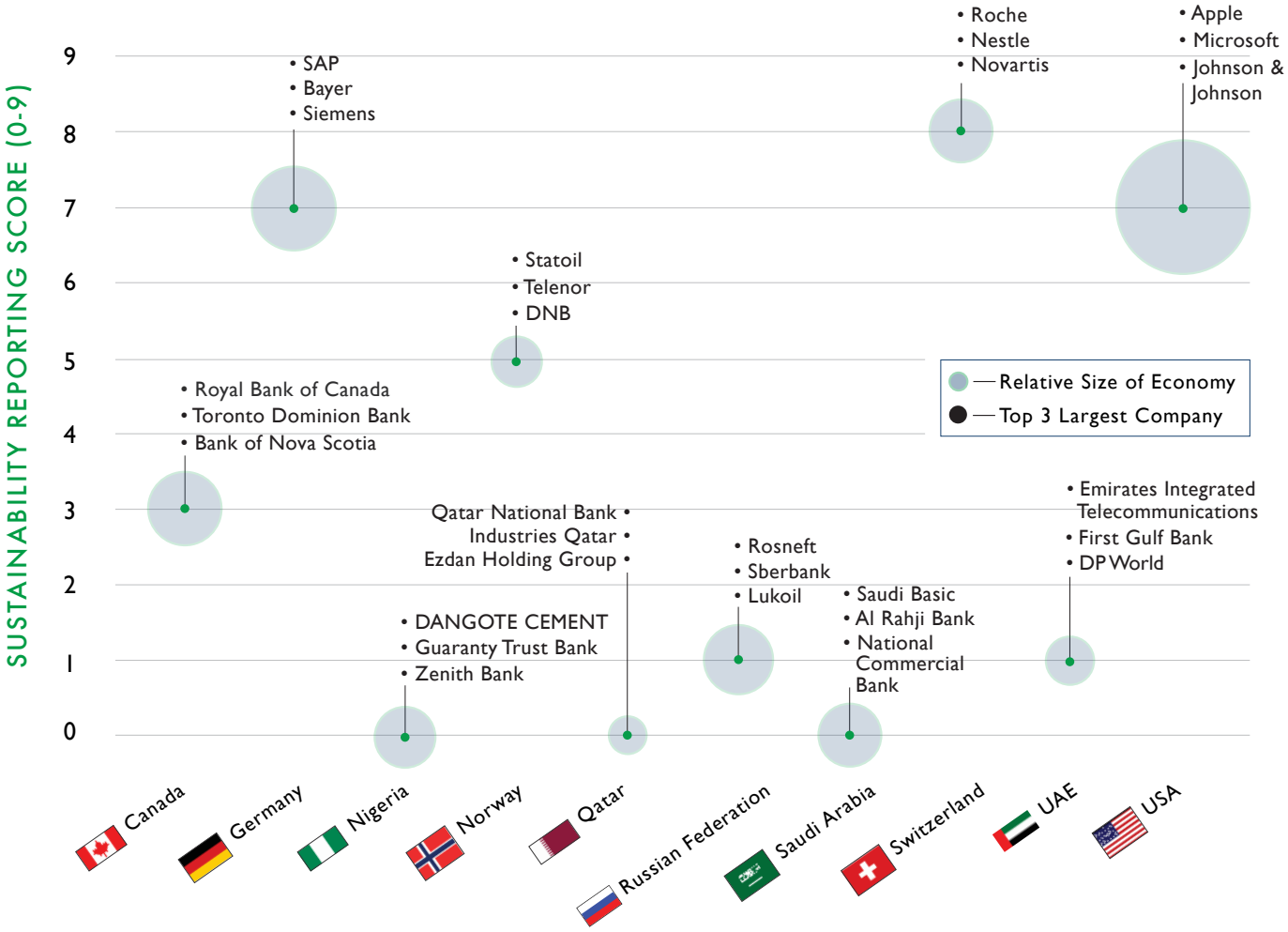


Figure 4: *Large companies must prioritize sustainability reporting to the CDP and similar initiatives. As this graphic illustrates, most companies in countries highly reliant on fossil fuel exports have yet to demonstrate this commitment. Source: CDP.*

ENVIRONMENT

Perception Rank	Country	Score	Performance Rank	Country	Score
1	United States	98.39	1	Slovenia	77.40
2	New Zealand	95.76	2	Switzerland	73.43
3	Australia	95.53	3	Portugal	71.66
4	Sweden	94.15	4	Croatia	70.13
5	Germany	92.69	5	Morocco	70.12
6	Denmark	92.13	6	France	69.25
7	Norway	91.67	7	Austria	69.23
8	Japan	90.52	8	Greece	66.73
9	Costa Rica	87.25	9	Luxembourg	66.72
10	Canada	83.36	10	UAE	66.21

Like in the 2014 edition, this year's GGEI calculates environmental performance based upon the results from the recently released Environmental Performance Index (EPI), published by Yale University. The EPI data are both high quality from a measurement perspective and exhibit widespread coverage of the 80 countries tracked on the 2016 GGEI. Because of its focus on the environmental component of the green economy, the EPI and the GGEI also reveal where complementary progress is being made on environmental and efficiency sectors, and where this is not the case.

The top performers on the GGEI Environment dimension include most of the top ranked countries overall. The Nordic countries, Austria, Germany and Switzerland perform well, as do other EU nations, most notably Slovenia, Portugal, Croatia, France and Greece. As the EPI points out, the social implications of development can often play out differently in Air Quality and Water, something illustrated clearly through China's ranking almost last for Air Quality, and somewhat better for Water Treatment & Access. Other rapidly developing economies like Ethiopia and Thailand score poorly on both measures.

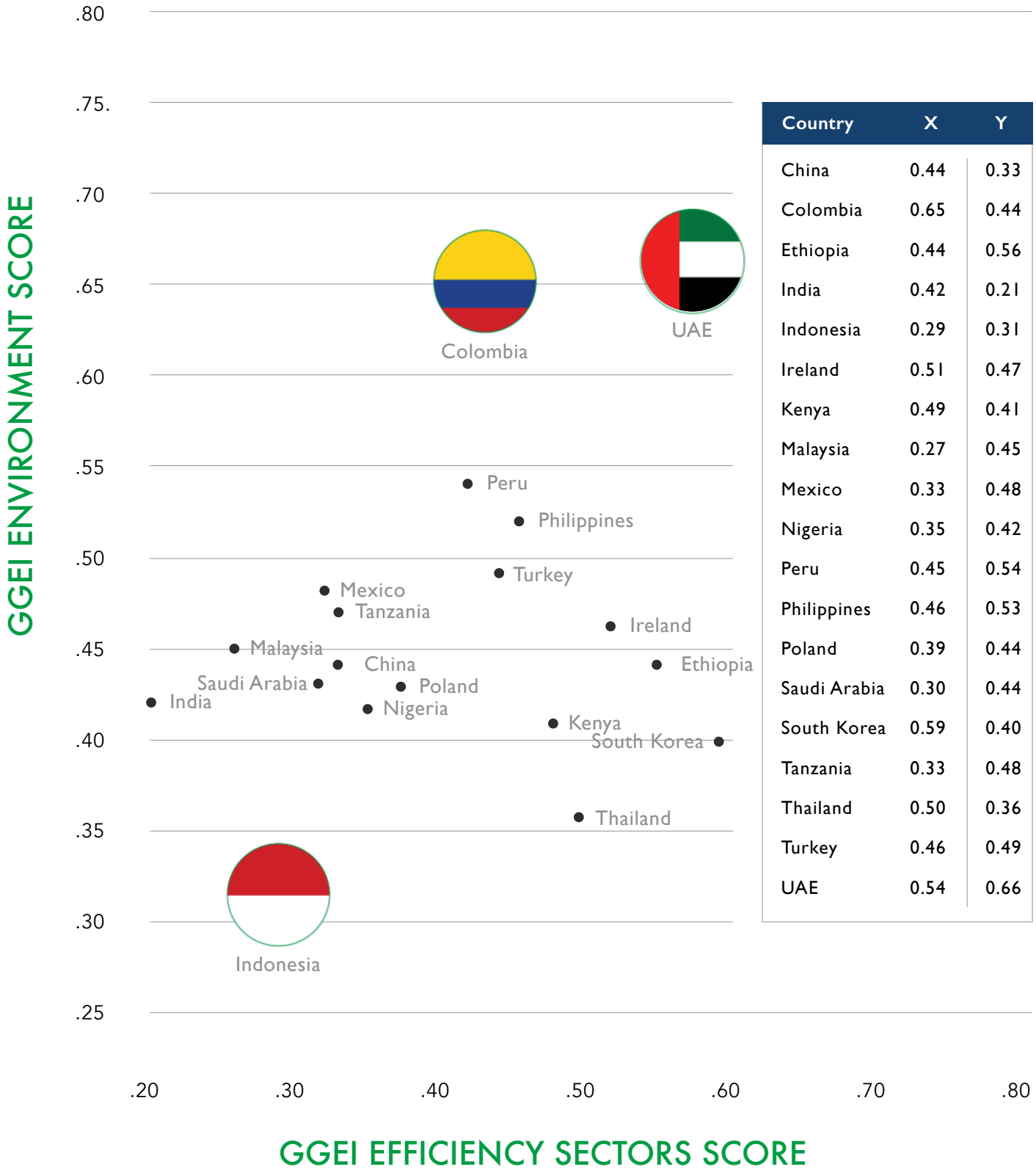
The other sub-categories of the Environment dimension produce some counter-intuitive results. The generally high performing Nordic countries actually perform quite poorly on the Forests sub-category (with the exception of Iceland). Some central and eastern European countries – including Hungary, Slovenia, Estonia and Poland – score quite well on Biodiversity. Others – including the United Kingdom, Ireland, Denmark and the Netherlands – rank near the bottom on the Fisheries sub-category.

> Economic development leads to improvement in some environmental areas, yet development is also associated with increased prevalence of environmental hazards. Air and Water indicators clearly exhibit these conflicting signals. As nations have become wealthier, particularly in Asia, their governments invest in sanitation infrastructure and fewer people are exposed to unsafe water, leading to fewer deaths from waterborne illnesses. But as countries develop, increased industrial production, shipping, and automotive transportation foul the air, exposing human populations to dangerous airborne compounds. Thus, deaths attributed to air pollution have risen steadily in the past decade in step with exposure.
>
> – From "Key Findings from the 2016 Environmental Performance Index" p. 13.

This relationship between indicators measuring Air Quality and Water in the developing world is one of many examples of how different environmental indicators interact. The GGEI enables a further comparison between environmental and efficiency sectors performance in the 80 countries covered. More specifically, the GGEI ranks countries on both their environmental performance (e.g. fisheries, forests and biodiversity) and efficiency sectors performance (e.g. transport, buildings and energy). This integrated viewpoint offered through the GGEI framework is critical for understanding the underlying dynamics in an economy that support or impede the ability of countries to deliver on emission reduction targets or sustainable development goals.

Measuring this relationship between the environment and efficiency sectors is valuable for a few reasons. First, it promotes understanding of the key levers of better or worse green performance in a given country. Country profiles and their domestic economies differ significantly; while land-use patterns and deforestation may be central policy priorities in one national context, efficiency improvements in buildings could be more relevant in another. Second, many countries are realizing progress in one dimension, while backsliding on the other, cancelling out efforts to realize broader global goals around carbon emissions or sustainable development. This is clearly observed in countries where interventions around the environment may yield positive results, yet rapid growth without efficiency improvements increase emissions and adverse social impacts like air pollution.

The following graphic begins to explore this relationship in some of the fastest-growing global economies. It shows both the aggregate Efficiency Sectors score from the GGEI (x-axis) and the aggregate Environment one (y-axis), and which of these fast-growing economies are realizing stronger results on both dimensions, weaker results on both dimensions, or somewhere in between. While few of the nations considered on this graphic perform near the top of these GGEI dimensions overall, the UAE and Colombia stand out among this sample as making some progress towards greening both the environment and efficiency sectors, while Indonesia's results suggest much less success in this regard.



Country	X	Y
China	0.44	0.33
Colombia	0.65	0.44
Ethiopia	0.44	0.56
India	0.42	0.21
Indonesia	0.29	0.31
Ireland	0.51	0.47
Kenya	0.49	0.41
Malaysia	0.27	0.45
Mexico	0.33	0.48
Nigeria	0.35	0.42
Peru	0.45	0.54
Philippines	0.46	0.53
Poland	0.39	0.44
Saudi Arabia	0.30	0.44
South Korea	0.59	0.40
Tanzania	0.33	0.48
Thailand	0.50	0.36
Turkey	0.46	0.49
UAE	0.54	0.66

Figure 5: *All countries can improve policy planning and investment allocations by better understanding their green performance around both the environment and efficiency sectors. Source: Global Green Economy Index.*

CITIES

Cities and measuring their green economic performance has not been a focus in the GGEI in past editions. This is by no means due to their lack of importance. Sub-national actors – ranging from cities to regions, states and large companies – are playing increasingly central roles in the quest to reorient growth towards greener pathways. Instead, the limitation to developing a full green city index to mirror the national one has been due to a lack of data availability. Unlike countries where reporting and coverage of main topics and themes can be more complete, the same cannot be said for cities, where large data gaps exist and no standardized reporting on important indicators related to the green economy have been established.

On the perception side, the GGEI has collected data from our survey respondents on how they judge city performance on the main four dimensions of the GGEI: leadership & climate change, efficiency sectors, markets & investment and the environment. In the 2016 edition, the GGEI collected these perceptions for 50 cities. These perception results – while lacking the comparability to performance like in the national index, are still valuable. They show the extent to which urban "green brands" are developing. They also indicate cases where the city green brand may be stronger than the national one, suggesting ways to leverage this to attract greater interest and investment to the country as a whole.

The 2016 GGEI perception survey results for these 50 cities revealed unsurprising results, with the Nordic capitals (Copenhagen, Stockholm, Oslo and Helsinki) receiving the top results. Paris also received a high rank this edition, but like in the national case, these results should be monitored over time to see if they are linked only to the fact Paris was the host of the highly publicized (and successful) COP21. Vancouver, Singapore and New York also appeared in the top 10.

While the GGEI does not provide a fully developed performance index for cities yet, it does provide some information on the extent to which these 50 cities are integrating sustainability and data reporting to their administration. Like for Corporate Sustainability, this new GGEI leveraged city reporting to the CDP Cities Program to begin to understand the extent to which sustainability and climate-related reporting is expanding in these global cities. The GGEI considered whether each city submitted a report to the CDP, and if they did, whether they reported a climate action plan. In some cases, we also collected data from multiple sources on city emissions to begin to understand the emission trends and intensity in these 50 cities and how they compare to the country in question.

The following table presents the GGEI perception results for the 50 cities covered in this edition as well as the extent to which each city participated in reporting to the CDP. Of the 50 GGEI cities, 39 submitted CDP reports in the last year and of these, 31 completed the areas assessed by the GGEI. Copenhagen, frequently a top performer on the GGEI, excelled in this category, as did other strong green cities like Stockholm and Vancouver. As of the date of our analysis, Beijing, Mumbai and New Delhi made no submission to CDP.

Perception Rank	City	Score	CDP Report 2015	City Climate Plan
1	Copenhagen	99.98	Y	Y
2	Stockholm	99.72	Y	Y
3	Vancouver	96.70	Y	Y
4	Oslo	84.47	Y	Y
5	Singapore	74.42	Y	Y
6	New York	74.31	Y	Y
7	Berlin	72.59	Y	Y
8	Helsinki	71.51	Y	Y
9	Paris	69.53	Y	Y
10	Tokyo	69.50	Y	Y
11	London	69.20	Y	Y
12	San Francisco	67.05	Y	Y
13	Melbourne	55.99	Y	Y
14	Reykjavíc	53.01	N	N
15	Washington DC	51.18	Y	Y
16	Portland	50.95	Y	Y
17	Los Angeles	46.40	Y	Y
18	Abu Dhabi	46.12	N	N
19	Seoul	44.62	Y	Y
20	Bogotá	42.84	Y	Y
21	Dublin	39.43	Y	Y
22	Beijing	38.93	N	N
23	New Delhi	38.80	N	N
24	Rio de Janeiro	38.23	Y	Y
25	Sydney	38.10	Y	N
26	Toronto	38.06	Y	Y
27	Hong Kong	36.52	Y	Y
28	Mexico City	35.13	Y	Y
29	Johannesburg	35.09	Y	Y
30	Buenos Aires	33.06	Y	N
31	Jakarta	30.16	Y	Y
32	Warsaw	30.16	Y	Y
33	Lagos	30.08	Y	Y
34	Madrid	30.05	Y	Y
35	Mumbai	28.73	N	N
36	Casablanca	28.67	N	N
37	Chicago	28.61	Y	Y
38	Philadelphia	28.56	Y	Y
39	São Paulo	28.56	N	N
40	Lima	28.53	Y	Y
41	Istanbul	28.48	N	N
42	Addis Ababa	27.18	N	N
43	Bangkok	27.08	Y	Y
44	Hanoi	27.08	Y	N
45	Rome	26.99	N	N
46	Shanghai	25.64	N	N
47	Moscow	25.58	Y	N
48	Athens	24.23	Y	N
49	Dhaka	24.23	N	N
50	Houston	24.23	Y	Y

CONCLUSION

We hope that this summary report of the new GGEI results is both interesting and useful to our readers. In the following appendices, readers can find more information about the indicators and data sources referenced in the GGEI, as well as a brief country profile for each of the 80 countries covered in this edition. These country profiles offer a snapshot of your country's performance and how it plays out on the four main GGEI dimensions. We encourage our readers to also visit our website where there is much more in-depth background about the data sources for the performance index, the structure of the perception survey, our methodological approach to creating an index and answers to frequently asked questions.

After releasing previous editions of the GGEI, our readers often ask a simple question: What next? Behind this question is often a desire to understand how to activate the data and insights from the GGEI to promote progress in their country, region or city. The answer to this varies, but here are some suggestions:

- **Share** this report with your networks and through social media to engage others in better understanding the issues addressed in the GGEI.
- **Integrate** the GGEI to media stories, blogs, academic research, data visualizations and other platforms.
- **Visit** our new Tableau Public profile, where you can interact more with graphics from this report.
- **Engage** more by accessing the full GGEI data from this edition, along with a report interpreting what they mean for your country, region or city.
- **Contact** us to brainstorm further ways that our research and experiences working in this space can support your work.

Dual Citizen LLC, a consultancy based in Washington DC, publishes the GGEI. The Dual Citizen practice is focused on working with clients and partners to improve the value of data and communications as tools for promoting development, green growth and the low carbon economy transformation. Please visit dualcitizeninc.com to learn more about the practice.

