



The EY MENA Climate Change Readiness Index



Building a better
working world

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Executive summary

- ▶ The MENA region is central to any global plan to arrest climate change. Its population is growing fast while the GCC states generate among the highest per capita levels of carbon emissions in the world and export large quantities of fossil fuels.
- ▶ Although governments in the region are wary of the slow economic growth, especially given the expectations of their youthful populations, Saudi Arabia, Bahrain, and the UAE have all pledged to reach net-zero emissions by at least 2060. Other states in the region have also committed to significant emissions reductions.
- ▶ EY has developed the Climate Change Readiness Index (CCRI) for MENA to track responses to climate change in Egypt, Jordan and the six members of the GCC, both now and in the future. Rather than focusing on vulnerability, like other climate indices, we measure how well governments are tackling the factors in their control, in particular how they are adapting their economies and societies to climate change and how well they are mitigating the phenomenon by reducing emissions.
- ▶ The EY MENA CCRI shows that nearly every state in the region has already substantially reduced per

capita emissions from 2015 levels. Delivering further progress will rest on four key levers:

1. The widespread deployment of technologies such as Carbon Capture and Storage (CCS) and Circular Carbon Economy (CCE) techniques that substantially reduce the emissions produced when fossil fuels are burned. MENA is already a global leader in this area.
2. The development of renewable energy resources across the region, solar power in particular, along with wind and nuclear. Besides Egypt and Jordan, progress has been slow so far, but major investment in renewables has been promised by Gulf states.
3. The smart deployment of capital. Government finances are under strain from rising public debt and budget deficits after the COVID-19 pandemic, but the region has large sovereign wealth funds (SWF), growing private finance and startup sectors which can collaborate to invest in climate transitions.
4. Regional collaboration. Wealthy Gulf states are poised to invest to reduce emissions in neighboring states, for example, Saudi Arabia plans to plant trees across the region, but mechanisms are needed to apportion the resulting emissions savings. A region-wide carbon trading market would allow the private sector to follow suit, and thereby provide capital to reduce emissions where that can be achieved most efficiently.

As the Gulf states embark on highly ambitious strategies to diversify their economies away from fossil fuels and toward entertainment and tourism, huge amounts of capital are being invested. Embed climate mitigation and adaptation in these efforts and the MENA region could leapfrog from climate change laggard to role model within a generation.

Methodology

The EY MENA CCRI is based on the latest data available as of 30 September 2022.

Data to build indicators for a multi-country study is dependent upon using data from reliable, validated international sources such those compiled by the UN system, the World Bank (WB), the International Monetary Fund (IMF) and other data aggregators to ensure a uniform methodology and data collection process. These sources depend on government ministry and other national sources data collection capacity, reporting timelines and priorities.

Using standardized sources ensures that ad hoc measures from different sources or years, for different countries, are not used. It also ensures that conclusions are not skewed or biased due to poor data availability, different approaches and timeframes which varies from country to country. This choice is reflected in the indicators designed for this Index which allow for a balanced view of important aspects of climate change readiness.



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Introduction

As heads of state, industry and civil society converged on the Egyptian resort town of Sharm-el-Sheikh for the COP27 conference on climate change, there is growing attention on the efforts and progress by countries in the MENA region to reduce carbon emissions.

The region's states, and members of the GCC in particular, generate among the highest levels of carbon emissions per capita in the world.¹ Many are also major exporters of fossil fuels which add significantly to global emissions.

Nevertheless, ahead of the COP26 meeting in Glasgow in 2021, Saudi Arabia, Bahrain, and the UAE pledged to reach net-zero emissions by at least 2060,² while other states in the region committed to significant emissions reductions.

Top 11 countries by emissions per capita, The World Bank³

All countries and economies

Country	Most recent year	Most recent value*	
 Qatar	2019	32.5	
 Kuwait	2019	22.0	
 Bahrain	2019	20.3	
 United Arab Emirates	2019	19.3	
 Brunei Darussalam	2019	16.1	
 Canada	2019	15.4	
 Luxembourg	2019	15.3	
 Saudi Arabia	2019	15.3	
 Oman	2019	15.3	
 Australia	2019	15.2	
 United States	2019	14.7	

*CO₂ Emissions (metric tons per capita)

How MENA governments can go about delivering on these global promises, especially given that the GCC heads of state have been clear that any climate transition cannot come at the expense of continued economic growth and improved prospects for their young and growing populations.

The first plank of the response will be technology.⁴ Fossil fuels will certainly form part of the region's future, establishing technology and techniques that substantially reduce emissions that are essential, and MENA is leading that implementation.

Thanks to CCS and significant reductions in the flaring of natural gas released in oil and gas production, all but one of the eight countries in this report managed to meaningfully reduce emissions per capita between 2015 and 2020, according to the scorecards. As Saudi Arabia promotes the idea of a CCE, in which pollutants are captured when fossil fuels are burned and then recycled, significant quantities of emissions can be avoided altogether.

The second part of the response will be investment in renewables. The Middle East is abundant in sunshine and the UAE, Egypt and Jordan have already installed significant quantities of solar energy generating capacity. Less obviously, strong desert winds provide untapped resources and Saudi Arabia has begun to generate some of the lowest cost wind energy in the world. Across the region governments are seeking to finance renewable energy projects that are already rivalling new fossil fuel developments.