APPENDIX A: INDICATORS & DATA SOURCES

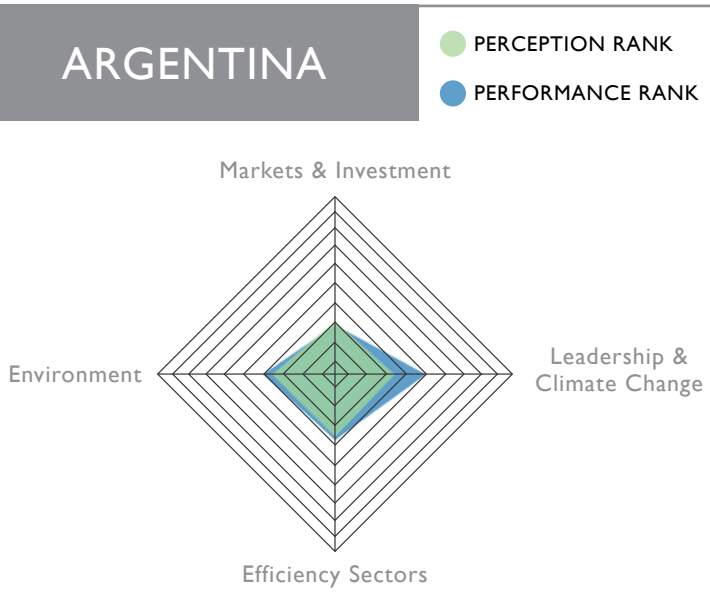
Category	Indicator	Type	Weighting	Description	Source
Leadership & Climate Change	Head of State	Qualitative	20%	Head of State's advocacy for green issues	Google Analysis scored by Dual Citizen LLC on scale of 0-10
	Media Coverage	Qualitative	10%	Positive media coverage of national green economy	Google Analysis scored by Dual Citizen LLC on scale of 0-10
	International Forums	Qualitative	20%	National positions & statements in international forums	Climate Action Network (ECO) reporting scored by Dual Citizen LLC on scale of 0-10
	Climate Change Performance	Quantitative	50%	Performance on climate change (emissions per capita, emissions per unit GDP, emissions per unit primary energy)	International Energy Agency (IEA)
Efficiency Sectors	Buildings	Quantitative	20%	LEED certification of commercial buildings	LEED commercial certification as repored by the U.S. Green Building Council (USGBC)
	Energy	Quantitative	20%	Renewable electricity as a percentage of national total	International Energy Agency (IEA)
	Tourism	Qualitative	20%	Ranking of national tourism ministry efforts	Scored by Dual Citizen LLC on scale of 0-10
	Transport	Quantitative	20%	Emissions from transport and 10-year trend	International Energy Agency (IEA)
	Resource Efficiency	Quantitative	20%	National recycling rates	WASTE ATLAS, EcoMENA

Category	Indicator	Type	Weighting	Description	Source
Markets & Investment	Renewable Energy Investment Attractiveness	Quantitative	25%	Country attractiveness for RE investment	IRENA
	Cleantech Innovation	Quantitative	25%	Business climate for cleantech innovation	Cleantech Group, Heslin, Rothenberg, Farley & Mesiti p.c.
	Corporate Sustainability	Qualitative	25%	Adoption of sustainability reporting by top 3 national companies (market capitalization)	CDP Corporate Sustainability Reporting, scored on scale of 0-9
	Green Investment Facilitation	Qualitative	25%	National efforts to faciliate green investment	Scored by Dual Citizen LLC on scale of 0-10
Environment	Agriculture	Quantitative	17%	Assesses policies related to the effects of intensive agriculture, specifically nitrogen use efficiency and nitrogen balance	Environmental Performance Index 2016 (Yale University)
	Air Quality	Quantitative	17%	Measures population weighed exposure to fine particulate matter and percentage of the population burning solid fuel for cooking	Environmental Performance Index 2016 (Yale University)
	Water	Quantitative	17%	Tracks how well countries treat wastewater from households and industrial sources before releasing it back into the environment	Environmental Performance Index 2016 (Yale University)
	Biodiversity & Habitat	Quantitative	17%	Tracks the protection of terrestrial and marine areas as well as threatened or endangered species	Environmental Performance Index 2016 (Yale University)
	Fisheries	Quantitative	17%	Assesses countries' fishing practices - both the use of heavy equipment and the size of the catch	Environmental Performance Index 2016 (Yale University)
	Forests	Quantitative	17%	Measures the loss in forest area from 2000 to present using satellite-derived data	Environmental Performance Index 2016 (Yale University)

This table provides a summary of the GGEI indicators and data sources. For a more in-depth presentation of these sources, please visit our website at GGEI > Performance Index.

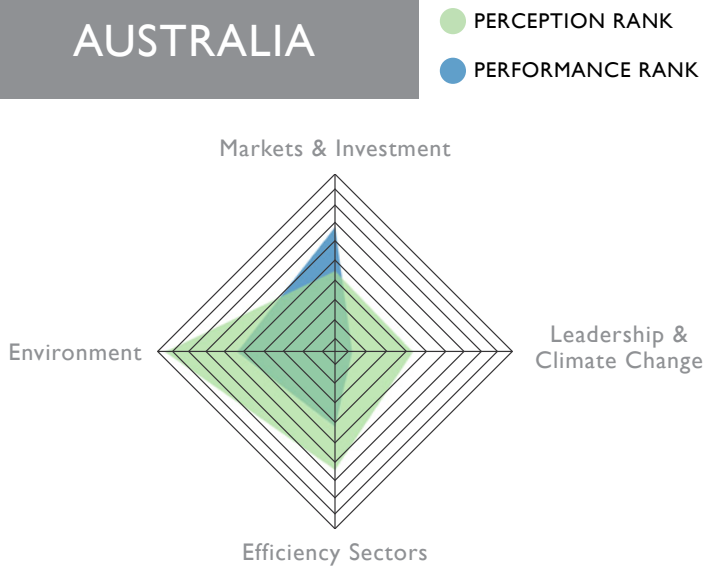
APPENDIX B: COUNTRY PROFILES

ARGENTINA



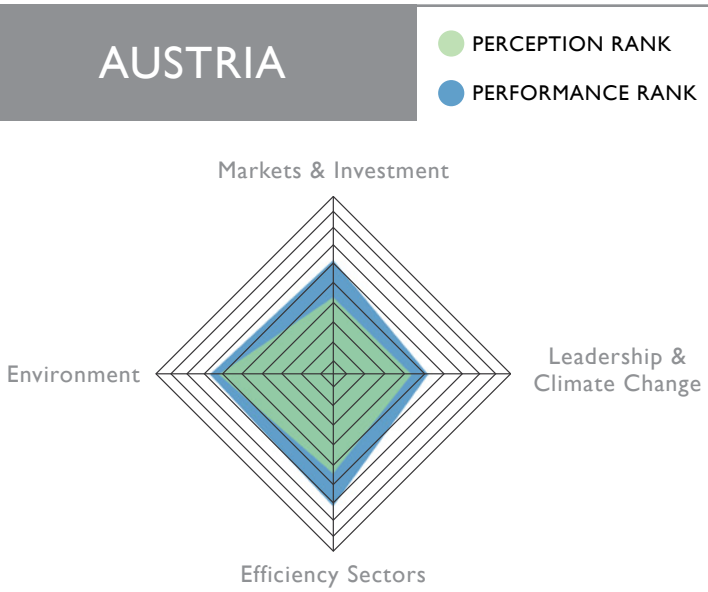
Argentina's GGEI results continue to be disappointing, with its overall performance score dropping further compared to 2014 and its perception score remaining basically flat. Argentina realized this decline in performance in Efficiency Sectors, Markets & Investment and the Environment. On Leadership & Climate Change, Argentina's performance improved slightly compared to 2014 mostly due to the head of state better promoting green economic growth. Argentina's leadership should continue to focus on mainstreaming this concept in order to begin to realize positive results in the other areas of the GGEI.

AUSTRALIA



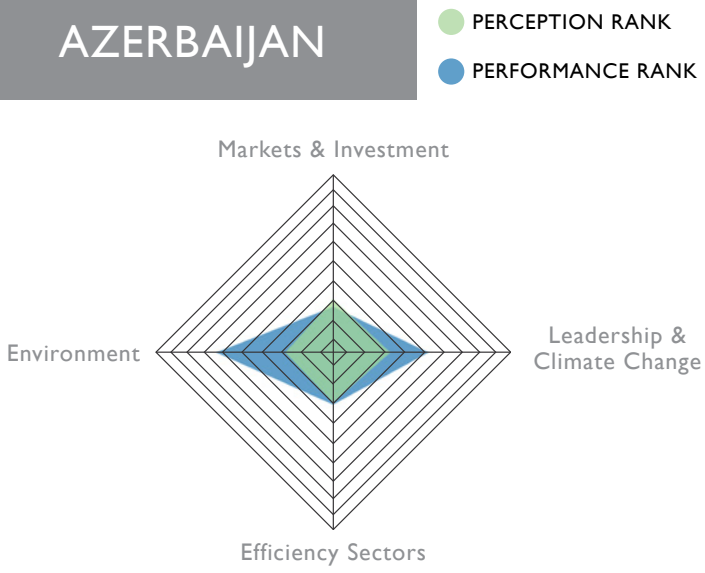
The challenges around green economic growth in Australia run much deeper than the rhetoric and policies of former Prime Minister Tony Abbott. The overall perception and performance scores both declined slightly for Australia compared to 2014, despite having a new prime minister. This is because Australia's results on climate change performance and Efficiency Sectors remain weak, and environmental performance declined slightly compared to 2014. Australia's greatest strength on the GGEI continues to be the Markets & Investment dimension: strong results around cleantech innovation and corporate sustainability should be leveraged further.

AUSTRIA



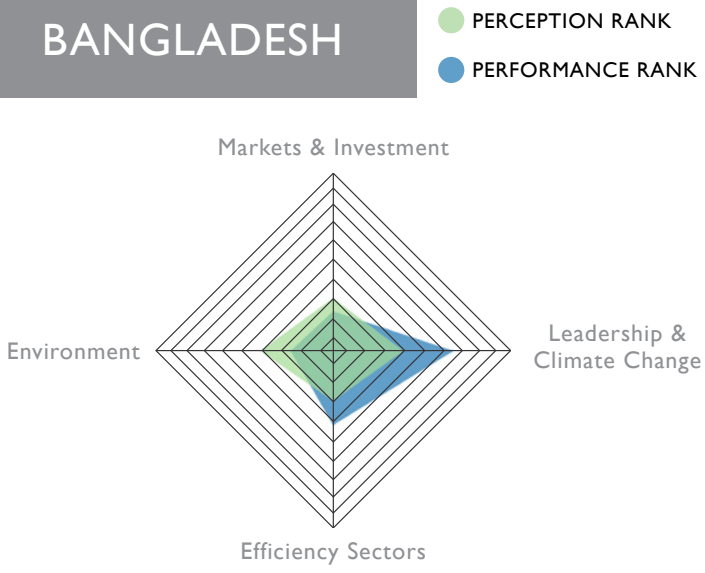
Austria continues to outperform expert perception rankings on the GGEI, revealing an opportunity for better green country branding and strategic communications. Austria's overall GGEI performance score remains firmly in the top ten whereas the overall perception score has declined even further compared to 2014. Austria continues to perform well on the Efficiency Sectors and Environment dimensions, but has declined outside the top ten on performance in the Markets & Investment dimension. Austrian leadership should focus on promoting further cleantech innovation and corporate sustainability best practices to reverse this decline.

AZERBAIJAN



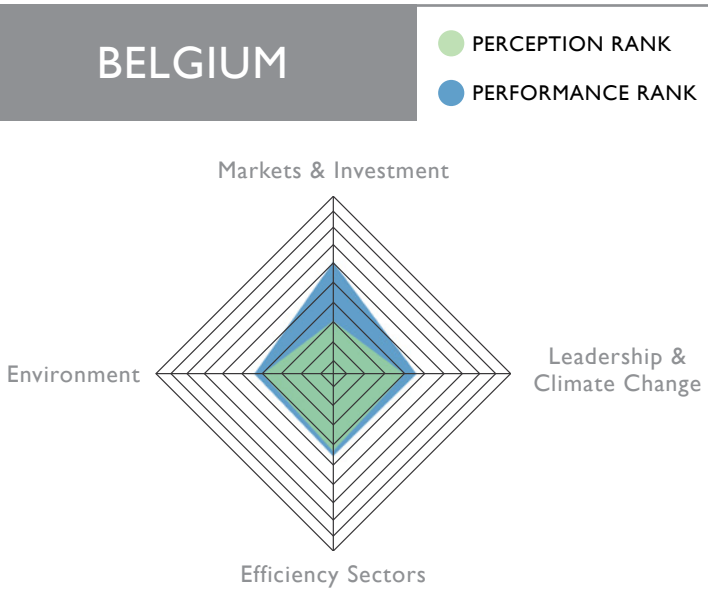
Azerbaijan is covered for the first time in the 2016 edition of the GGEI. As is the case with many economies that are highly dependent on the oil and gas sectors, Azerbaijan's results on the GGEI offer a lot of room for improvement. In terms of perception, Azerbaijan does not receive any recognition from our experts on the four dimensions of the GGEI. However, there are two bright spots in Azerbaijan's performance to build on for the future: better climate change performance than most other countries highly tied to fossil fuel sectors and strong performance overall on the Environment dimension, particularly Fisheries and Forests.

BANGLADESH



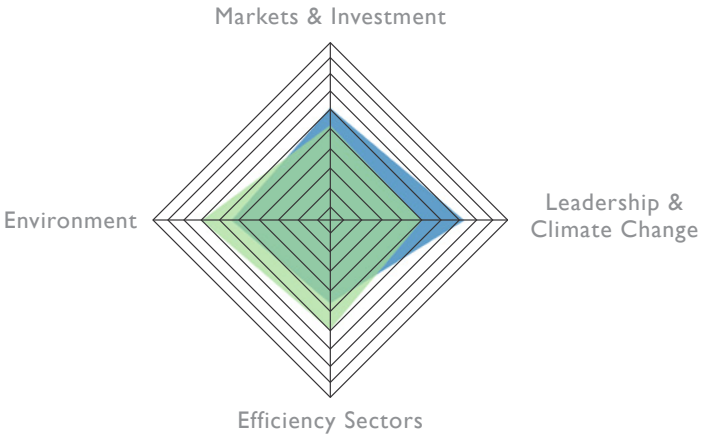
Bangladesh is covered for the first time in the 2016 edition of the GGEI. In terms of perception, Bangladesh does not receive any recognition from our experts on the four dimensions of the GGEI. Bangladesh's overall GGEI performance scores are worrisome, ranking near the bottom of the eighty countries covered. While each dimension of the GGEI needs improvement, Bangladesh's environmental performance requires urgent focus. The country's performance around Air Quality, Water Treatment & Access and Biodiversity are near the bottom of the GGEI performance rankings.

BELGIUM



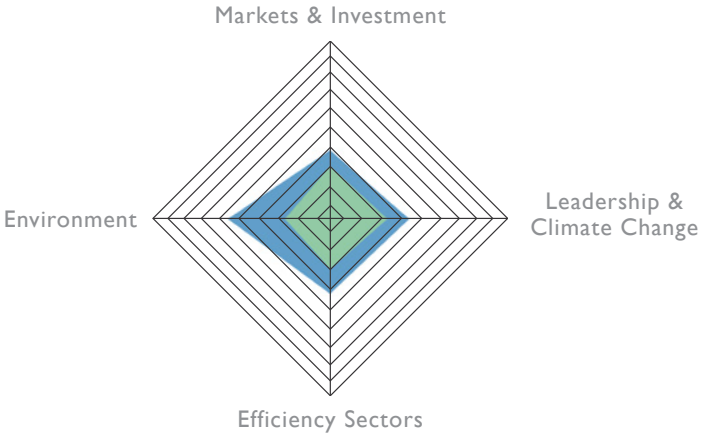
Belgium's 2016 GGEI results continue to show that perception exceeds performance overall, although Belgium has realized some notable performance improvements since 2014. While still lagging behind similar EU states, Belgium has improved its GGEI performance on Efficiency Sectors and Markets & Investment, driven by strong scores around Resource Efficiency and Cleantech Innovation. Amidst these improvements, Belgium continues to perform poorly on the Environment dimension, scoring last among the EU states. Air Quality and Forests should be focus areas in Belgium's future environmental planning.

BRAZIL



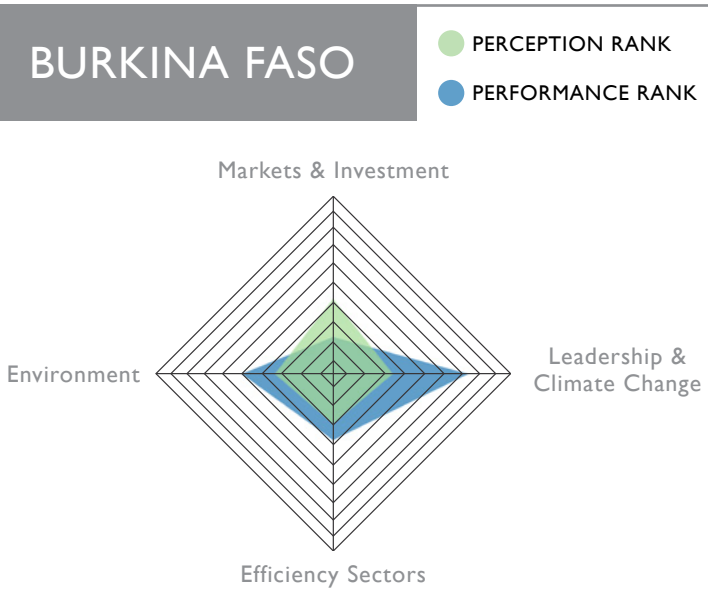
Given the political instability in Brazil over the past year, the country's latest GGEI results should be closely monitored. On the performance side, Brazil has shown modest improvement, ranking inside the top ten of the eighty countries covered. Brazil's perception result has moved slightly in the opposite direction overall. Brazil's improving performance is due mostly to better results on the Leadership & Climate Change and Environment dimensions. Brazil's head of state, contributions to international forums and climate change performance all received strong scores on the latest GGEI. Predictably, perceptions of the vitality of the Brazilian market as a target for investment have declined.

BULGARIA



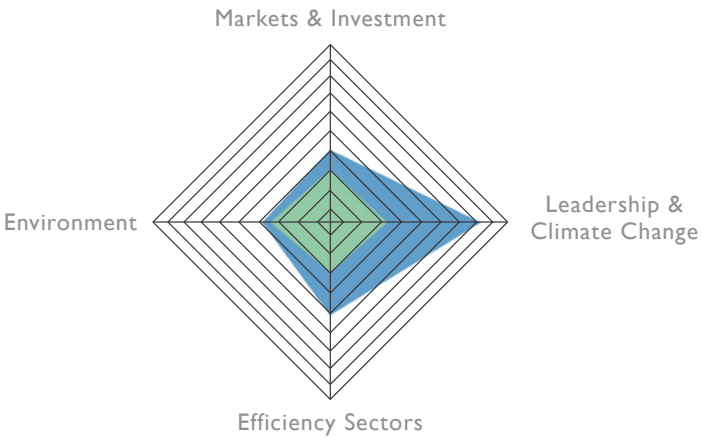
Bulgaria is covered for the first time in the 2016 edition of the GGEI. Bulgaria's results offer lots of room for improvement both in terms of perception and performance. Bulgaria did not receive recognition from our expert survey and there may be opportunities to better link Bulgaria to EU green initiatives in the future to change this. On performance, Bulgaria ranks near the bottom of EU states overall with some promising results on the Environment dimension. For future improvements, Bulgarian leadership should focus on Efficiency Sectors including Buildings and Resource Efficiency.

BURKINA FASO



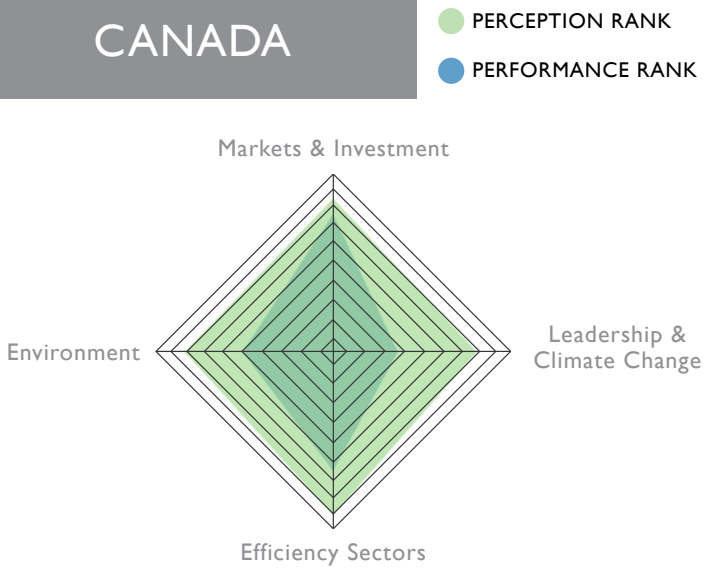
Burkina Faso's GGEI results are generally unchanged from the 2014 edition. The strongest dimension continues to be the Environment one, with particularly strong performance results on Agriculture and Fisheries. Given these strengths, it would seem that other Environment categories like Fisheries and Biodiversity should be focus areas for green economy planners in the future. Burkina Faso's climate change performance is strong in the GGEI due to the relatively low carbon intensity of its economy. However, this efficiency has not yet been translated to sectors like Buildings and Resource Efficiency.

CAMBODIA



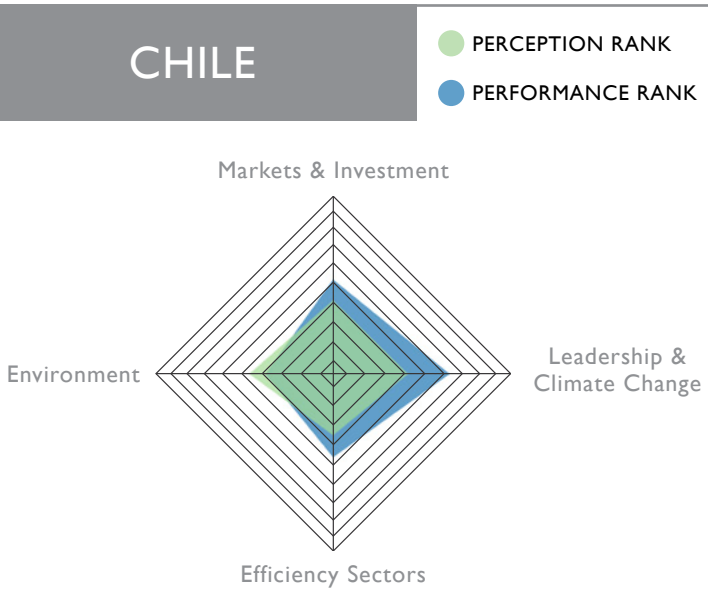
Cambodia's GGEI performance has improved tremendously compared to the last edition, rising twenty-two places, one of the best improvements we observed. The main drivers for this improvement are the Leadership & Climate Change and Markets & Investment dimensions. The GGEI picked up a strong commitment to green economic growth from the head of state and within international forums, as well as improving climate change performance. This commendable overall improvement is diluted somewhat by Cambodia's poor performance on the Environment dimension, ranking near the bottom of the eighty nations covered on this GGEI.