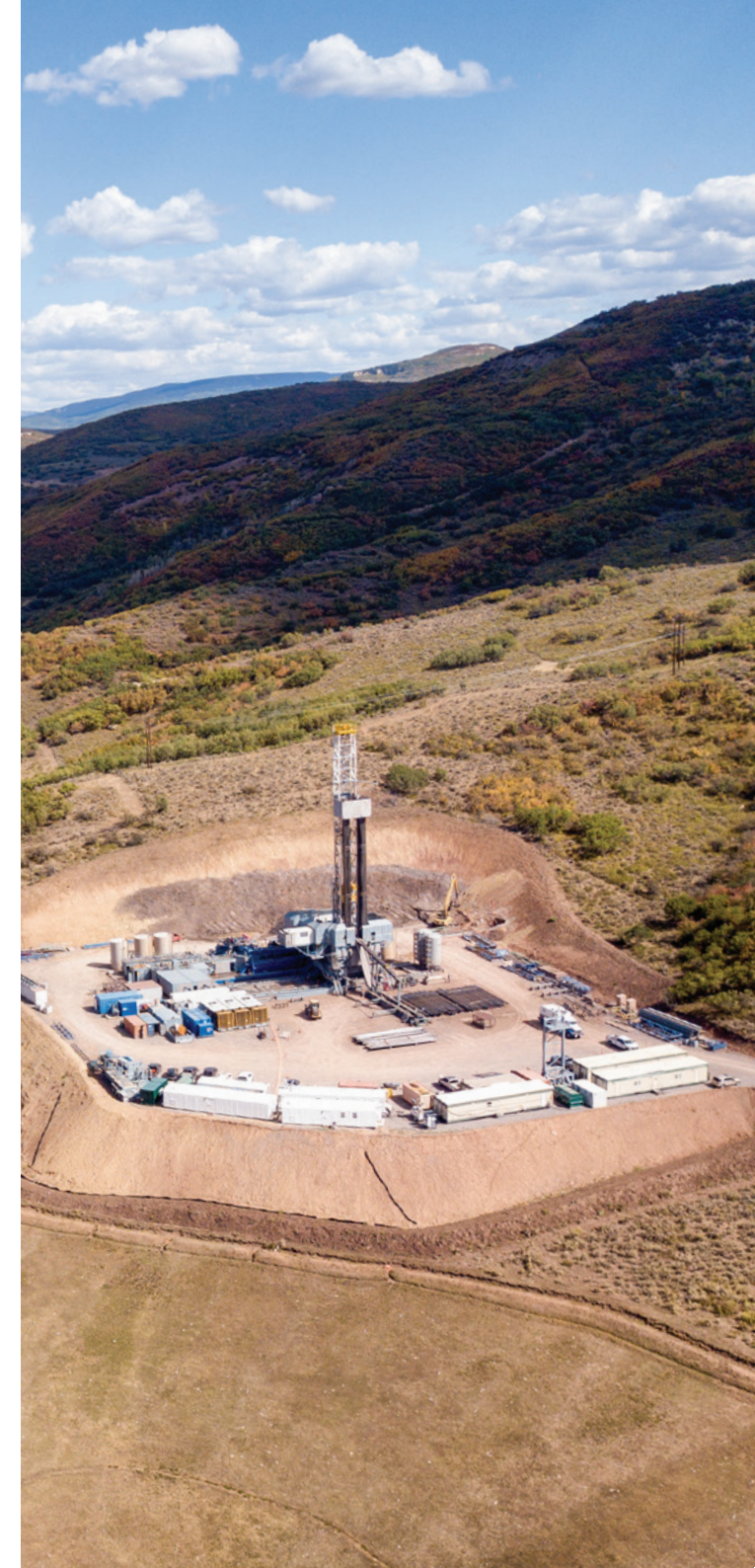
Finance is the third critical element. The Middle East is home to a major concentration of SWF assets, giving its wealthier governments the fiscal resources to drive

major structural change to their economies. While other countries may be further ahead in their transitions to a low emissions future, the MENA region has the ability to catch up rapidly.

From Saudi Arabia, Qatar and Abu Dhabi's "Vision 2030" plans to the "New Kuwait" vision for 2035 initiative, states across the region are putting in place ambitious economic transformation plans. Central to these are the clean energy infrastructure from the new green Saudi mega city to major nuclear energy projects and efforts to diversify economies sustainably. Saudi Arabia's The Red Sea Project to develop 90 islands off its western coast for tourism, for example, will be carbon neutral and rely exclusively on renewable energy.⁶

Growing private sector credit, an emerging venture capital community and government funding for environmental entrepreneurship, meanwhile are setting the stage for private sector innovation in new climate technologies. Taken together, this matrix of financial resources creates the potential for the MENA region to leapfrog from climate change laggard to role model within a generation. Going forward it will be crucial to effectively track these initiatives and changes in order to provide a clear understanding of how they are impacting emissions, economies and societies.