CANADA



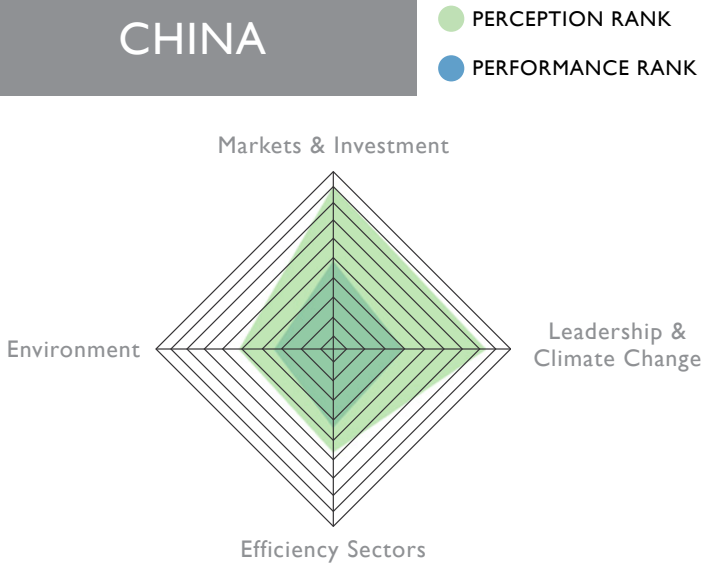
Canada's overall results in terms of GGEI performance have improved notably compared to 2014, with Canada now ranking near the top ten overall. While Canada's perception result improved modestly on the Leadership & Climate Change dimension – perhaps related to the high-profile election of Prime Minister Justin Trudeau – the main driver of Canada's improved performance is the Markets & Investment dimension. This is due to Canada's continued success at fostering green innovation and renewable energy development within its borders. For the future, Canadian businesses should focus more on Corporate Sustainability to improve this result further.

CHILE



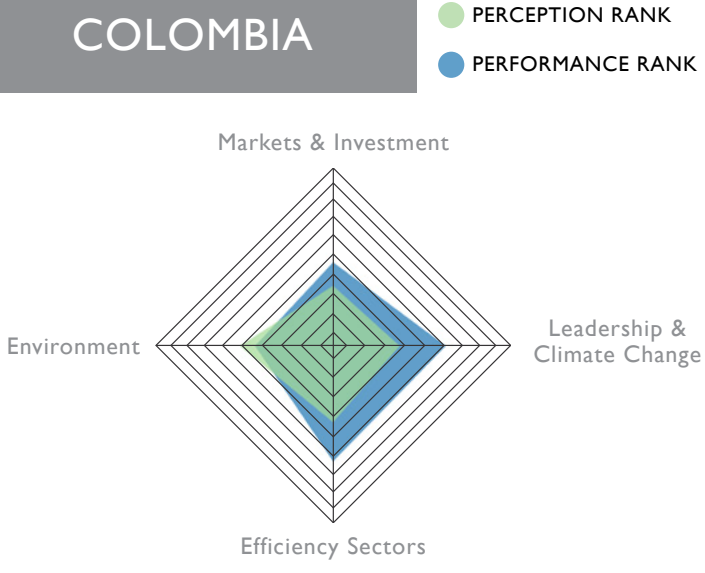
Chile's overall GGEI performance result declined somewhat compared to 2014, now ranking behind several countries in Latin America including Colombia, Costa Rica and Peru. While Chile realized modest improvements on Leadership & Climate Change and Markets & Investment, its Efficiency Sectors and Environment results declined significantly. The Environment score is of most urgent concern, particularly in the sub-categories of Agriculture, Biodiversity, Fisheries and Forests. Chile should also work to improve its national recycling rate, as this low result is one of the main reasons for the decline in the overall Efficiency Sectors score.

CHINA



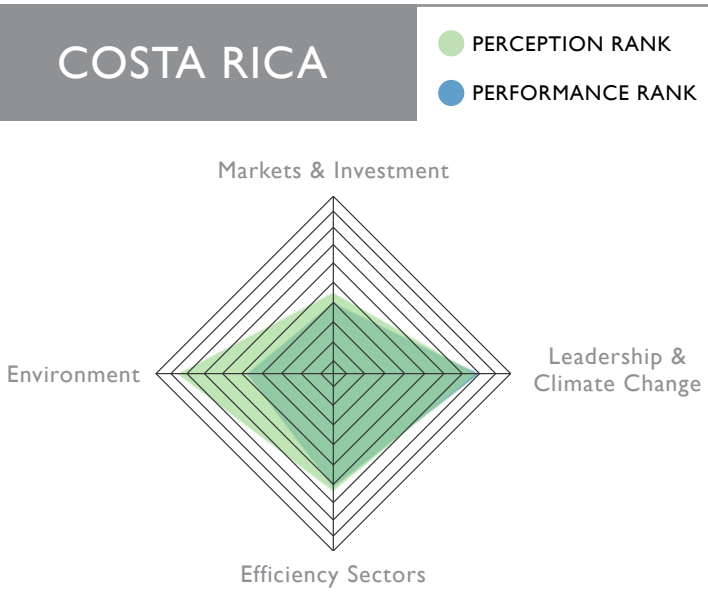
China's substantive contribution to the recent COP21 and its vast market for green investments continue to be reflected in high recognition on the GGEI perception survey, where China ranked near the top ten overall in this edition. Yet on the performance side, there are not yet signs that China's policy commitments have yielded concrete results. China's lackluster performance result on the Efficiency Sectors dimension–while marginally improved from 2014–does not reveal significant efficiency improvements in the overall economy. And China's overall performance result continues to be near the bottom of the countries covered, reinforcing that China is still a long way from being on a green growth trajectory.

COLOMBIA



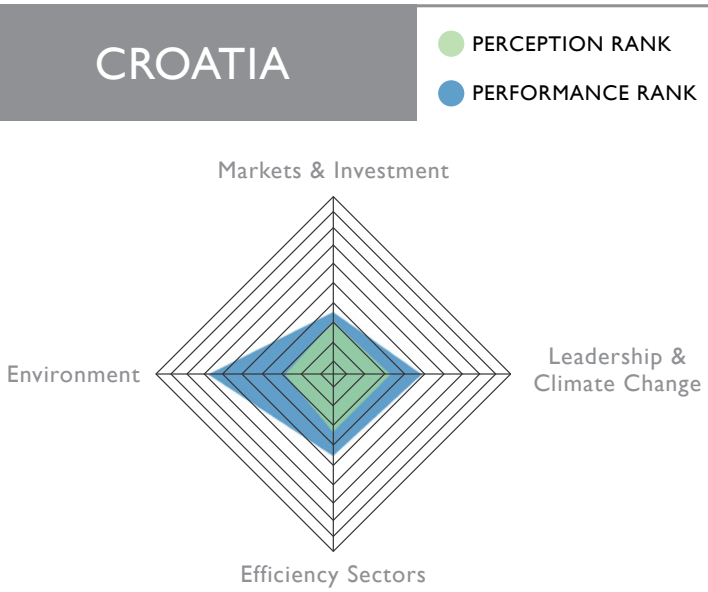
While Colombia continues to outperform expert perception rankings on this new GGEI, its perception score improved somewhat from the last edition, suggesting that global practitioners may be starting to absorb opportunities in Colombia's green economy. The challenge to improving Colombia's overall GGEI performance result relates to the divergent findings between Efficiency Sectors and the Environment. On Efficiency Sectors, Colombia ranks near the top ten driven by the high contribution of renewables in the economy. Yet on the Environment dimension, Colombia continues to show discouraging results, particularly in Agriculture, Water Treatment & Access and Fisheries.

COSTA RICA



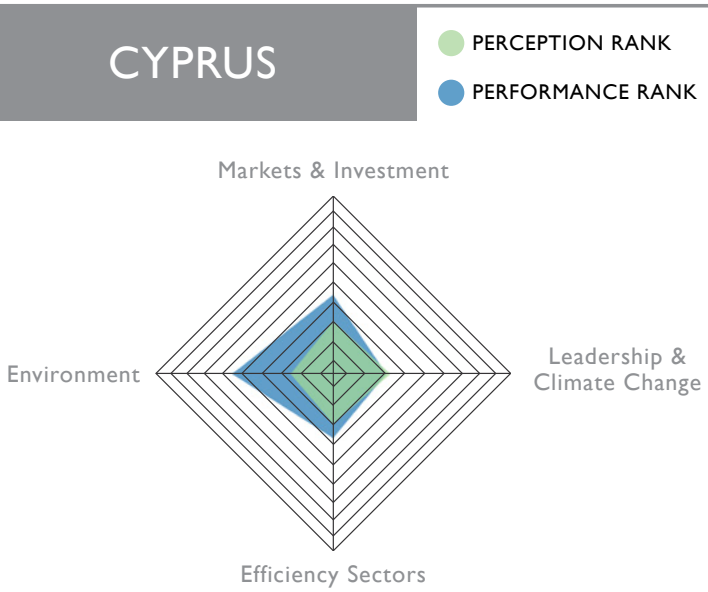
Costa Rica continues to perform well on the GGEI, providing a useful case study for how a small, upper middle-income nation can both perform well in the green economy and build a vibrant green country brand around it. While Costa Rica's overall performance result declined slightly compared to 2014, it continues to score well on the Leadership & Climate Change and Efficiency Sectors dimensions. The focus areas for Costa Rica in building its green economy should be Markets & Investment and the Environment. On both of these dimensions, Costa Rica's performance result was fiftieth of the eighty nations covered.

CROATIA



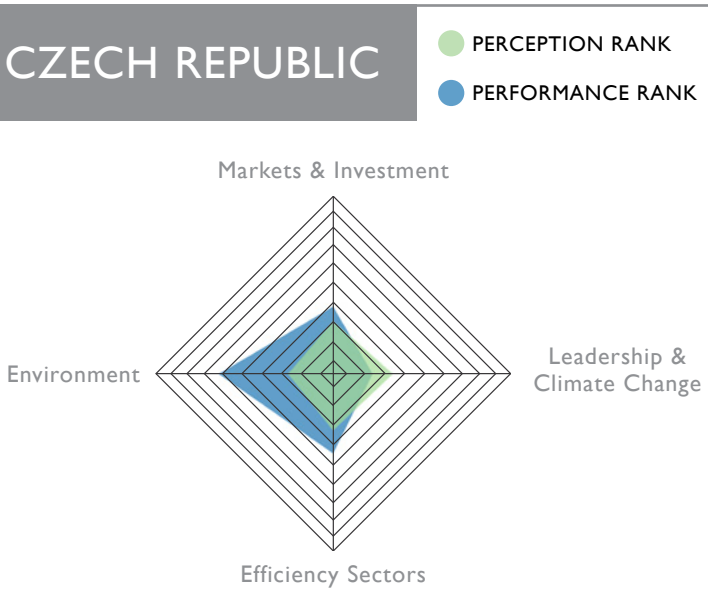
Croatia is covered for the first time in the 2016 edition of the GGEI. Croatia's performance results currently exceed the perception ones, landing around the middle of the nations covered on performance and near the bottom for overall perceptions. The most promising dimension for Croatia is the Environment one, where it ranked fourth overall, driven by strong scores on the sub-categories of Biodiversity, Fisheries and Forests. Croatian leadership should focus their future efforts on Efficiency Sectors and Markets & Investment, where Croatia lags behind most other EU countries.

CYPRUS



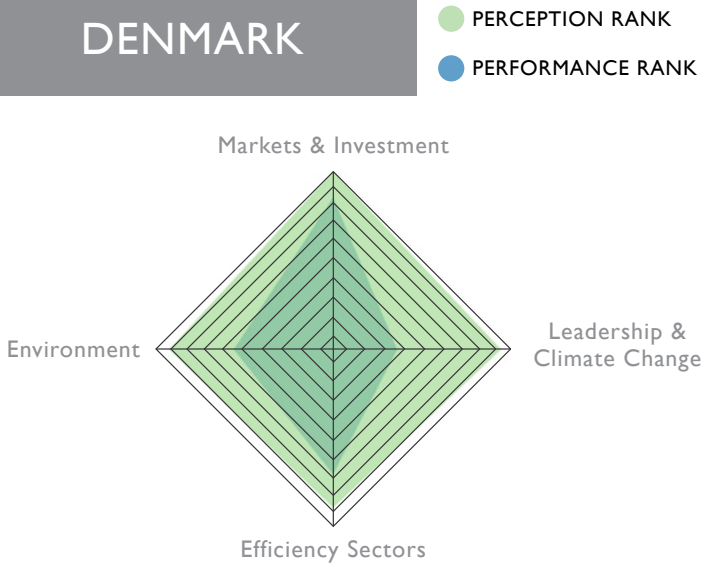
Cyprus is covered for the first time in the 2016 edition of the GGEI. Cyprus' performance results slightly exceed the perception ones, but both areas require significant focus to improve. Like other small countries, Cyprus might benefit from picking one sector or initiative to build its green reputation around. Sustainable tourism comes to mind, but there may be other options. The point is that by focusing on a strategic sector and associated communications plan, Cyprus may be successful at raising its visibility and performance as a green economy.

CZECH REPUBLIC



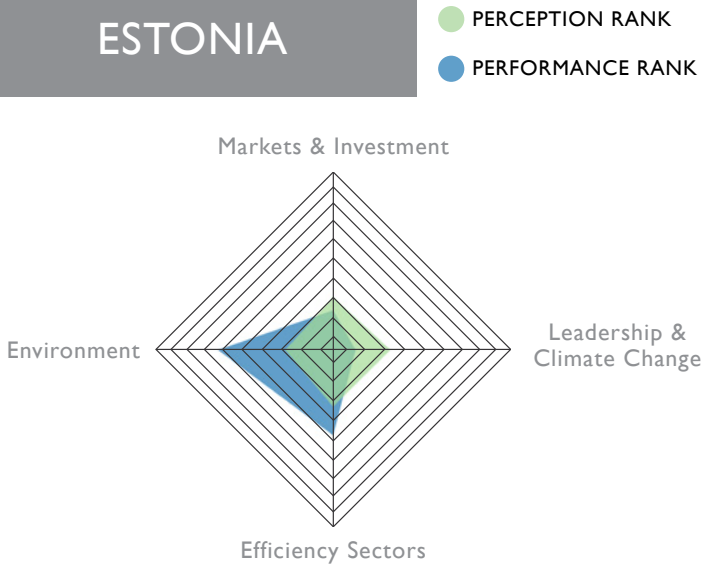
The Czech Republic continues to struggle in terms of its green economic performance, with a notable decline in its overall 2016 result compared to 2014. The most vivid finding when looking at the four dimensions is the inverse performance results between Leadership & Climate Change (near the bottom) and the Environment (in the top twenty). Czech leadership should prioritize green economic growth to improve this result for the future, as political leaders there seem to champion this transition less than in other EU states. In terms of the Environment, the Czech Republic realized strong results on Agriculture and Biodiversity, success that should be carried to other environment categories in the future.

DENMARK



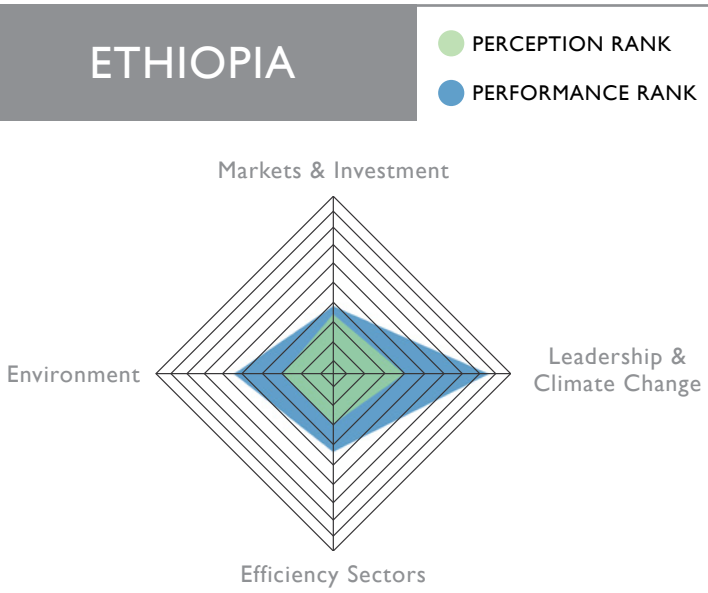
Denmark continues to maintain its leading position on the GGEI, both in terms of perception and performance. Denmark's early embrace of green economic growth has paid dividends as our expert survey respondents continue to credit Denmark for this commitment. Denmark's overall GGEI performance result did decline slightly compared to 2014, driven mostly by a significantly lower result on the Leadership & Climate Change dimension. Denmark's climate change performance is not driving this decline. Rather, the GGEI recorded a lower commitment from Danish public officials to promoting green economic growth, both domestically and through international forums.

ESTONIA



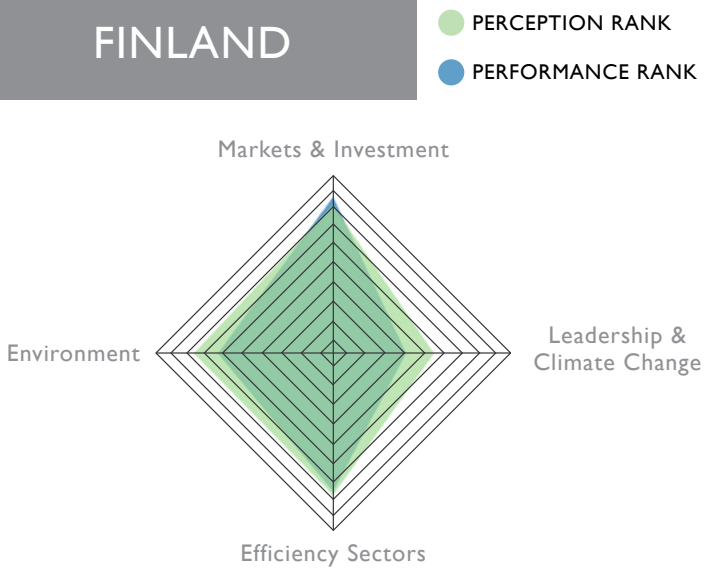
Estonia is covered for the first time in the 2016 edition of the GGEI. Estonia faces an urgent need to reorient its economy to a greener growth trajectory. Estonia is the worst performing country in the EU on the GGEI. These worrisome results are explained by a variety of factors but one metric stands out clearly: the carbon intensity of Estonia's economy is unacceptably high. Because of the high carbon intensity values measured in the GGEI on the Leadership & Climate Change dimension, Estonia's performance result ends up being second to last, with only Australia being lower.

ETHIOPIA



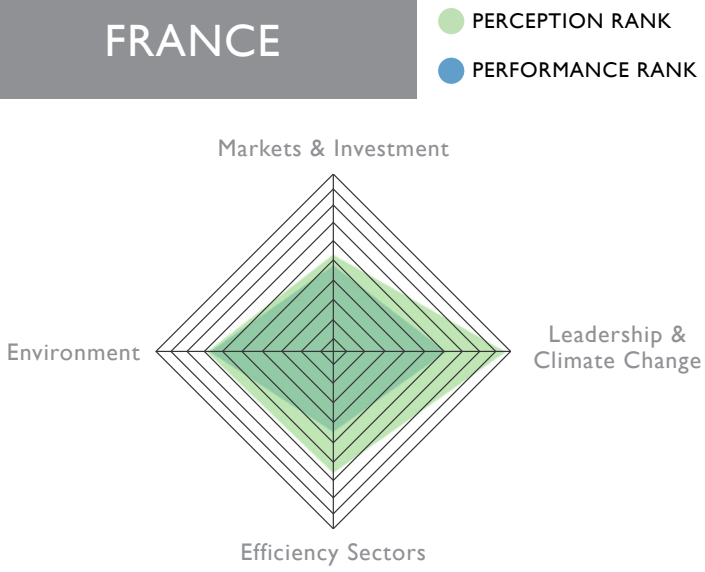
While not yet captured on the GGEI perception survey, Ethiopia's performance results have improved considerably since the 2014 edition. Ethiopia is now near the top ten in terms of overall GGEI performance, an improvement driven mostly by maintaining a top position on the Leadership & Climate Change dimension while simultaneously improving its result on the Environment dimension considerably. The challenge is to translate this positive momentum to the Markets & Investment dimension, where Ethiopia continues to struggle. New initiatives through the Global Green Growth Institute (GGGI) around finance and investment should support member-states like Ethiopia in this regard.

FINLAND



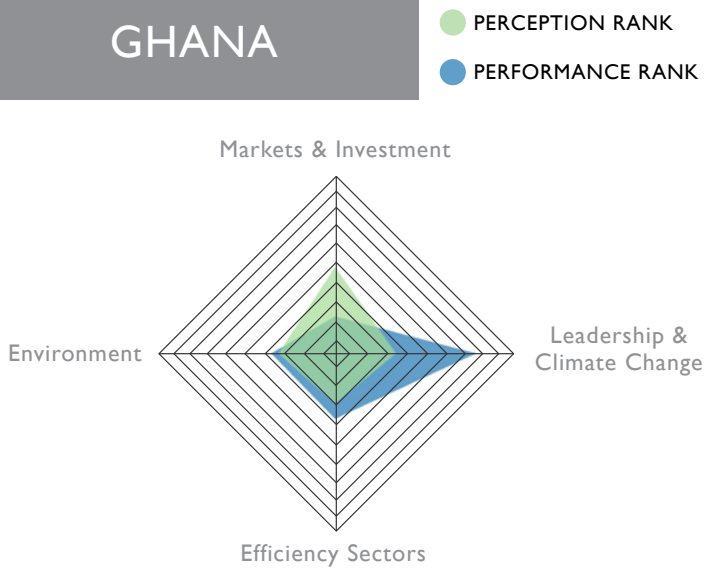
Finland continues its steady march to near the top of the GGEI performance rankings, reaching the third spot on the 2016 edition of the GGEI. This improvement is attributable to maintaining a strong result on the Markets & Investment and Environment dimensions, while improving on the Efficiency Sectors one. As was the case in 2014, Finland's remaining challenge is to better broadcast its green merits and associated investment opportunities. Finland's overall result on the perception survey remained flat close to the top ten. While this is not a bad result, it could be better given Finland's very strong GGEI performance and the better perception survey results for its Nordic neighbors.

FRANCE



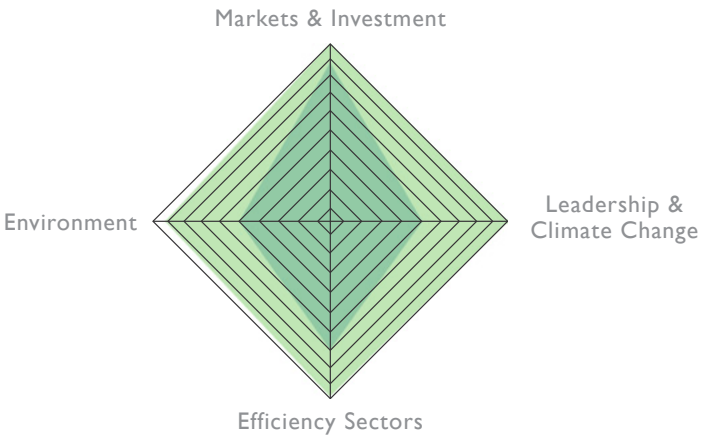
France's leadership role at the COP21 in Paris did not go unrecognized on the new GGEI, with France's perception results rising overall, most notably on the Leadership & Climate Change dimension where France was behind only Germany and the United States. The challenge for France remains how to translate these moments into more widespread improvements throughout its green economy. France's performance on the Efficiency Sectors and Markets & Investment dimensions remains mediocre, well below most of its EU peers. However, its performance on the Environment dimension improved considerably, topped only by Switzerland, Morocco and Portugal.

GHANA



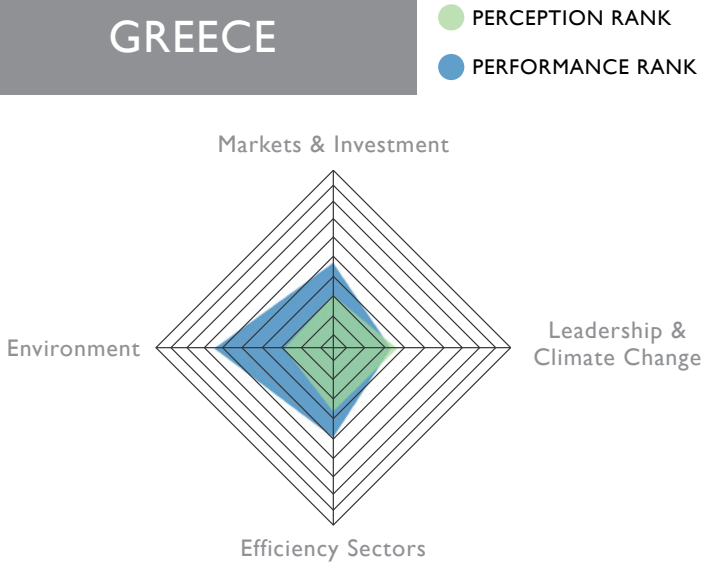
Ghana's GGEI results remain challenging, with limited recognition on the perception survey and generally low performance. The GGEI has difficulty picking up much momentum in Ghana's green economy, despite some positive signs. These more hopeful areas include the high current contribution of renewable energy to Ghana's electricity production and good results around political leadership and its commitment to green economic growth. But there are red flags as well: Ghana's emissions from the transport sector have increased dramatically since 2001 and there are no signs of meaningful recycling programs in country. Ghana's results on the Environment dimension are also near the bottom of the countries covered.

GERMANY



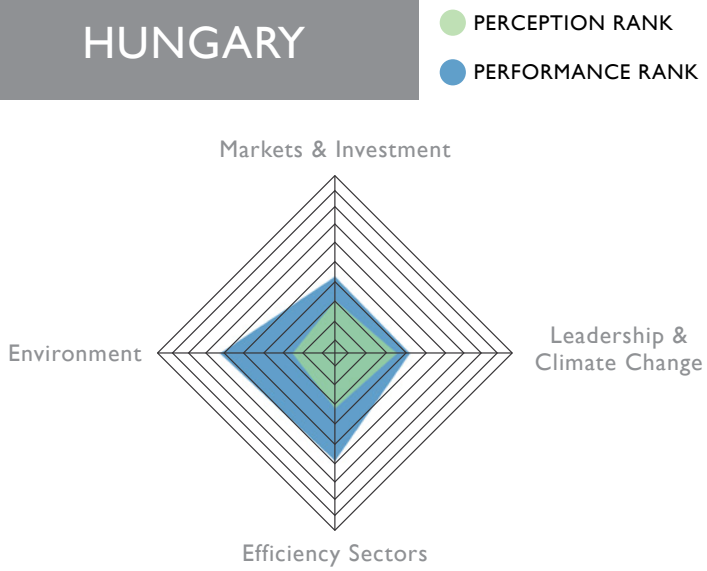
It remains difficult to find a weak spot in the Germany results on the GGEI and our expert practitioners undoubtedly agree. Germany was the top country overall on the GGEI perception survey on all dimensions except for the Environment. There are very few countries that can match these high perception results with equally impressive performance ones, but Germany can: Germany ranked at or near the top for performance on Efficiency Sectors and Markets & Investment. As a developed economy, Germany's next challenge is to translate this strong foundation to consistent declines year-over-year in the carbon intensity of its economy, an outcome that has not yet been observed there.

GREECE



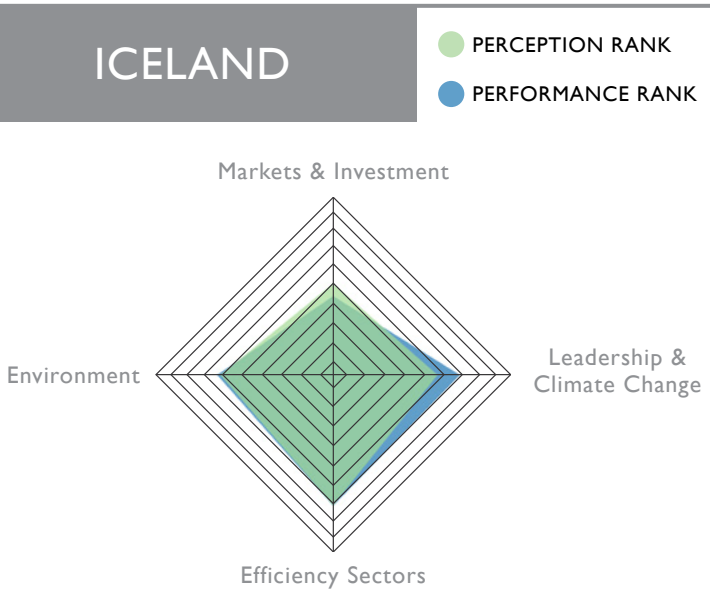
Greece is covered for the first time in the 2016 edition of the GGEI. Greece's overall performance on the GGEI is average, ranking forty-second of the eighty nations covered in this edition. The high point of Greece's GGEI performance is on the Environment dimension, where Greece ranks eighth overall and among the best EU country. The low point of Greece's performance is on the Leadership & Climate Change dimension, where the relatively high carbon intensity of the Greek economy drags down the overall result. Amidst the wide range of other national challenges at the moment, Greek leadership should focus on investments in efficiency that can benefit domestic energy consumers and reduce this carbon intensity over time.

HUNGARY



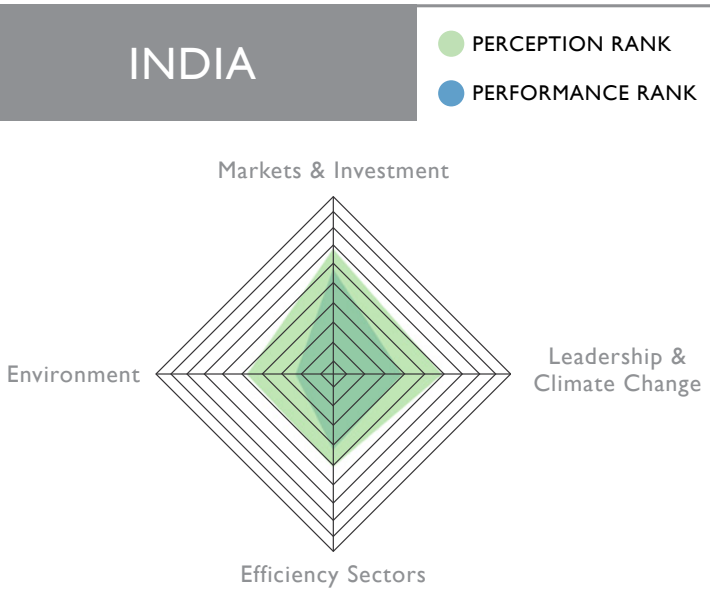
Hungary is covered for the first time in the 2016 edition of the GGEI. Hungary's overall performance score on the GGEI is unremarkable but shows potential for future improvement, falling in the middle of the other EU members. Hungary's perception result is much lower, suggesting a need for better positioning of the country's green economy to global audiences. The high points of Hungary's GGEI performance are on the Efficiency Sectors and Environment dimensions, where it ranks near the top twenty of the eighty nations covered. To drive overall performance improvements in the future, Hungarian leadership should focus on increasing the share of renewable energy in the economy.

ICELAND



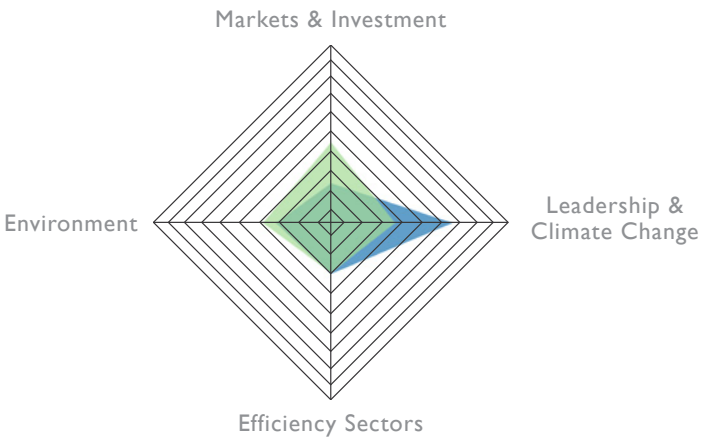
Iceland continues to exhibit strong results on the GGEI performance measure, ranking seventh overall. As was the case in the previous edition, the challenge in Iceland is that the country's green economy is not recognized by expert practitioners to the extent that it should be. Iceland's overall perception ranking continues to lag behind its performance one, something that has been observed in previous editions of the GGEI as well. As a small country, Iceland should focus on a few core messages promoting its green economy globally. This could start with more emphasis on green investments through the national investment promotion body.

INDIA



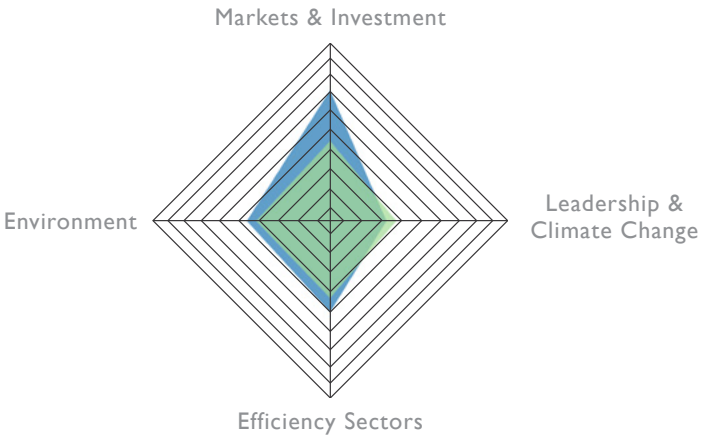
India's performance result on the 2016 GGEI continues to be extremely worrisome, falling at the bottom of the rankings, just as it did in the 2014 edition. India ranks last of the eighty countries covered on the performance side of the Environment dimension, and its result on the Leadership & Climate Change dimension is almost as bad. If there is any silver lining to India's current standing in the global green economy, it might be the Markets & Investment dimension, where India falls near the top twenty for performance. But even here, the Indian economy has a long way to go to get anywhere near the ambitious goals for renewable energy installations presented at the COP21 in Paris last year.

INDONESIA



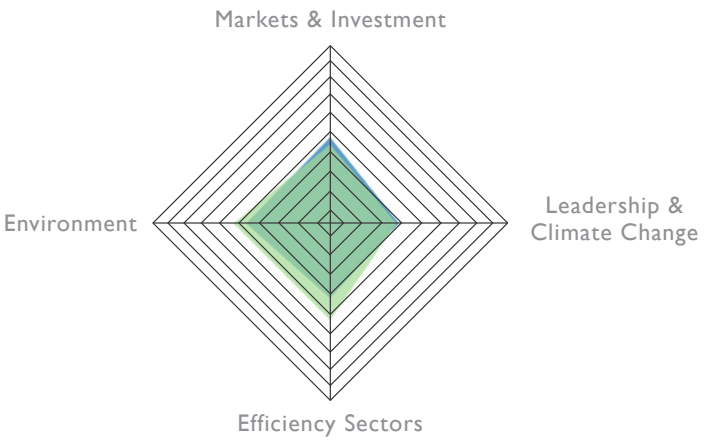
Indonesia's performance result on the 2016 GGEI continues to be extremely worrisome, falling at the bottom of the rankings, just as it did in the 2014 edition. Indonesia continues to perform well on the Leadership & Climate Change dimension, again falling within the top twenty of the eighty countries covered. However, Indonesia's very low result on the three other dimensions of the GGEI more than counteracts this. The message seems clear: Indonesian leadership is starting to prioritize green economic growth, but the tangible impacts of these commitments are not yet showing up in the broader economy or in the country's environmental performance.

IRELAND



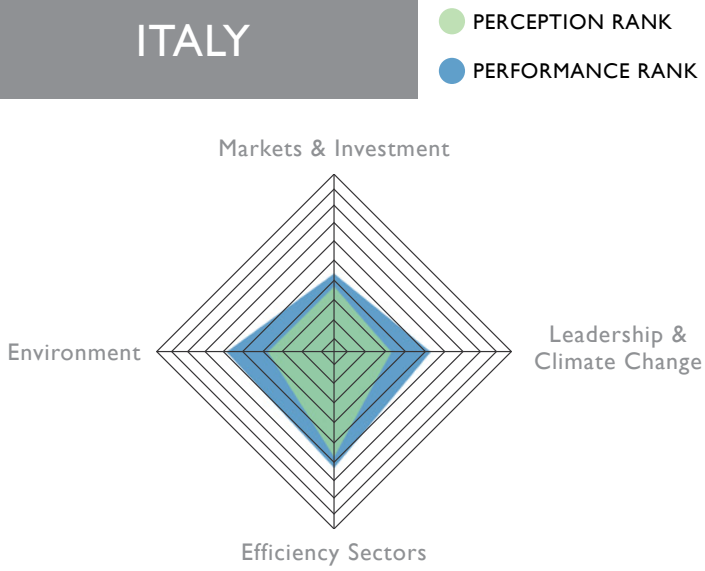
Ireland's performance results on the GGEI have declined considerably since 2014, falling from near the top ten in the last edition to the middle of the nations covered in 2016. Ireland's perception result remains unremarkable, extending the theme from 2014 that expert practitioners are not connecting with various aspects of Ireland's green economy. The two dimensions responsible for Ireland's performance decline are Leadership & Climate Change and the Environment. The GGEI registered weak commitments to green economic growth from Irish leadership, and a lack of a strong presence promoting action at the recent COP21 in Paris.

ISRAEL



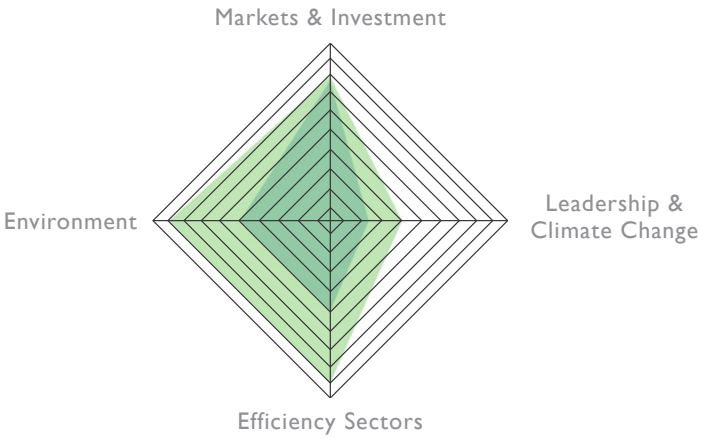
Israel's performance on the GGEI has declined somewhat compared to the previous edition. The main driver for this decline is the Markets & Investment dimension, where Israel's score was negatively impacted by a lower rate of renewable energy installation and lackluster efforts to promote green investments. However, Israel remains a strong case for a small country leading on cleantech innovation, and continues to perform well in this area. Israel's overall perception result is also quite strong for such a small country, landing near the top twenty of the nations covered in this edition of the GGEI.

ITALY



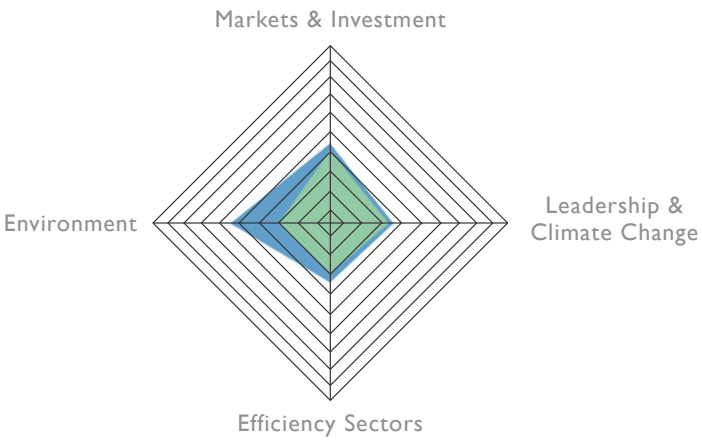
Italy's overall GGEI performance results are improving, now falling near the top ten. This progress is due mostly to the improving carbon efficiency of Italy's economy, something that is revealed in Italy's results on the Leadership & Climate Change and Efficiency Sectors dimensions. But the core challenge for Italy remains unchanged from 2014: Italy has not yet developed a "green brand" the way many of its EU peers have and performs poorly on both the perception and performance side of the Markets & Investment dimension. These two areas are linked and if Italian leadership – particularly in the business community – can better promote Italian green products and services, market interest is likely to follow.