In Qatar, there was detailed planning and unwavering commitment in managing as well as reducing waste. For instance, the Qatari government announced that it had recycled 80% of the waste of the stadiums that hosted the FIFA World Cup, which exceeded 2,000 tons. Apart from that, as part of the "Plant Million Trees" which aims to protect and preserve the environment for future generations, one million trees were planted simultaneously in Qatar.



The EY MENA CCRI

EY has developed the Climate Change Readiness Index for the MENA region to improve understanding of where countries in the region are, in their efforts to respond to the demands of climate change, now and in the future.

The idea is to provide scorecards for Egypt, Jordan and the six members of the GCC that can, at a glance, help governments, investors and citizens track where the region's governments perform compared to global benchmarks on a range of 37 quantitative and qualitative measures of climate change readiness. To do this, we have adopted a green, yellow, and red traffic light system.

This first version of the Index is a point-in-time measure of where countries stand, and future iterations of the Index will reveal how national climate change strategies are maturing, by tracking progress in each of the measures over multiple years.

Unlike other indices, this initiative does not focus on the vulnerability of countries to climate change, which is largely an accident of factors beyond government control such as geographic location, but instead each country's progress toward grappling with the challenges it faces. We track this according to two pillars:

1. Adaptation

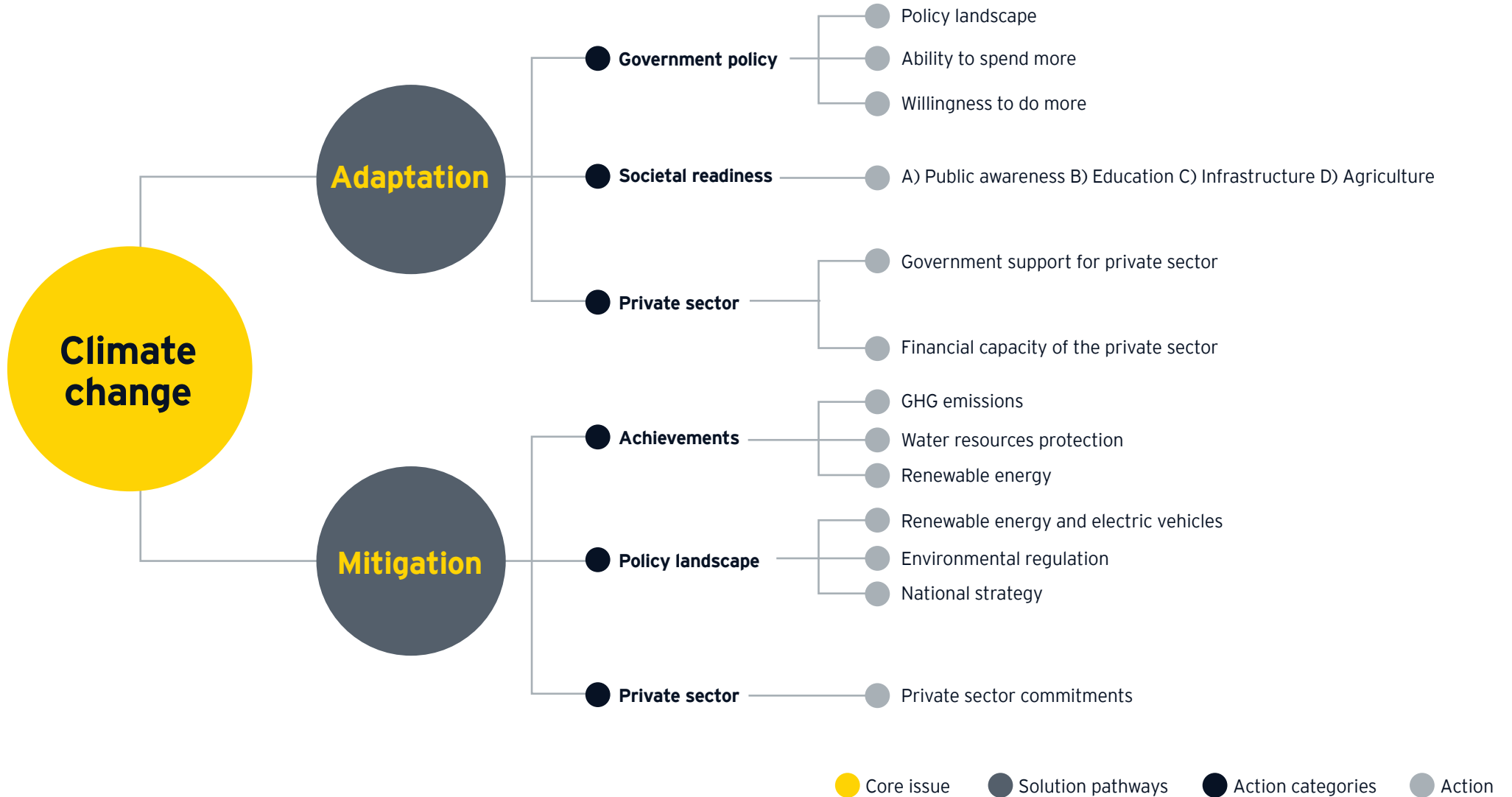
Adjustments made in response to existing climate change, for example, building environments which are flood-resistant or can withstand higher temperatures.