JAPAN



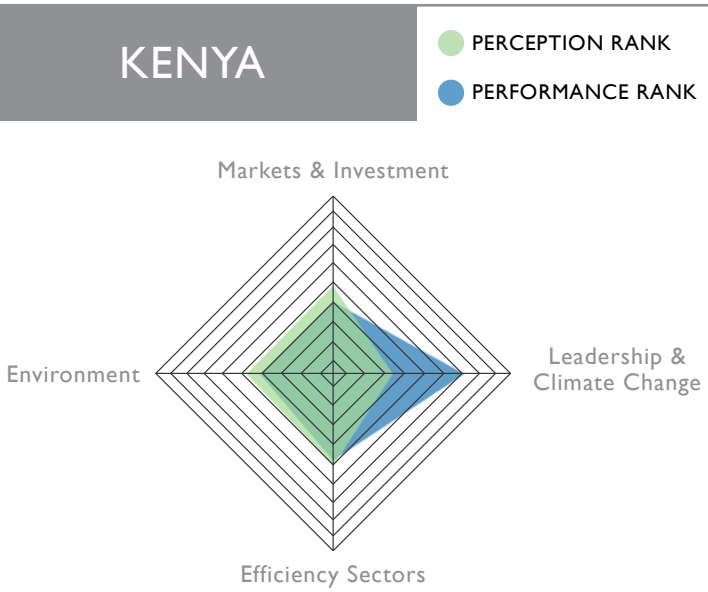
Japan's GGEI results continue to slowly improve, with its overall GGEI performance results rising slightly compared to 2014 to thirty-fourth of the eighty countries covered. This improvement is attributable mostly to better results on the Efficiency Sectors and Markets & Investment dimensions, although there is still a long way to go. Another good sign for Japan is that its greatly improved perception result from 2014 remains intact, with Japan ranking in the top ten of all countries covered. These results beg the question of when a major Asian economy will be successful at displacing the European ones that have dominated the GGEI perception and performance rankings for the past several editions.

JORDAN



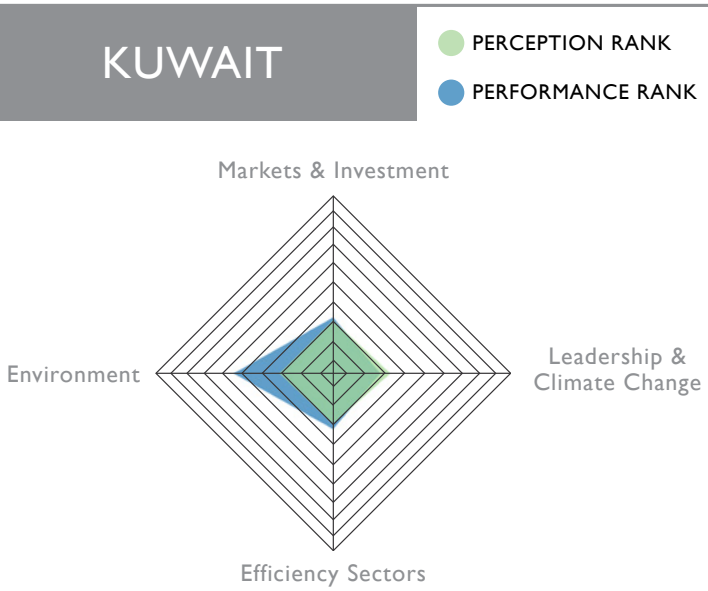
Jordan is covered for the first time in the 2016 edition of the GGEI. Jordan's GGEI performance reveals many areas for improvement as its overall rank is around sixty of the eighty countries covered. Jordan's perception rank is a bit higher overall, but also needs a lot of improvement. The high point of Jordan's performance score is on the Environment dimension, although there is improvement needed on the Water Treatment & Access sub-category. The key to better GGEI results in the future is for Jordan to focus on efficiency improvements, starting with renewable energy which currently does not contribute enough to electricity production there.

KENYA



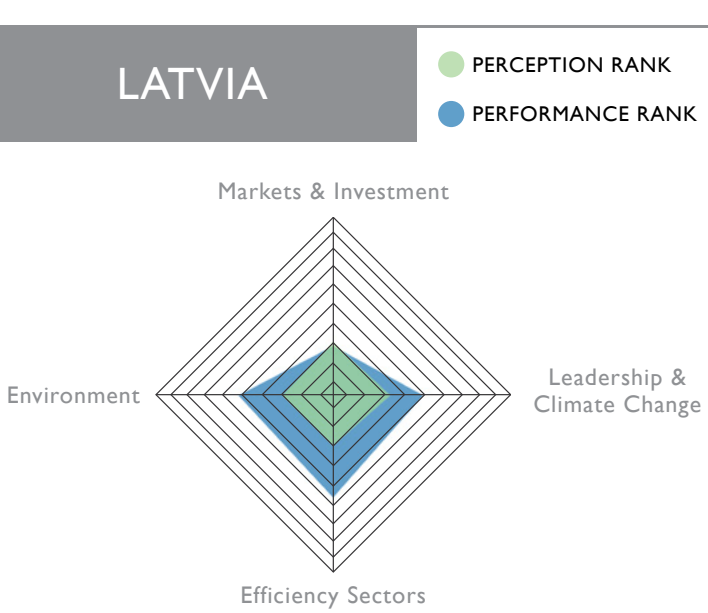
Kenya's overall GGEI performance has declined slightly from within the top twenty in the last edition to twenty-six in the new one. Within the four GGEI dimensions there isn't a clear driver of this slight decline. The same can be said about Kenya's overall perception result, which has remained basically unchanged from the 2014 edition at twenty-fifth of the eight countries covered. To improve for the future, Kenyan leadership should focus on expanding two areas where Kenya is very strong already: the high contribution of renewable energy to electricity production and high levels of cleantech innovation, where Kenya is the top performing African economy.

KUWAIT



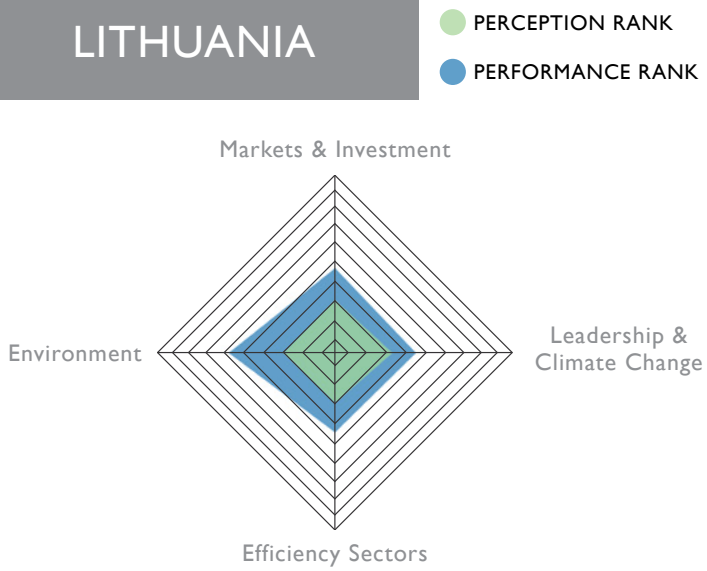
Kuwait is covered for the first time in the 2016 edition of the GGEI. Like many countries whose economies are highly dependent on oil and gas, Kuwait's GGEI results are very worrisome. Kuwait ranks near the bottom of all eighty countries covered for performance, something observed for most Gulf Cooperation Council (GCC) states with the exception of the United Arab Emirates. If there is any silver lining to the Kuwait GGEI results, it may be found on the Environment dimension, although on certain sub-categories like Air Quality, Kuwait again performs near last of the eighty countries covered in this edition.

LATVIA



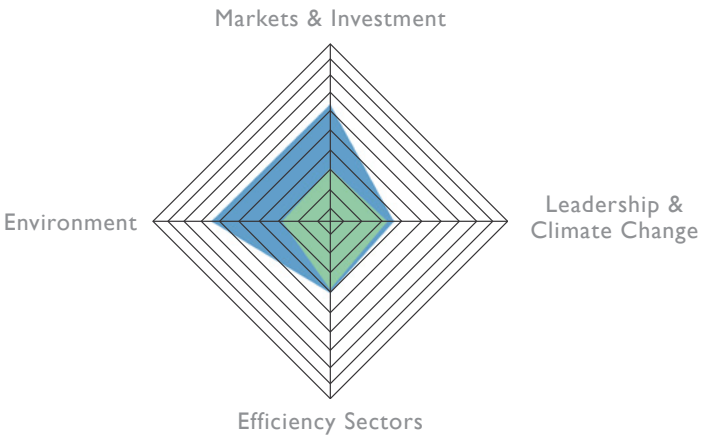
Latvia is covered for the first time in the 2016 edition of the GGEI. Latvia's overall performance score is forty-eight out of the eighty countries covered, with only a few EU nations ranking worse. Latvia's perception result is much lower as experts polled in the GGEI survey do not recognize the merits of Latvia's green economy yet. One positive for Latvia is that the carbon intensity of its economy overall as captured on the GGEI is better than most of the other EU countries, suggesting there may be opportunities to embed greater efficiency in the Latvian economy over time.

LITHUANIA



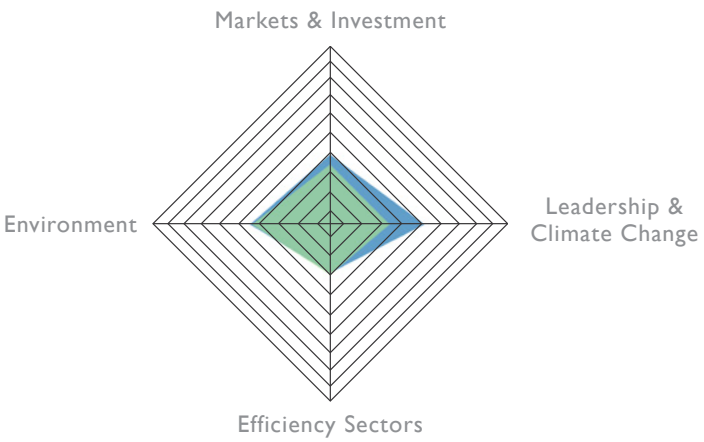
Lithuania is covered for the first time in the 2016 edition of the GGEI. Lithuania's overall performance score is forty-first out of the eighty countries covered, with only a few EU nations ranking worse. Lithuania's perception result is much lower as experts polled in the GGEI survey do not recognize the merits of Lithuania's green economy yet. Like in Latvia, a positive for Lithuania is that the carbon intensity of its economy overall as captured on the GGEI is better than most of the other EU countries. Furthermore, Lithuania performs quite well on the Environment dimension, particularly the Biodiversity sub-category where it ranks near the top ten of the eighty countries covered on the GGEI.

LUXEMBOURG



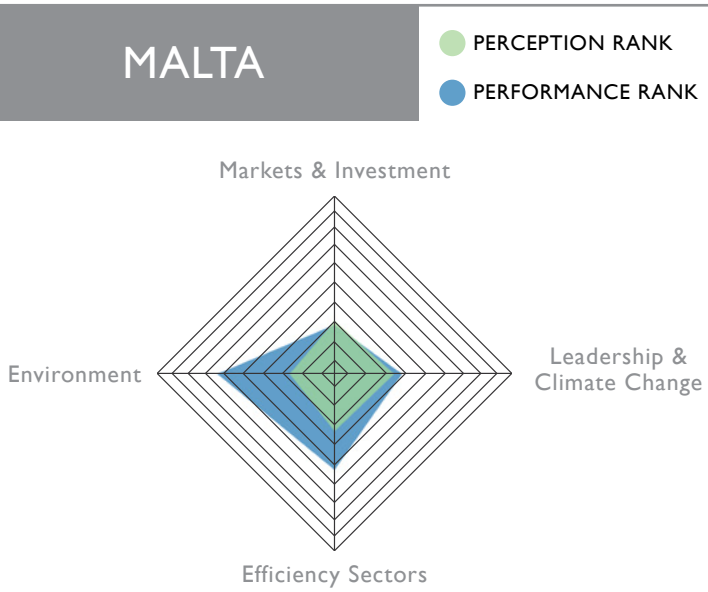
Luxembourg is covered for the first time in the 2016 edition of the GGEI. Luxembourg's overall performance score is unremarkable, ranking twenty-eighth of the eighty countries covered on the GGEI. Luxembourg's main weakness is on the Leadership & Climate Change dimension where the relatively high carbon intensity of its economy drags down its overall result. But on the Environment dimension, Luxembourg is much stronger, ranking in the top ten overall due to particularly strong results in the Biodiversity sub-category.

MALAYSIA



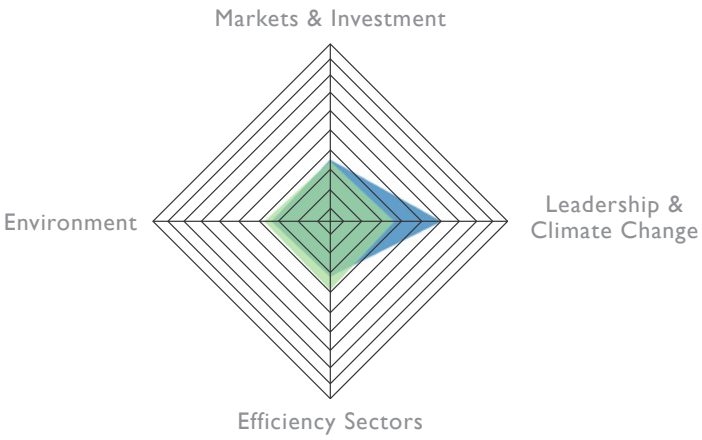
Malaysia's overall GGEI performance ranking has declined since 2014, now placing Malaysia in the bottom quarter of the eighty nations covered. Malaysia's relative perception ranking continues to be higher than the performance one, suggesting a platform upon which to build its green reputation for the future. The main driver of Malaysia's declining performance result is the Markets & Investment dimension, where Malaysia ranked in the top ten in the last GGEI edition. While Malaysia continues to focus on promoting green investments, leaders need to do more to mainstream corporate sustainability practices in domestic companies and promote green innovation.

MALTA



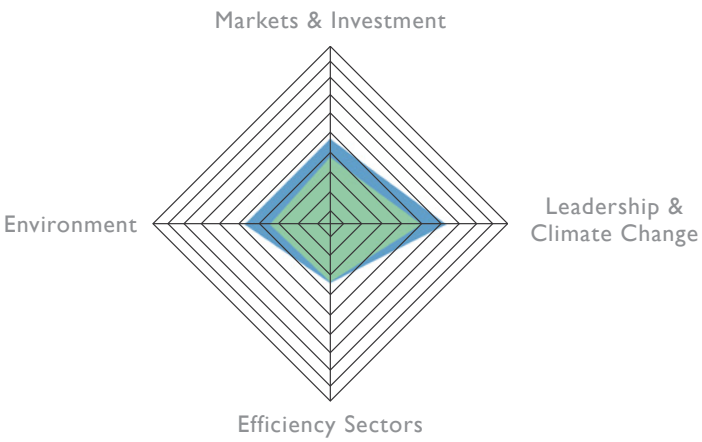
Malta is covered for the first time in the 2016 edition of the GGEI. Malta's overall performance score on the GGEI is unremarkable, ranking fiftieth of the eighty countries covered. Malta's perception result is even lower, highlighting the challenges facing smaller countries to position their national green economies to global audiences. Malta's main weakness is on the Leadership & Climate Change and Markets & Investment dimensions, whereas Malta performs much better on Efficiency Sectors and especially the Environment, where its overall result is near the top ten of the eighty countries covered on the GGEI.

MAURITIUS



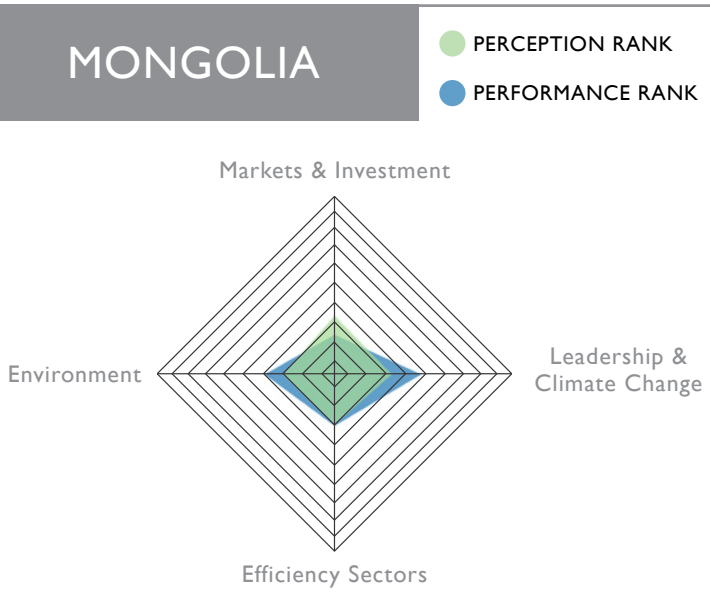
Mauritius registered a worrisome decline on the 2016 GGEI, with its overall performance falling to the bottom quarter of countries covered. Mauritius should continue to focus on improving its standing on the Efficiency Sectors and Markets & Investment dimensions, possibly through a more concerted effort to promote sustainable tourism and associated services. But the main driver of this decline is on the Environment dimension, where Mauritius realized low results in the Agriculture, Biodiversity and Fisheries sub-categories. On a more positive note, Mauritius continues to exhibit strong leadership around addressing the negative effects of global climate change.

MEXICO



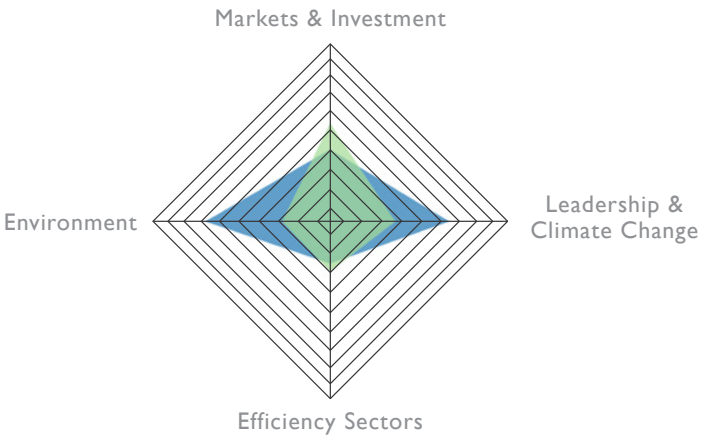
Mexico performance and perception results have not changed much since 2014, remaining essentially the same. As was the case in the last edition, it is challenging to identify an area for Mexico to focus on to improve its future GGEI result. While the GGEI registered a slight uptick in Mexico's leadership around addressing the adverse impacts of climate change, its performance on the Efficiency Sectors, Markets & Investment and Environment dimensions remains unremarkable. Corporate Sustainability could be one area for Mexican leadership to prioritize, as perhaps Mexico's private sector companies could better take the lead in this regard.

MONGOLIA



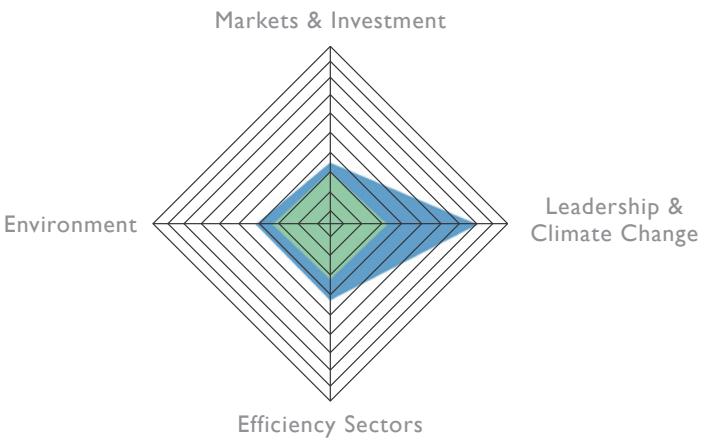
Mongolia's GGEI performance result must be addressed, as it is unchanged from the last edition at the bottom of the eighty countries covered. Unlike some nations with divergent results between Efficiency Sectors and the Environment, Mongolia ranks poorly on both, emphasizing the urgent need to better focus the economy on a green growth pathway. Interestingly, the GGEI picked up decent performance results for Mongolia on the Leadership & Climate Change dimension, as leadership there is increasingly proactive about addressing climate change and building a green economy. The next step is to translate this to concrete improvements on the other parts of the GGEI while addressing the unacceptably high carbon intensity of the Mongolian economy.