2. Mitigation

Steps taken to reduce future emissions, for example, by reducing energy consumption and adopting renewables.

While governments are a key factor in both mitigation and adaptation, they are far from alone. The country scorecards consider a range of social indicators that measure human capital and societal readiness to confront climate change. It also explores the role of the private sector, which is crucial to both financing climate transition and reducing corporate emissions.

How the Index is structured⁷



01

The policy
framework



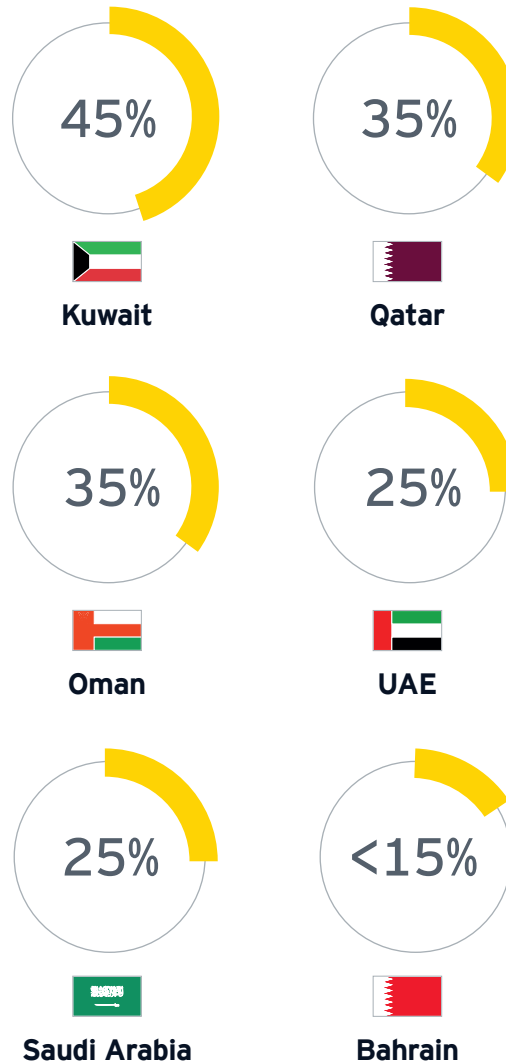
As the Paris Climate Agreement showed, climate change responses must begin with governments. Only states have the ability to make commitments on behalf of their public and private sectors and then monitor enforcement so that these initiatives cascade into tangible changes across economies and societies. How do the MENA governments perform on their policy activities?

Fossil fuel dependence makes it hard for the region's governments to develop strategies that combine economic growth with emissions reduction, but recent years have shown a decisive shift across the region, with nearly every government announcing tangible climate change commitments.



Gulf state economies remain heavily dependent on fossil fuels

Oil and gas production share of GDP, 2019, Moody's⁸



Ahead of or during the COP26 meeting in 2021, three different GCC states made commitments to reach net-zero emissions. Saudi Arabia and Bahrain aim to do so by 2060 and the UAE by 2050. All eight countries in this Index have a climate adaptation strategy, six of which have been published or significantly updated since 2020. EY analysis shows that every country except Qatar is actively implementing their adaptation strategy by, for example, publishing a timeline or allocating a budget to an implementing authority. Qatar's National Climate Change plan also proposes 300 adaptation initiatives.¹⁰

When it comes to mitigation, every country except Kuwait has a published strategy for reducing emissions and most countries are already implementing them. Kuwait, too, has pledged to reduce greenhouse gas (GHG) emissions by 7.4% from 2015 levels by 2035. Although this target falls short of the reduction needed to meet the Paris Climate Agreement's stretch goal of limiting temperature rises to 1.5°C, Kuwait's government said earlier in 2022 that it will seek to meet international commitments.¹¹

Having begun to unveil strategies in the last two years, there are also signs that the Middle Eastern states are keeping up the momentum, with seven of the eight countries in the Index announcing additional climate-related programs since the conclusion of the COP26 in November 2021, according to our analysis.

02

Emission
reductions and
renewables



Strategies and goals can set direction, encourage private sector investment and catalyze broader changes in expectations. But this must be reflected in concrete improvements in emissions reduction and investment in renewables. The analysis indicates that, despite the region’s heavy reliance on fossil fuels, there are tangible signs of transition to renewables.

Capturing carbon

Compared to 2015, the reference year for the Paris Climate Agreement, emissions per capita have fallen in seven of the eight countries considered in the Index, with a drop of more than one-third in the UAE and 16% in Saudi Arabia and Oman, as shown by the scorecards. Only Qatar saw a small uptick in emissions per capita.

Country-level emission reductions from 2015 to 2020, Integrated Carbon Observation System (ICOS).¹²

Growth rate 2015-2020: territorial CO₂ emissions per capita



These numbers may reflect a reduction in economic activity and emissions in 2020 during the COVID-19 pandemic but they also demonstrate significant progress in reducing carbon emissions by using technology.

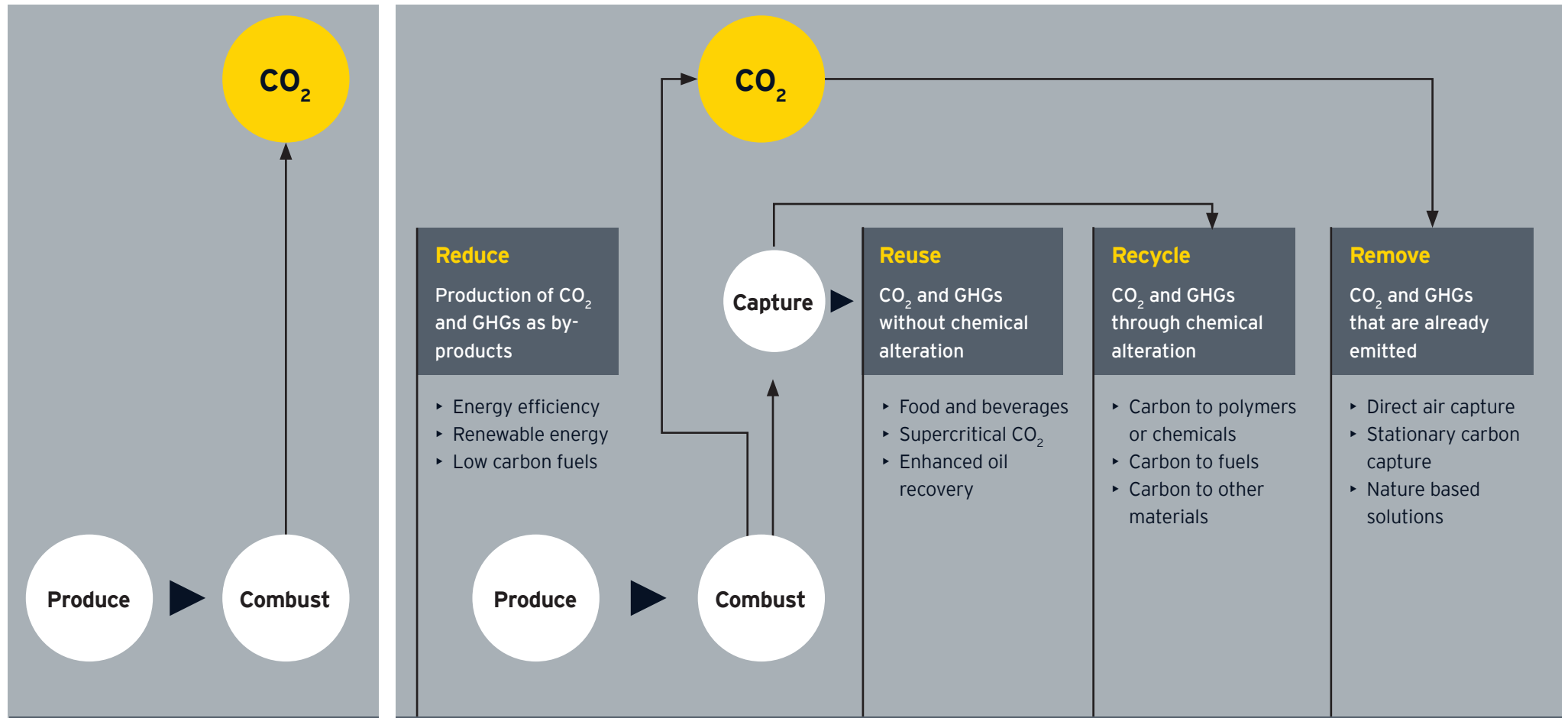
The Middle Eastern states have moved to tackle flaring, the burning of methane released from oil and gas reservoirs. Given the scale of fossil fuel production in the

region, this can significantly reduce emissions: Qatar’s Al Shaheen flaring reduction project, for example, prevents carbon emissions equal to 4% of the country’s 2007 total each year, while Saudi Arabia’s net-zero commitment envisages a 30% reduction in methane emissions by 2030.¹⁴

As part of its 2020 presidency of the G20, Saudi Arabia also promoted the idea of a CCE as a means to significantly reduce carbon emissions without abandoning fossil fuels.¹⁵

From a linear carbon economy ...

... to a Circular Carbon Economy (4 Rs)



The idea is to capture substantial amounts of carbon at the point that fossil fuels are burned and then put that carbon to use in manufactured products, energy production or by converting it into other useful compounds. This removes substantial quantities of carbon emissions at source, rather than simply reducing them. Already, the Gulf states has captured 3.7 million tons (MT) of carbon a year, equal to 10% of the global total from just three major projects in Qatar, the UAE and Saudi Arabia. Saudi Arabia is planning to invest heavily in the technology. The prospect of recycling carbon rather than leaving it in the ground is especially appealing in helping countries in the MENA region to chart a viable transition to net-zero, allowing the region's populations to benefit from their natural resources while meeting climate targets.

Renewables revolution

The MENA countries are starting from a low base in their transition to renewables. In only two countries considered in the Index, Jordan and Egypt, do renewables account for more than 10% of the national energy mix, according to the analysis. Egypt was an early mover, starting to harness wind energy more intently with the Ras Ghareb wind farm, which became operational in 2019, standing as the first independent power producer project in the country.¹⁸ Despite abundant sunshine across the region, only the UAE and Jordan source more than 3% of total energy from solar photovoltaic (PV). In fact, in each GCC country apart from the UAE, all renewable energy sources combined account for less than 1% of the total energy mix.