MOROCCO



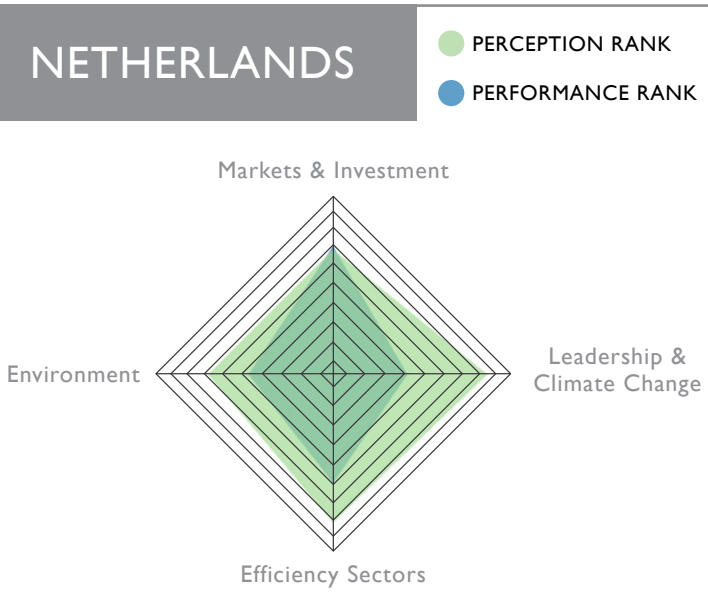
Morocco realized one of the largest performance increases on the GGEI compared to 2014, rising to thirty-fifth overall, with its perception results landing in a similar range overall. This significant improvement is laudable, particularly as Morocco hosts the COP22 in December 2016. There is still a lot of room to grow, however, as Morocco ranked last on the Efficiency Sectors dimension. All five sub-categories of this dimension – including Buildings, Transport, Tourism, Resource Efficiency and Energy – are in urgent need of improvement to bolster Morocco's GGEI performance results further in the future.

MOZAMBIQUE



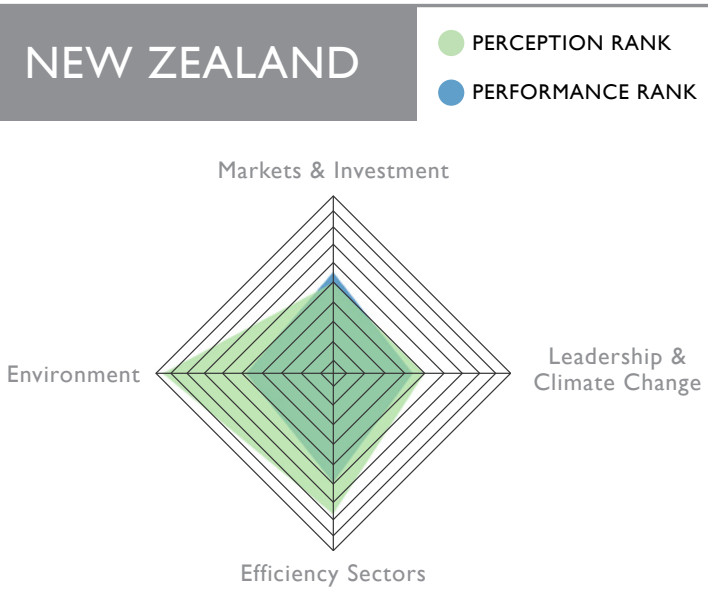
Mozambique realized a slight overall improvement compared to the 2014 GGEI, but still ranks forty-ninth of the eighty countries covered on the GGEI. This improvement is due to a strong result on the Leadership & Climate Change dimension: the GGEI picked up strong leadership around addressing climate change in Mozambique and relatively low carbon intensity of the domestic economy. But for Mozambique's results to improve in the future, the other three dimensions of the GGEI must be focus areas. Mozambique ranks last for performance on the Markets & Investment dimension, in the bottom quarter for the Environment and around average on the Efficiency Sectors dimension.

NETHERLANDS



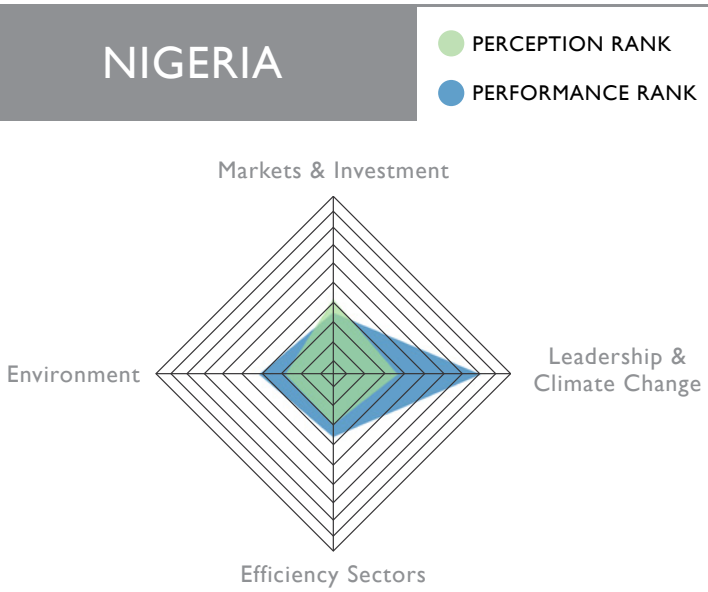
The GGEI results for the Netherlands reveal a slight improvement compared to the 2014 edition, ranking seventeenth overall for performance. As has been the case in the past, the Netherlands perception result is even higher, reinforcing the notion that our expert practitioners recognize the strengths within the Netherlands' green economy. While the Netherlands does well around resource efficiency and circular economy, the key to future improvements is reducing the relatively high carbon intensity of its economy compared to other rich EU countries. One way of approaching this is increasing the share of renewable energy in the economy, a level that is currently quite low.

NEW ZEALAND



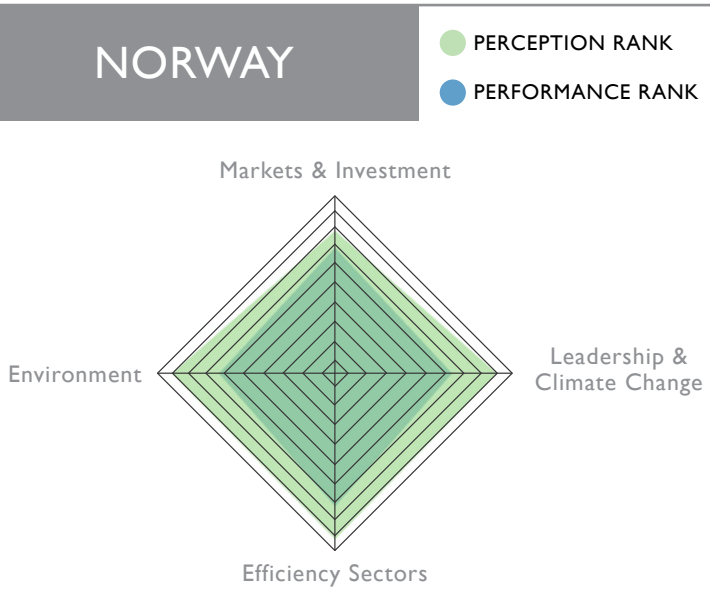
New Zealand has declined slightly in the new GGEI, ranking twenty-fourth for performance. Its perception result overall is a bit higher, around fifteenth overall. This overall decline is due to slightly lower results on the Leadership & Climate Change and Environment dimensions. Based on the GGEI, the main area where New Zealand could focus more is the Markets & Investment dimension. While green investment seems to be prioritized through the national investment promotion body, there could be more focus on spreading corporate sustainability practices and fostering green innovation.

NIGERIA



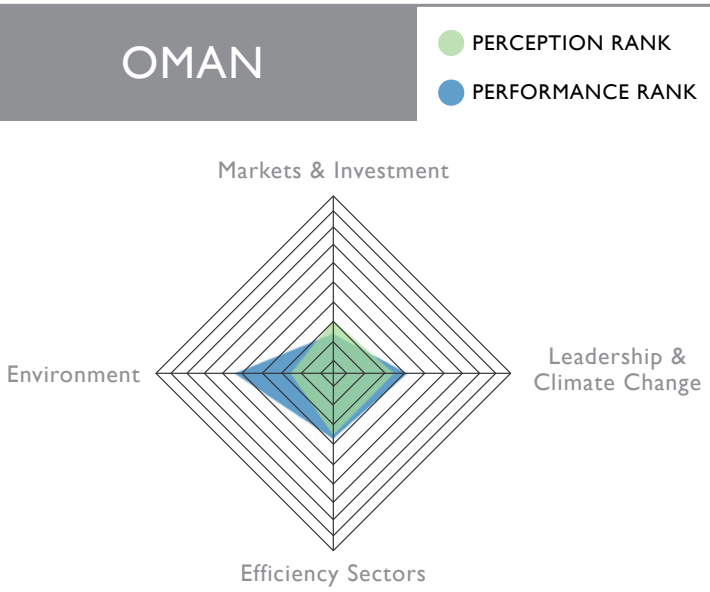
Nigeria is covered for the first time in the 2016 edition of the GGEI. Nigeria's overall performance score on the GGEI is better than many other nations highly dependent on oil and gas, ranking around forty-third out of the eighty countries covered. Despite rapid growth rates, the carbon intensity of Nigeria's economy remains relatively low, although this must be monitored closely in the coming years. While this leads to a strong score for Nigeria on the Leadership & Climate Change dimension, its Environment result is worrisome, ranking in the bottom quarter of all countries. The extent to which Nigerian leadership prioritizes green economic growth will be vital to future improvements on the GGEI.

NORWAY



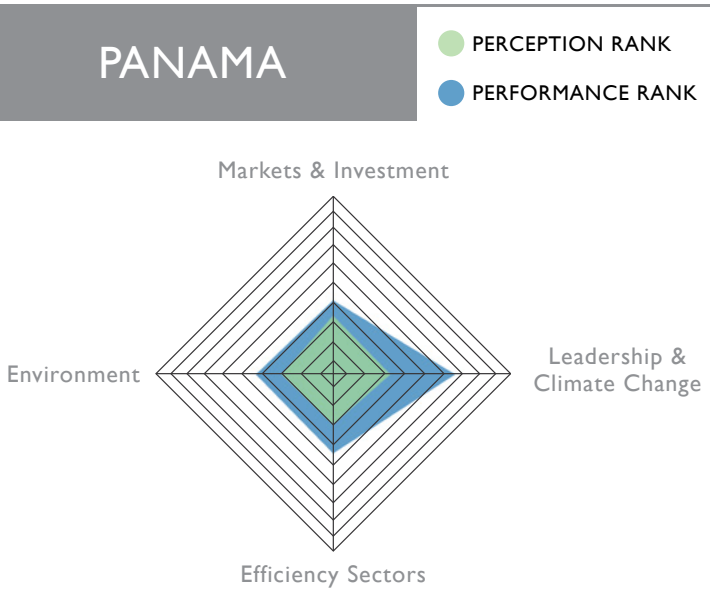
Norway again lands near the very top of the GGEI, ranking second for overall performance and fifth for overall perception. This is not a recent development. Norway has done very well on all aspects of the GGEI for five successive editions and there is no reason to think this would change for the future. Beyond the four dimensions of the GGEI, Norway is a crucial case study in how an economy with high dependency on oil and gas exports can also be a strong green economy. It is true that the GGEI does not punish Norway for the carbon emissions these exports create in other countries. But this omission notwithstanding, other fast-growing petrostates hoping to spur green economic growth domestically should study Norway's development trajectory carefully.

OMAN



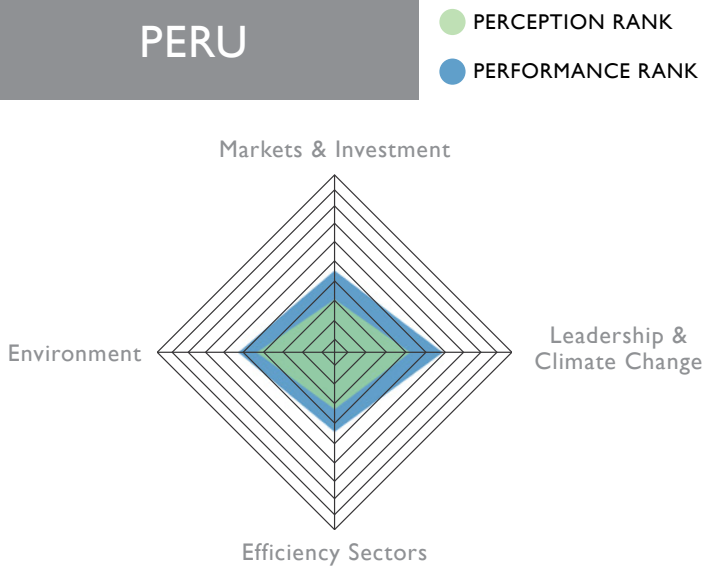
Oman is covered for the first time in the 2016 edition of the GGEI. Oman's overall performance result is disappointing ranking near the bottom of the eighty countries covered and its perception score is only slightly better. Like many of the GCC states, Oman's economy has almost no contribution of renewable energy to electricity production while at the same time having high carbon intensity. Oman's performance on the Environment dimension is a bit better, falling near the top thirty of the countries covered. Oman, like all the GCC states, needs to start decarbonizing its economy significantly to see better GGEI results in the future.

PANAMA



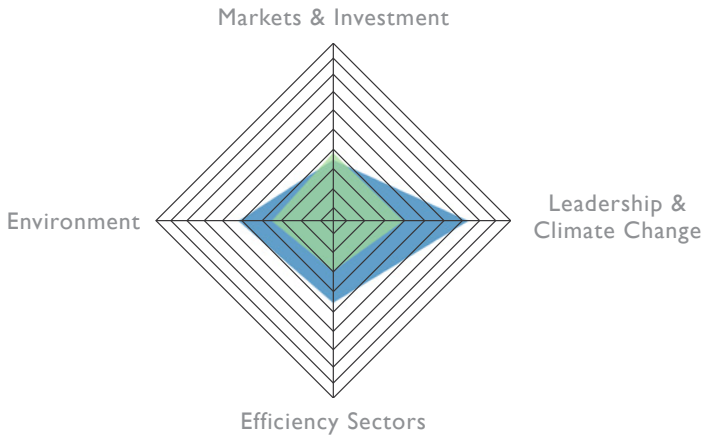
Panama's GGEI performance has improved slightly since 2014, with its perception result remaining flat. Panama improved its performance on all dimensions of the GGEI with the exception of the Environment one, where the result declined significantly. While Panama's Air Quality score is quite good, it performs worse on Agriculture, Biodiversity, Fisheries and Forests than in previous editions of the GGEI. Panamanian leadership should target domestic companies to better embed corporate sustainability in their supply chains as well as increase the focus on green investments in their promotion agency to realize future GGEI gains.

PERU



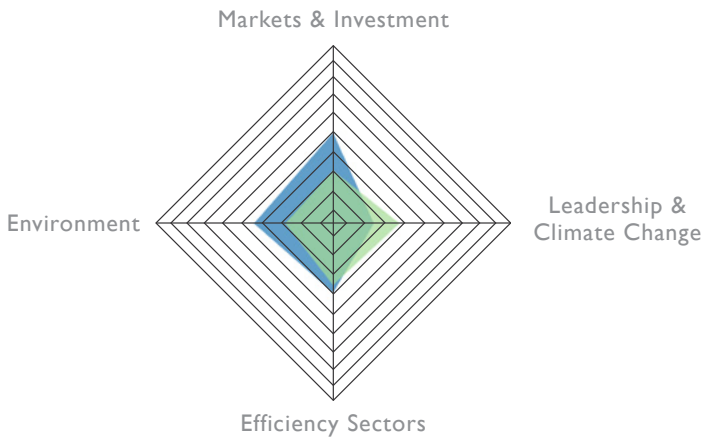
Peru's overall performance on the 2016 GGEI declined slightly compared to 2014, while its perception result remained about the same. Host countries of the annual COP often see a decline in their results on the Leadership & Climate Change dimension in the edition following their host year. This appears to have impacted Peru to a certain extent. Peru's performance result also slipped on the Efficiency Sectors dimension to forty-third of the eighty countries covered on the GGEI. Given the relatively high contribution of renewables to Peru's electricity production, the focus should be on improving resource efficiency and reducing emissions from the transport sector.

PHILIPPINES



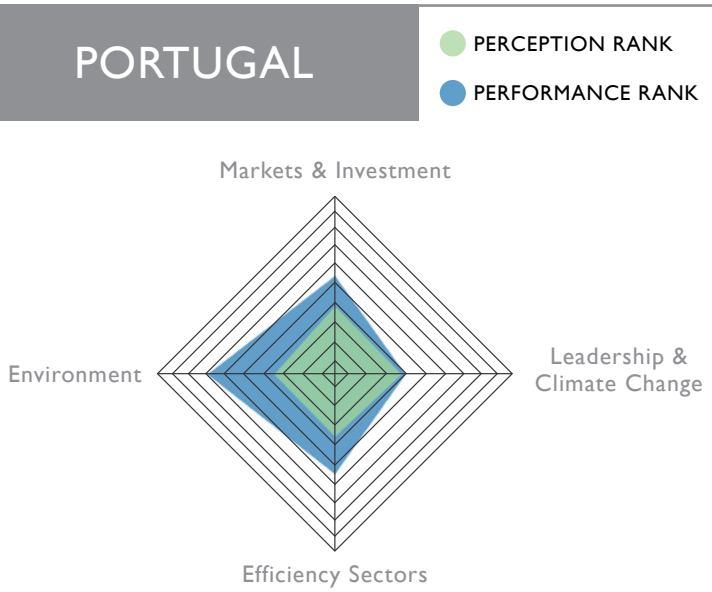
The Philippines' overall performance improved slightly in this edition of the GGEI, something observed on all of the dimensions except for Markets & Investment. The perception result, on the other hand, has remained flat. The Philippines could improve its result on the Markets & Investment dimension by more actively promoting green investments, particularly in renewable energy where growth in new installed capacity remains sluggish. Like in many other countries, the Philippines GGEI result could also benefit from greater emphasis on corporate sustainability and embedding green practices in the supply chains of the country's businesses.

POLAND



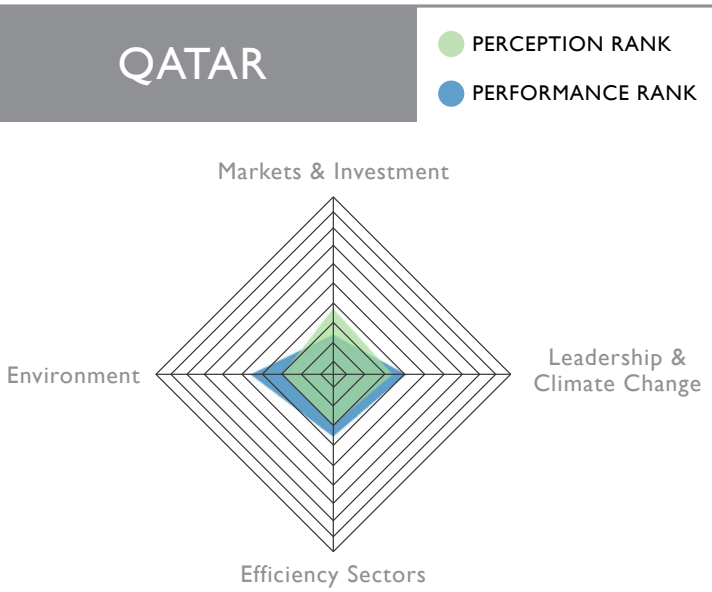
Poland's GGEI performance result remains very low, falling in the bottom quarter of all countries covered. The carbon intensity of the Polish economy remains relatively high, something that continues to drag down its results for Leadership & Climate Change and Efficiency Sectors. And while Polish leadership appears to be doing more to promote green investments, there is no evidence that this is becoming mainstream in Polish businesses or having a positive impact on further cleantech innovation. Having just hosted the COP a few years ago in Warsaw, it seems that so far the momentum for change that this conference can bring has not materialized in the overall Polish green economy.

PORTUGAL



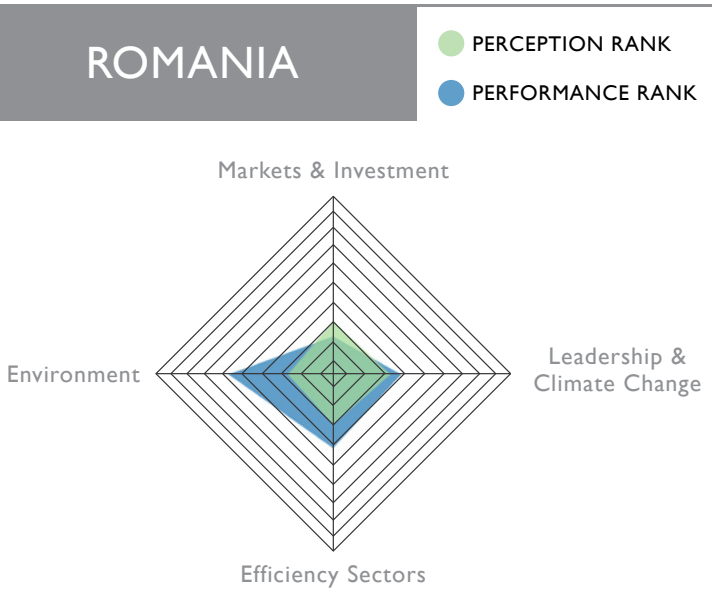
Portugal continues to perform well on the 2016 GGEI with its overall performance remaining within the top twenty. Portugal's performance result again exceeds its perception one, reinforcing the idea that Portuguese leadership can do more to communicate the appeal and opportunities within its domestic green economy. In terms of Corporate Sustainability, companies in Portugal appear to be making progress towards embedding sustainability in their operations and supply chains. This progress should be leveraged to build Portugal's green brand for the future.

QATAR



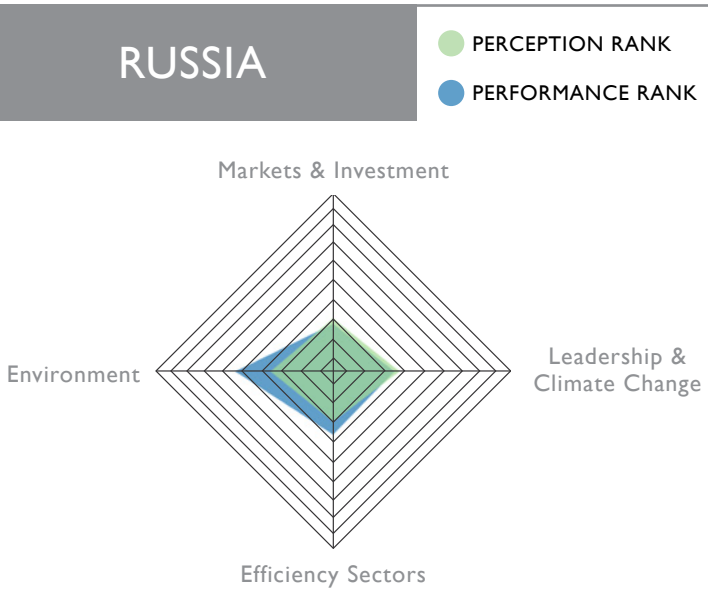
Qatar again falls near the bottom of the 2016 GGEI, reinforcing the trend towards building a highly carbon inefficient petrostate with no serious commitment to greener economic growth. With one of the highest GDP per capita in the world, there is no evidence that Qatari leadership is using these enormous revenues from the oil and gas sectors to set the foundation for a lower carbon economy. Evidence for this can be found throughout the GGEI: Qatar's outrageously high emissions per capita; zero renewable energy contribution to electricity production; none of its top companies developing corporate sustainability standards; and some of the worst air quality readings of the eighty nations covered.

ROMANIA



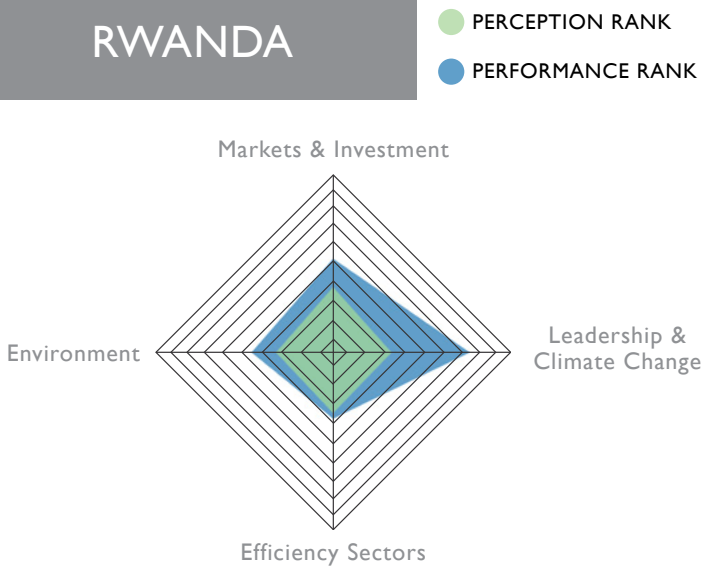
Romania is covered for the first time in the 2016 edition of the GGEI. Romania's overall performance score on the GGEI falls in the bottom quarter of the eighty countries covered, and its perception result is about the same. There are some hopeful areas around Romania's green economy including a contribution of renewable energy that is higher than many EU states and some good results on the Environment dimension. Romania's main GGEI weakness is on the Markets & Investment dimension where there is no evidence of green innovation, corporate sustainability or investment promotion.

RUSSIA



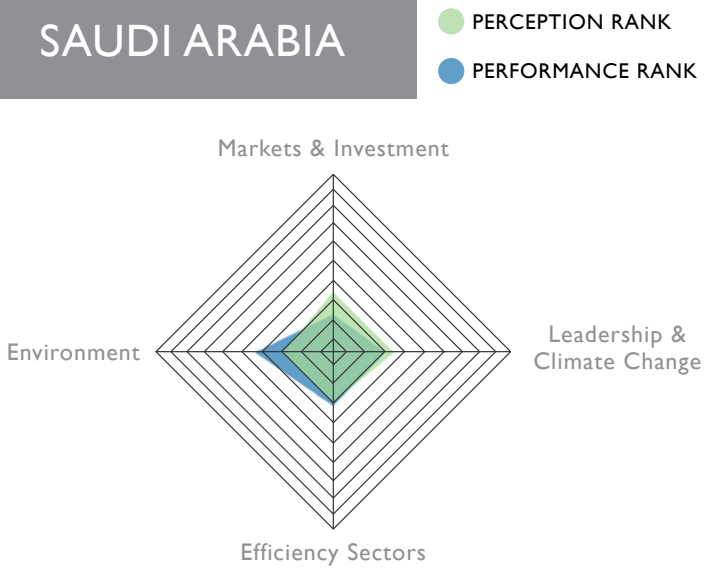
Russia is covered for the first time in the 2016 edition of the GGEI. Russia's overall performance score on the GGEI is in the bottom quarter of countries covered with a slightly higher perception rank. Two encouraging signs for Russia are its relatively good scores on the Environment dimension and declining emissions from the transport sector over the past decade. It could be that the green economy model could provide impetus for economic diversification in Russia. While there are not strong signs of renewable energy development, green innovation or investment at the moment, future increases would help Russia improve its overall GGEI result.

RWANDA



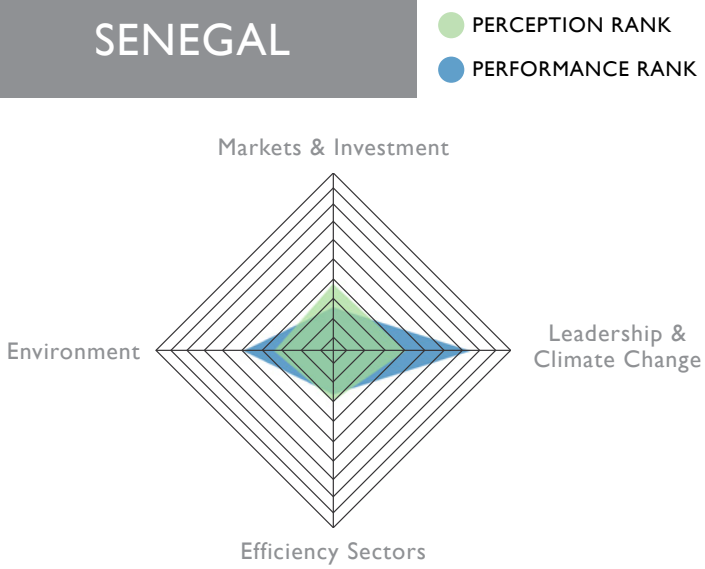
Rwanda is a clear case where better communications are required to advance global understanding of its green economy and associated market opportunities. Overall, Rwanda's performance score remains quite good, improving slightly from the last edition and now near the top twenty overall. As a small country though, Rwanda needs to do more to promote its green economy and attract outside investment. Rwanda's combination of good overall environmental performance, relatively low carbon intensity in its economy and high contribution of renewables to electricity production are all positive elements to leverage to increase future awareness and improvements in its GGEI perception score.

SAUDI ARABIA



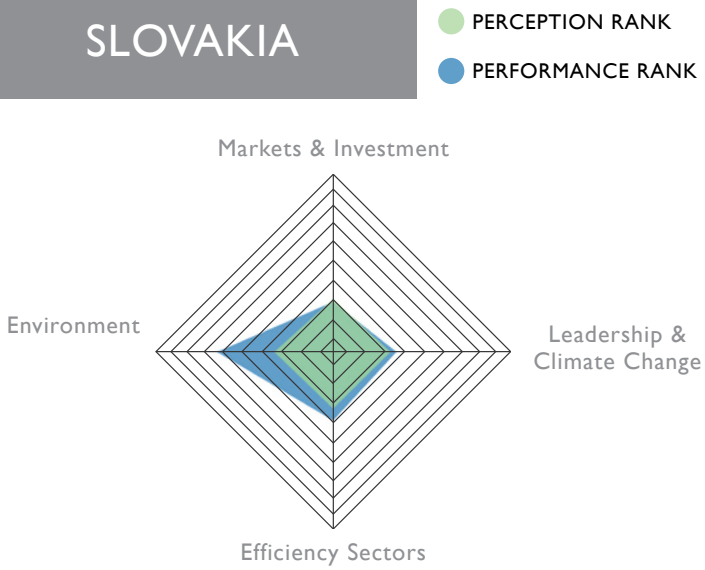
Saudi Arabia is covered for the first time in the 2016 edition of the GGEI. Unfortunately, Saudi Arabia was the worst performing country on the GGEI for this edition. Like some other GCC states, the Saudi economy shows almost no real signs of reorienting growth to a green economy model: its carbon emissions per capita are some of the highest in the world, there is no measurable contribution of renewable energy to electricity production and almost no new installed renewable capacity. Despite these poor results, Saudi Vision 2030 could offer an opening to improvements, with one of the main priorities being economic diversification away from such reliance on the state-owned oil and gas sector.

SENEGAL



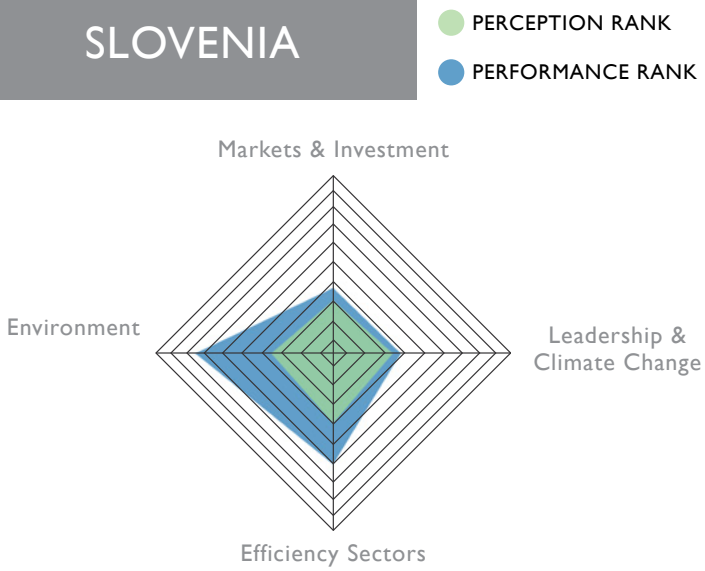
Senegal has made a slight improvement in its overall GGEI performance score, rising to fifty-fourth of the eight nations covered in this edition. Despite the relatively low carbon intensity of its economy, Senegal continues to perform near the bottom of the Efficiency Sectors dimension. This is due to low scores on Resource Efficiency and Buildings, as well as a troubling trend in a high increase in emissions from its transport sector over the past decade. Its performance on the Environment dimension remains uneven, with respectable results on sub-categories like Agriculture but worrisome ones on Water Treatment & Access.

SLOVAKIA



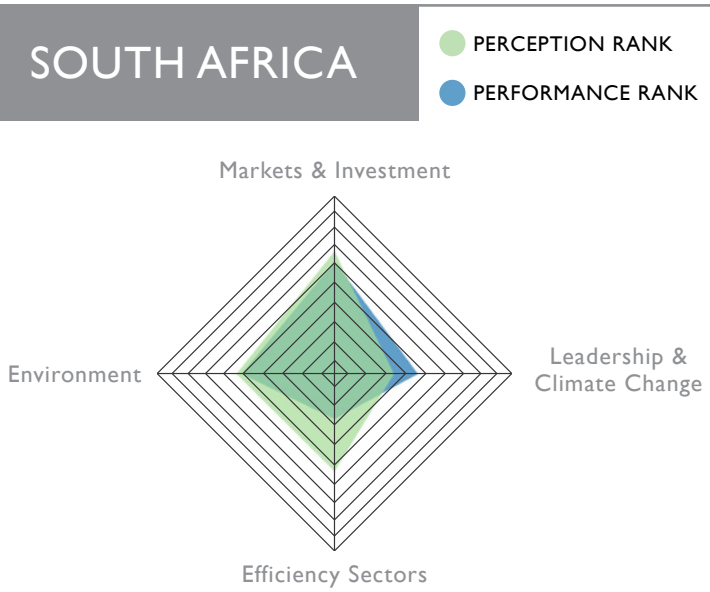
Slovakia's GGEI performance remains about flat compared to the 2014 edition, ranking sixty-second of the eighty countries covered and about the same on the perception side. Slovakia's GGEI results continue to reveal a mixed picture: the country continues to exhibit strong performance on the Environment dimension ranking near the top ten but falling in the bottom quarter of the rankings on the other three dimensions of the GGEI. Slovakia should focus on the Efficiency Sectors dimension where our analysis shows a low score on Resource Efficiency and Buildings, and a level of renewable energy contribution to the economy that could be higher.

SLOVENIA



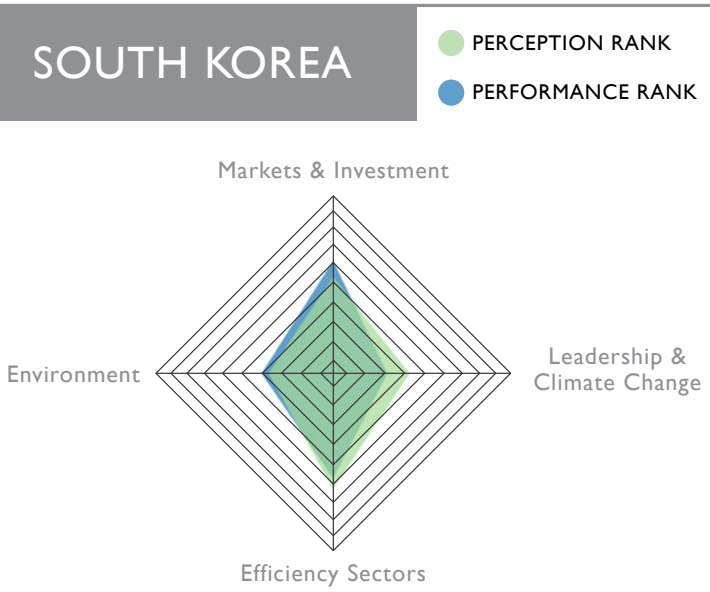
Slovenia is covered for the first time in the 2016 edition of the GGEI. Slovenia's overall performance score on the GGEI is strong, falling near the top twenty overall. These positive results are rooted in being the top country on the Environment dimension. And while Slovenia also does well on the Efficiency Sectors dimension, it performs poorly on the Leadership & Climate Change and Markets & Investment dimensions. Slovenian leaders should focus on reducing the overall carbon intensity of the economy while spurring greater investment in renewable energy and sustainability practices in the business sector.

SOUTH AFRICA



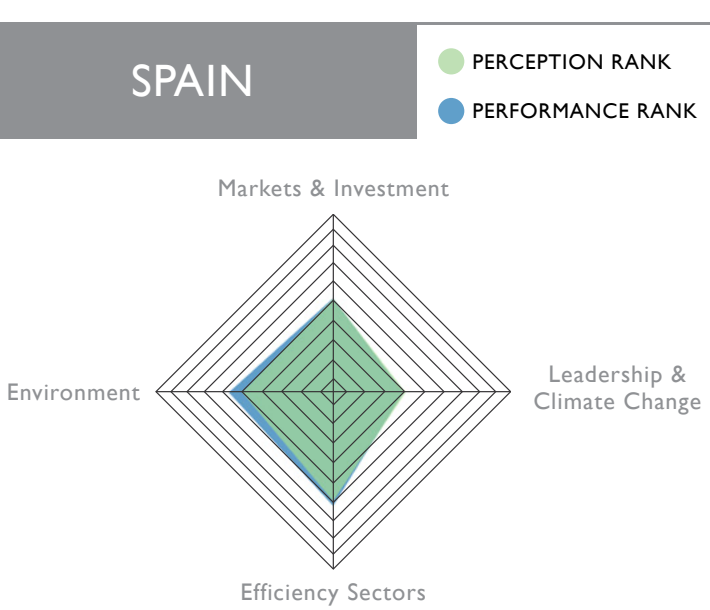
South Africa's GGEI performance has declined somewhat compared to the last edition, ranking fifty-ninth overall of the eighty countries covered. South African leadership remains focused on green economic growth, including the head of state and prominence of green investments on promotional websites. But this has not fully translated to the broader structure of the economy: renewable energy remains nearly absent and there are limited signs of cleantech innovation. South Africa could also benefit from improving certain results on the Environment dimension, including Biodiversity and Forests.

SOUTH KOREA



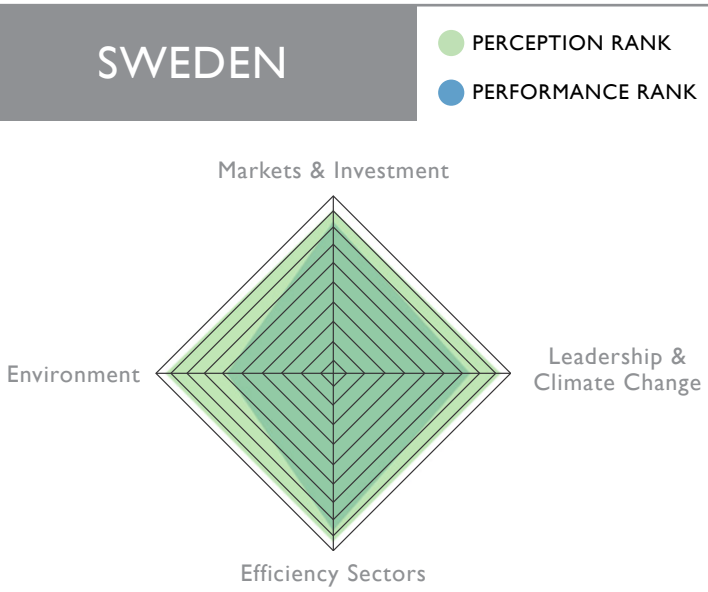
Both the performance and perception scores for South Korea are basically unchanged from the last edition, with its perception rank continuing to exceed its performance one. South Korea's performance ranking at forty-sixth of the eighty nations covered is driven by relatively high emissions per capita and almost no contribution of renewable energy to electricity production. That said, South Korea has made progress on sustainable building and does very well around resource efficiency. The private sector there also shows signs of progress, exhibiting strong cleantech innovation and an expansion of corporate sustainability efforts.