This point-in-time picture only tells a partial story. Nearly every country in the region has recently adopted a strategy for renewable energy and made steps toward implementing it. Saudi Arabia, for example, plans to be the regional leader for renewables, with 58.7GW

operational by 2030,¹⁹ which would represent a more than 50-fold increase from today. In 2021, the country's first wind farm, Dumat al-Jandal, was connected to the national grid with the ability to power 70,000 Saudi homes.

Looking ahead, a sizable number of major project finance initiatives in the region are focused on renewable energy, including a proposed US\$32b nuclear power project and a US\$6b solar power development, as both located in Saudi Arabia.²⁰ The region's largest single mega project, the proposed building of a desert smart city, is deeply linked to climate adaptation strategies, with all energy in the city expected to come from renewable sources.²¹ Indeed renewable energy projects are now more prominent among the region's proposed mega projects than traditional fossil fuel infrastructure, according to Ventures Middle East.²²

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10% of the national energy mix according to our analysis.



03

Public and private finance

An estimated US\$126t of capital will be required to meet the goals of the Paris Climate Agreement, according to the Institutional Investors Group on Climate Change (IIGCC).²³ Across the world governments, their populations and financial sectors need to invest on a scale not seen before.



The MENA region is no exception. Yet like their global peers, the region's governments have significantly stretched their public finances over the 2002-22 period, first in response to the global financial crisis and then to support populations during the COVID-19 pandemic. Every country considered in the Index has seen their national debt grow over the last five years and now regularly records budget deficits.

In its SWFs, however, the region has an important asset. Institutions control hundreds of billions of dollars and are expected to play a role in financing economic and climate transition.²⁴ Crucially, the MENA states are also already planning to use public savings to embark on economic transformations to meet the expectations of young and growing populations. From Vision 2030 in Saudi Arabia to the New Kuwait plan, governments are seeking to transition economies toward entertainment and consumption, while diversifying employment and investment away from fossil fuels industries. The MENA states are looking to integrate climate adaptation into already-existing economic transformation plans.

It is not just public funding in which MENA states appear relatively well set. On a series of private sector measures, from the soundness of banks to ease of access to loans and the availability of venture capital, every country in the region outperforms the global median, according to the WB data. Even private sector credit, long an afterthought in a region where government-owned entities absorb most capital, has been rising rapidly in recent years. Add direct government support for startups that focus on sustainability in all, but two of the eight countries considered in the Index, and the region is well-positioned to be a hub of private sector climate technology innovation.

Sustainable finance

As the international community comes to terms with the scale of capital required to address climate change, there is an increasing recognition of the urgent need to deploy much more significant levels of private capital.

“

The COP26 in Glasgow was probably the first time that private sector financial institutions really had a seat at the table. This was a critical development because we need financial institutions at the heart of climate dialogue, in order to solve how we deliver the finance and investment needed, both efficiently and rapidly.

Jessica Robinson

EY-Parthenon MENA Sustainable Finance Leader

EY defines sustainable finance as any form of financial service that incentivizes the integration of environmental, social and governance (ESG) criteria into business decisions. At a regional level, Robinson suggests three key pathways through which the MENA governments and authorities can leverage sustainable finance to deliver positive climate outcomes.

The first is regulatory. Putting in place regulatory frameworks that support MENA's financial institutions in financing and investing in the climate transition. This includes providing standardized definitions of

what climate and transition finance is, clarity on how to disclose climate-related risks and exposures, as well as incentives and structures to support innovation, for example, new financial instruments designed to support climate finance or the leveraging of technology solutions for net-zero financing.

The second is capacity building. The climate transition is a major business opportunity for companies in the region and it is important to ensure that they are well positioned to seize this. Sustainable finance, when linked directly to sustainability and climate outcomes, provides the mechanism to drive change within the private sector. As part of this, Robinson says, we need to train, educate, and build capacity not only to manage climate risks, but also identify the significant opportunities that that exist. How governments communicate this will be another success factor to consider.

The third and most important pathway involves the role that the region's SWFs play. Through the sheer weight of their assets, Robinson suggests, these organizations have the ability to change behavior within the global financial sector.

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Once you get these big asset owners saying to every company they consider investing in, “What is your transition plan?” then that transforms discussions and actions right through the value chain from boardrooms to banks.

04

Financial markets



Across the world, financial markets can influence climate adaptation and mitigation in several ways. First, listings on public exchanges determine which companies have access to capital. That means exchanges that cater to specific sectors such as technology or environmentally focused businesses can encourage capital to flow to specific economic activities. Second, reporting requirements for listed companies establish normative expectations for company behavior, for example, around disclosing climate risks. Finally, through carbon markets, market structures offer the potential to put a price on polluting and change company behavior.

As ESG investing gathers pace, several national exchanges across the world have made it compulsory for listed companies to disclose climate risks, the environmental impacts of their activities and other ESG information. Apart from Oman, every country considered in the MENA Index has published written guidance on ESG reporting²⁵, although so far only Egypt and the UAE have made such reporting compulsory for listed companies, according to our analysis.