SPAIN



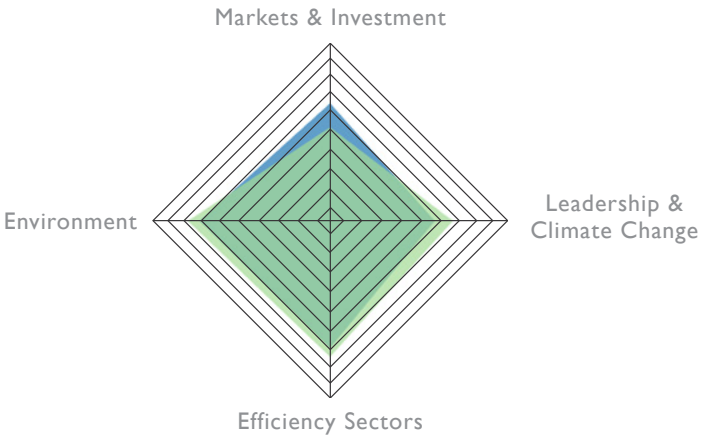
Spain's overall GGEI performance result declined slightly in this edition, ranking twenty-first of the eighty nations covered. Its perception score has remained constant. Spain's strongest dimension of the GGEI continues to be Efficiency Sectors, driven by strong resource efficiency, commitments to promoting sustainable tourism, and a growing share of renewable energy in the overall economy. While Spain's result on the Markets & Investment dimension is not bad, it could improve if Spanish leaders addressed concerns around policy stability and the vitality of Spain as an investment target in renewables.

SWEDEN



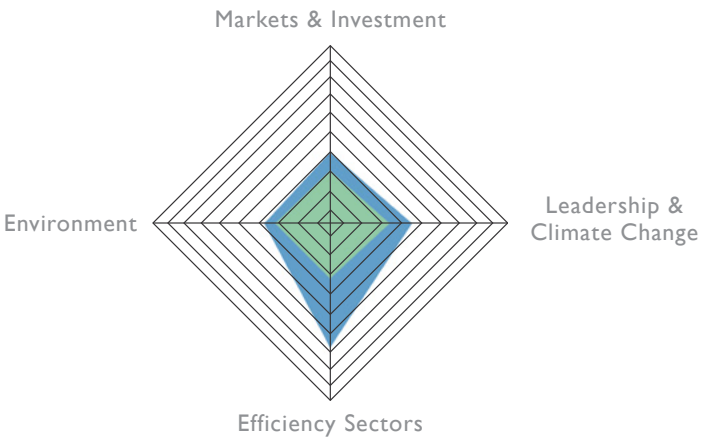
Sweden is again the top performing country on the 2016 GGEI and by a wider margin than the last edition. Its perception scores remain quite strong as well, falling in the top five of the eighty nations surveyed. It remains challenging to find a weak spot in Sweden's results, although being a relative measurement Sweden's top score on the GGEI does not mean there is no room for further improvement. Given Sweden's broader goals to promote innovation within its borders, it would appear that future focus should be on the Markets & Investment dimension, where Sweden's score for cleantech innovation is strong but not yet on par with leaders like the United States, Japan and South Korea.

SWITZERLAND



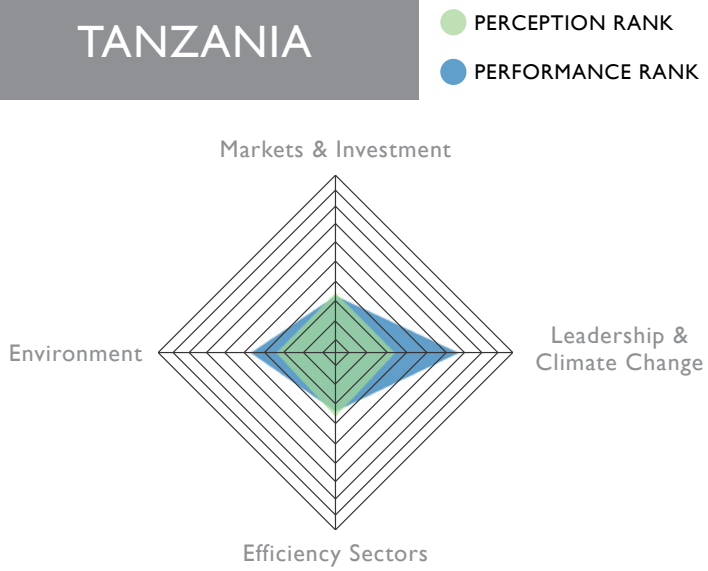
Switzerland is again a top performer on the 2016 GGEI, ranking fourth of the eighty nations covered. The Swiss perception score continues to be lower, suggesting again that Swiss leadership could do more to promote the green merits of its economy. One strategy for doing this could be leveraging Swiss companies, where currently there is a very high level of adherence to sustainability standards, placing Switzerland as the top performing country on Corporate Sustainability. Another approach could be to improve the support for and realization of cleantech innovation in the Swiss economy, which could develop new green companies that help the broader public recognize and understand Switzerland's green economy.

TAIWAN



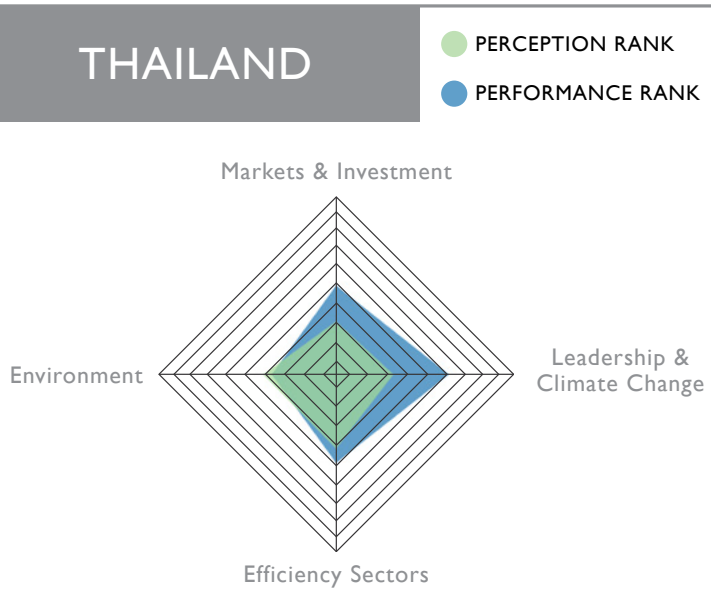
Taiwan's overall performance declined slightly on the 2016 GGEI, ranking forty-seventh of the eighty countries covered. There are positives and negatives for Taiwanese leadership to learn from. On the positive side, Taiwan gets high scores for Buildings and Resource Efficiency, as well as demonstrating a high level of innovation around green products and services. The areas for improvement include carbon efficiency, as Taiwan's economy continues to exhibit high emissions intensity overall. Most importantly, Taiwan's performance on the Environment dimension is near the bottom of the eighty countries covered, highlighting an urgent need for better stewardship of Taiwan's environment.

TANZANIA



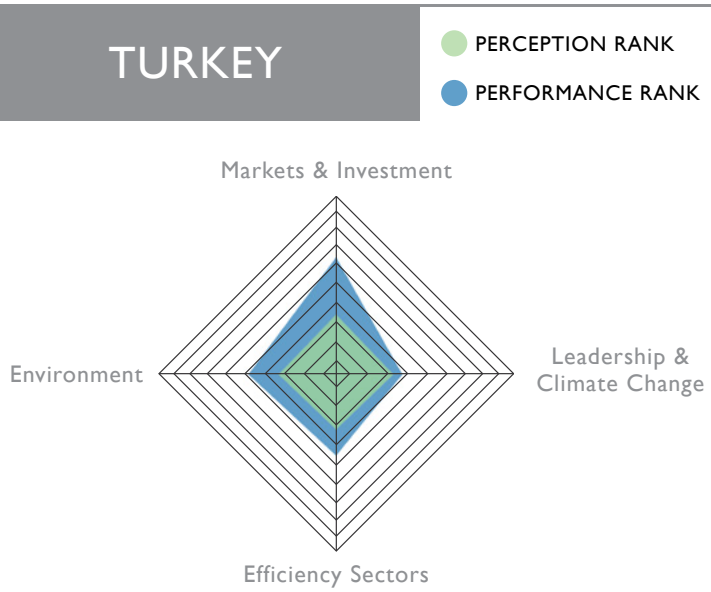
Tanzania's overall performance declined slightly on the 2016 GGEI, ranking fifty-third of the eighty countries covered. Tanzania's climate change performance remains better than many more developed countries due to the relatively low carbon intensity of its economy. Yet emissions from its transport sector have increased almost 200% over the past decade, suggesting that this relative strength may be eroding over time. On the Environment dimension, Tanzania ranks in the bottom quarter of countries covered for Air Quality, an area needing attention given the adverse social impacts linked to poor air quality. The same is true for Water Treatment and Access.

THAILAND



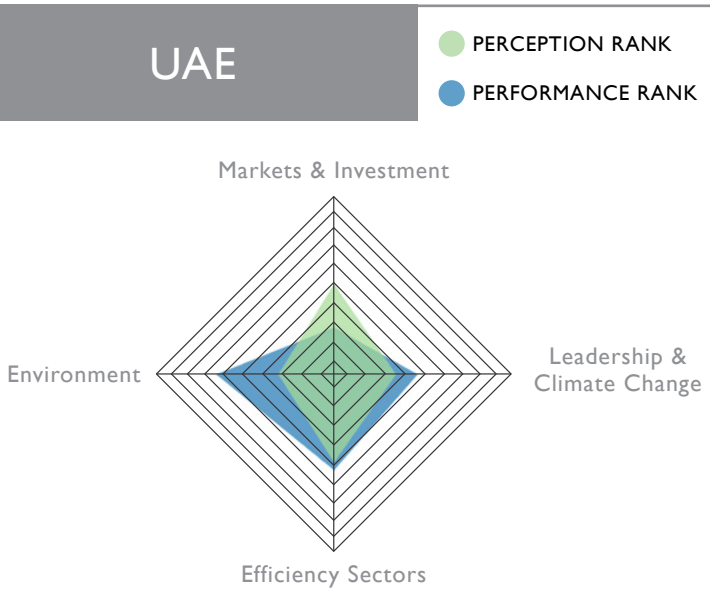
Thailand's overall performance improved slightly on the 2016 GGEI, ranking thirty-eighth of the eighty countries covered. The Leadership & Climate Change and Efficiency Sectors dimensions are driving this positive change, with the Markets & Investment one remaining basically flat. As was the case in the last GGEI edition, Thailand's biggest challenge remains on the Environment dimension, where it continues to fall near the bottom of the countries covered. There is no silver lining to Thailand's environmental performance at the moment as all six sub-categories included in the GGEI demand immediate attention from Thai leadership.

TURKEY



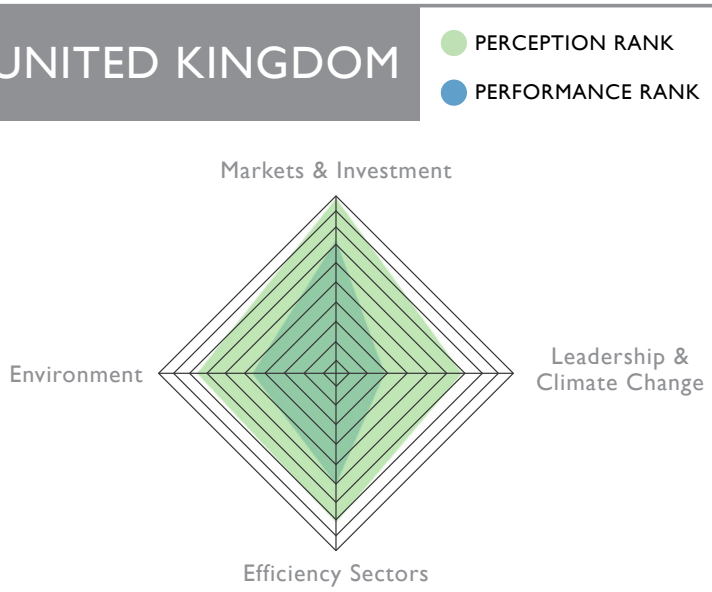
Turkey's overall performance improved slightly on the 2016 GGEI, ranking fortieth of the eighty countries covered. The Markets & Investment dimension is the main driver of this improvement, as Turkey received strong scores around renewable energy investment attractiveness, and signs of progress in terms of corporate sustainability and green investment facilitation. Turkish leadership should be focused on maintaining these gains as recent political instability could dampen investor confidence in the Turkish market in the short-term. For the future, the Environment dimension should be another focus area to improve Turkey's overall GGEI score further.

UAE



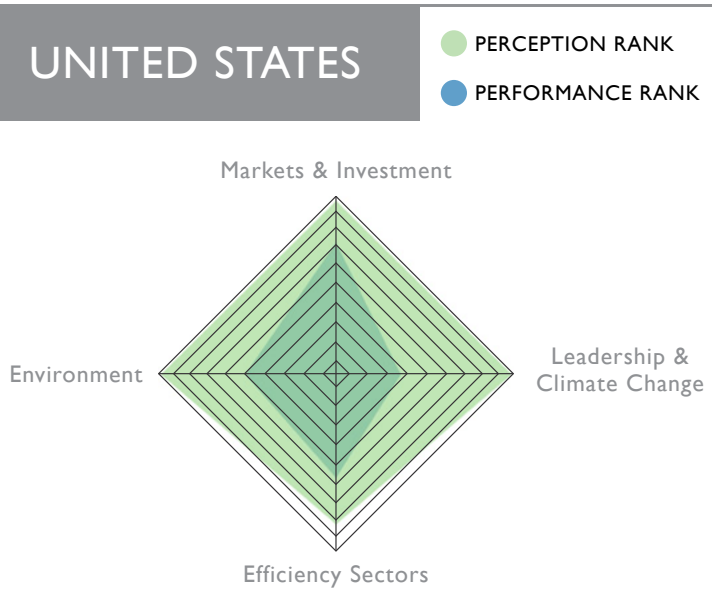
The United Arab Emirates' overall GGEI performance score is essentially flat, ranking at forty-fifth of the eighty countries covered. While this result leaves a lot of room for improvement, the UAE performance result is much higher than the other Gulf Cooperation Council (GCC) states. Furthermore, the UAE's perception result is even higher than its performance one, illustrating how efforts to brand the country around green business and innovation is breaking through to the global practitioners on the GGEI survey. Among other things, the UAE would benefit by realizing far greater contributions of renewable energy to its domestic economy, particularly given the increasing consumption of energy there.

UNITED KINGDOM



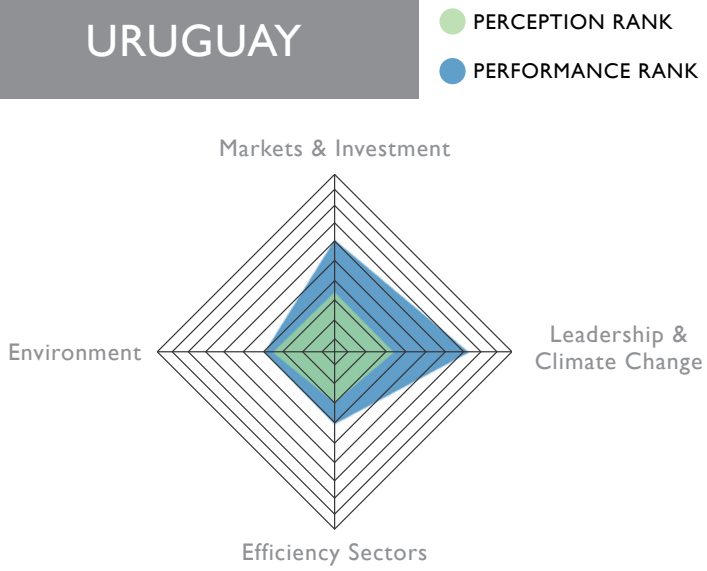
As was the case in 2014, the UK's overall performance on the GGEI continues to suffer from inconsistent political rhetoric and domestic policies supporting green economic growth. Overall, the UK's performance slid slightly in 2016, now ranking twenty-fifth below most of its competitors on the continent. Alarmingly, the UK ranks near the bottom of all countries for Leadership & Climate Change due to poor scores given to the head of state around commitment to the green economy. These shortcomings appear not to have damaged the UK's performance on the Markets & Investment dimension yet, where the UK ranks near the top of the eighty nations covered in this latest GGEI.

UNITED STATES



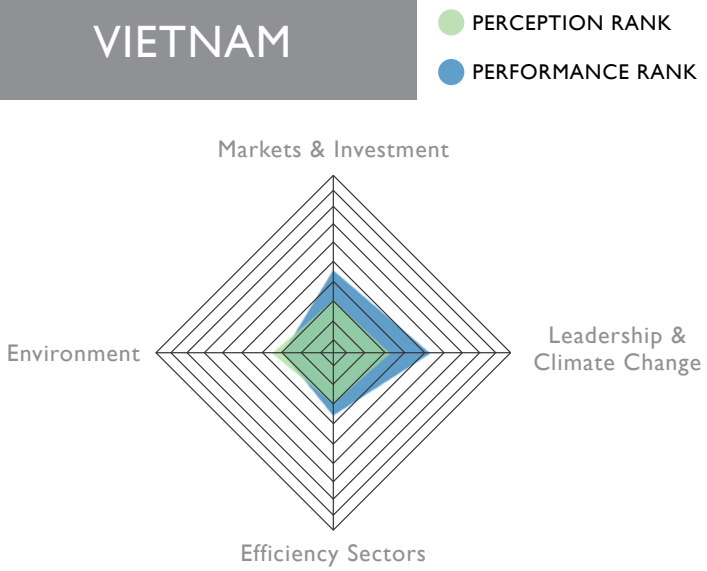
The United States' overall GGEI performance score is essentially flat, ranking thirtieth of the eighty countries covered. The U.S. perception result is much higher, right behind top-ranked Germany. The same pockets of strength persist for the U.S. on the GGEI, areas like cleantech innovation, corporate sustainability and notable political leadership at the recent COP21. But the reality is that the carbon intensity of the U.S. economy is not decreasing fast enough. And levels of new renewable energy capacity are not growing rapidly enough. Given the sheer size of the U.S. economy, global efforts to reach recently set climate goals will depend on an acceleration of U.S. green economic growth.

URUGUAY



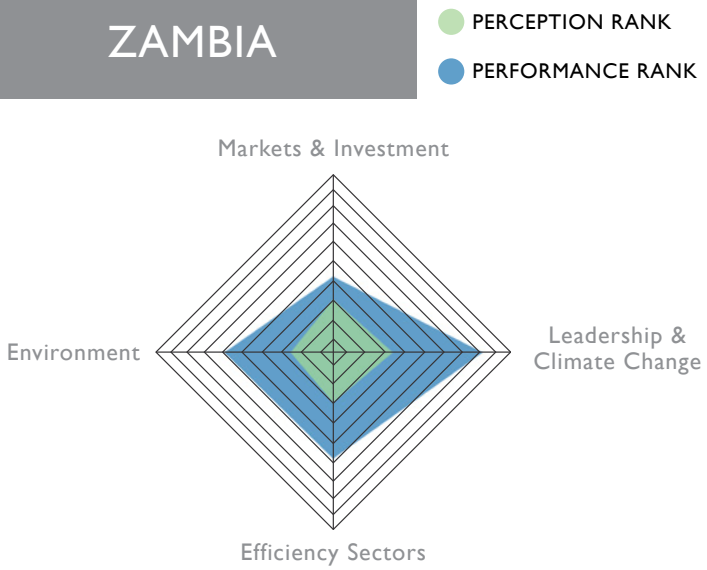
Uruguay's overall performance improved slightly on the 2016 GGEI, ranking nineteenth overall and better than most countries in Latin America. Uruguay continues to perform well on the Markets & Investment dimension but could do even better if companies in Uruguay did more to embed sustainability to their business operations and global supply chains. Uruguay continues to struggle on the Environment dimension, performing below most countries in Latin America. The Forests sub-category should be of particular focus as Uruguay currently is the lowest performer on the GGEI on this topic.

VIETNAM



Vietnam continues to score poorly on both the perception and performance measures of the GGEI, ranking in the bottom quarter for both. Vietnam must improve significantly on both the Efficiency Sectors and Environment dimensions of the GGEI. On Markets & Investment, the GGEI picked up improved efforts to promote green investment and the attractiveness of renewable energy projects. As a rapidly growing economy, Vietnam's emissions must also be monitored closely. While its overall emissions intensity may not yet rival some other developing countries, emissions from the transport sector have increased nearly 200% over the past decade.

ZAMBIA



Zambia registered one of the greatest improvements on the GGEI, rising to eighth overall for performance, making Zambia the top performing African country. Given its income level, one of the most impressive aspects of Zambia's GGEI score was on the Efficiency Sectors dimension, where continued high levels of renewable energy, declining emissions from the transport sector and a growing commitment to promoting sustainable tourism stand out. To improve further, Zambian leadership should focus on the Markets & Investment dimension where greater focus on cleantech innovation and corporate sustainability could drive Zambia's score even higher.

The Global Green Economy Index ™

GGEI 2016