When it comes to carbon markets, developments are accelerating. Saudi Arabia, the UAE, Qatar and Jordan have all created carbon markets since the start of 2021, showing growing interest in the area. However, for now these markets remain small-scale and voluntary.

The potential of carbon trading, however, lies at a regional level, according to Jessica Robinson, EY-Parthenon MENA Sustainable Finance Leader. If the carbon credits were to be traded across MENA borders the Gulf's energy-intensive companies would be able to offset some of their emissions by investing in environmental outcomes in countries where carbon emissions can be reduced at little cost.

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It would mean quickly harvesting all of the low-hanging fruit across the region.

Jessica Robinson

EY-Parthenon MENA Sustainable Finance Leader

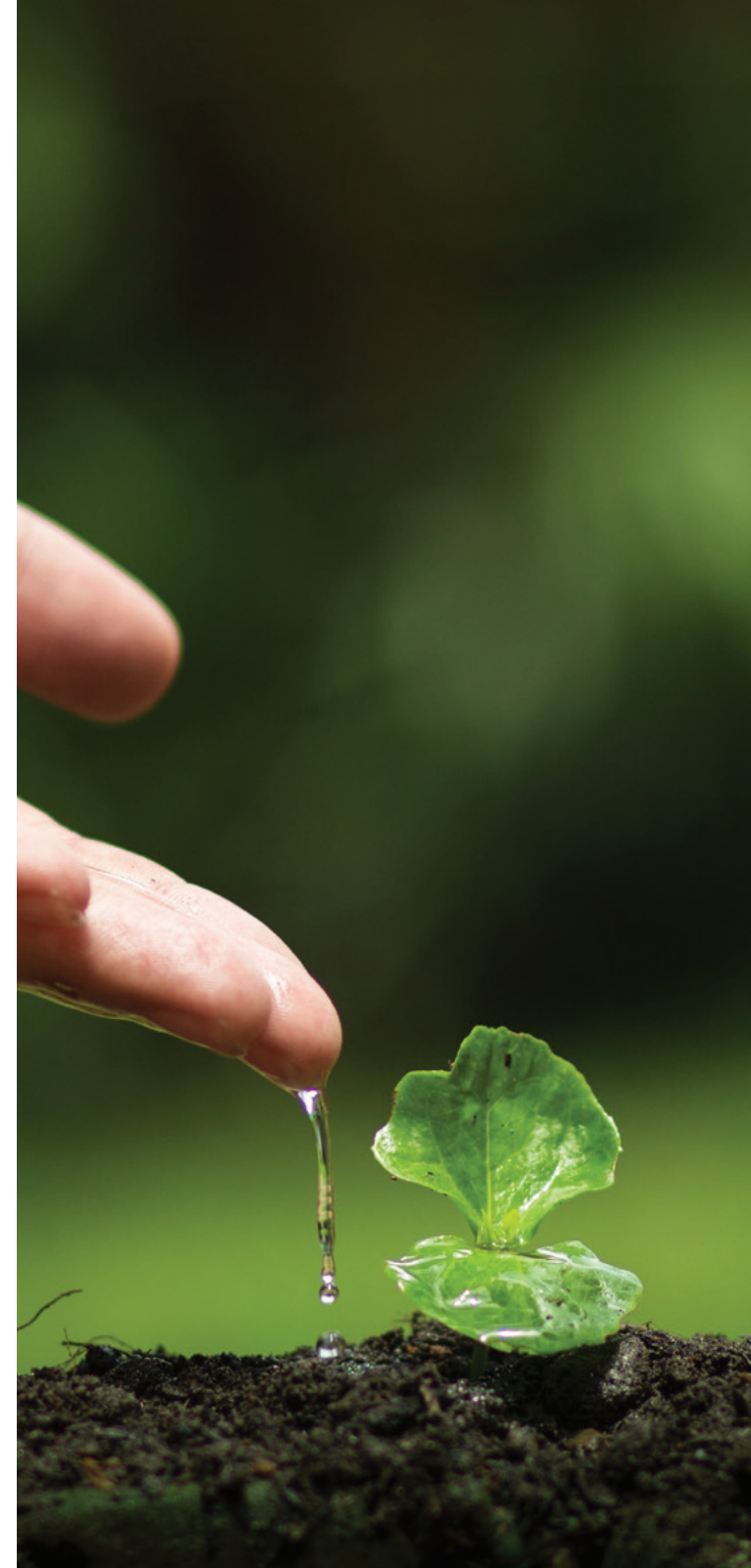
Regional carbon trading could pave the way for a MENA-wide approach to combating climate change, where emissions are curtailed at an aggregate, regional level, even as individual countries continue to develop fossil fuel resources.

Even without region-wide carbon pricing, there are signs of regional cooperation. When Saudi Arabia announced its net-zero aspirations, the government said it would plant 50 billion trees across the Middle East, compared to just 10 billion in Saudi Arabia, to absorb carbon.²⁶ Meanwhile, the kingdom's flagship renewable smart city project, will be partially built on Egyptian land,²⁷ and also involve cooperation with Jordan.²⁸

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50 billion

trees across the Middle East, compared to just 10 billion in Saudi Arabia, to absorb carbon.



05

Human and social resources

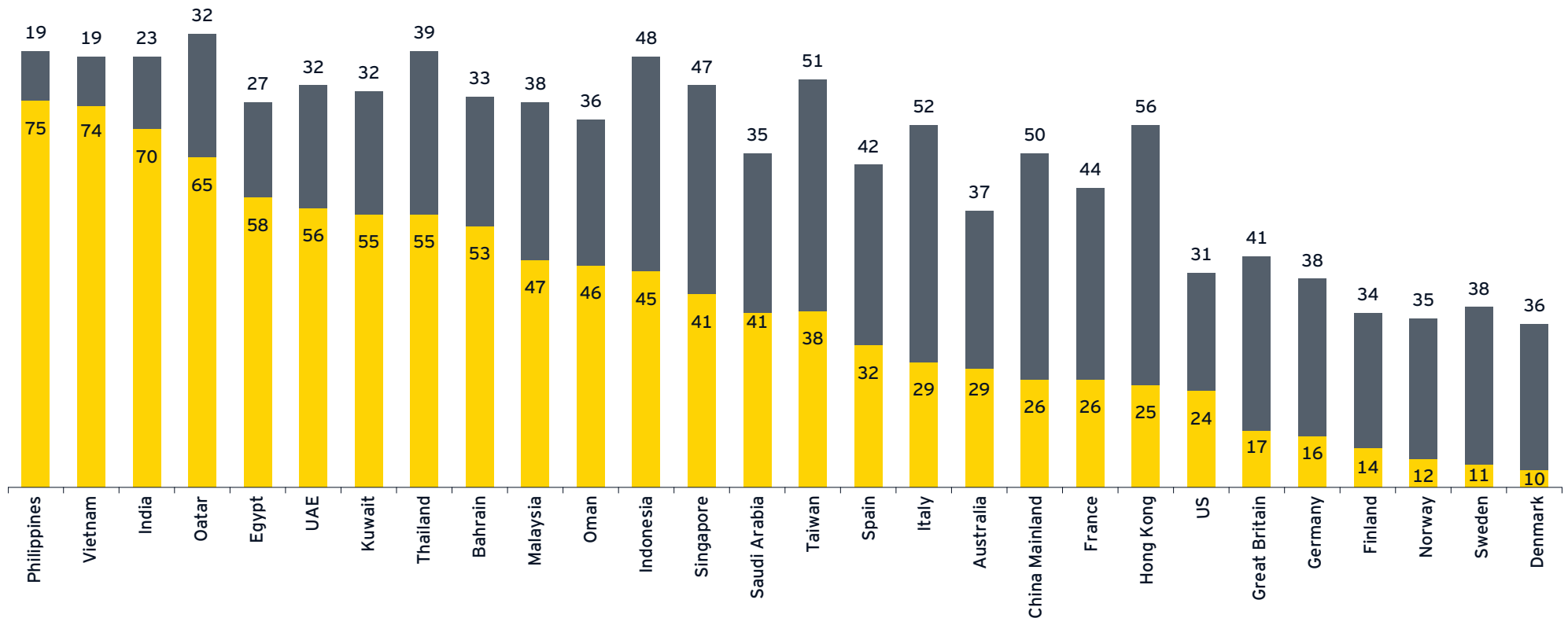


Often forgotten in climate discussions, which focus on financing and government commitments, is the human resources of an economy. A skilled workforce is required to drive climate adaptation strategies at both a government and private sector level, while educated populations are more likely to support decisive action on climate change because they have a greater understanding of the challenges faced.²⁹

MENA populations are generally highly literate, with Jordan leading economies in the Index with a 98% literacy rate and only Egypt falling beneath 90%. Apart from Kuwait and Qatar, a majority of the adult population in each economy in the Index have completed at least high school, according to the scorecards.³⁰ Perhaps most importantly the populations of these regions are young and have grown up in the shadow of climate change. MENA populations are already far more likely to believe that climate change will significantly impact their lives than peers in North America or Europe.³¹

Expectations that climate change will have a big impact on a person's life are far lower in the western economies than Eastern and Middle Eastern economies.

How much of an impact, if any, do you believe climate change will have on your life? Percentage of respondents who answered “a great deal of impact” or “a fair amount of impact”. The encouraging percentage of respondents placed climate as a big impact area for Qatar underlines the significant importance accorded by the local stakeholders to the subject and can be considered as a prelude to the actionable initiatives that are to take shape around climate from the country.



This combination of young, educated populations, and a live experience of climate change will mean there is pressure from below, on governments in the region to take action on climate change,³³ just as much as there is from the international community and within their own ranks.

■ A great deal of impact
■ A fair amount of impact

Country scorecards



Saudi Arabia



Any route to net-zero emissions in the MENA must run through Saudi Arabia. Not only does the country have by far the largest population in the GCC³⁴, and the largest GDP in the MENA region³⁵ and, of course, among the world's largest oil reserves³⁶ and production capacity,³⁷ its government has also been the most vocal proponent of a regionally accented route to climate change and adaptation.

This has three main characteristics. A belief in recycling the carbon produced when fossil fuels are burned, rather than leaving oil and gas in the ground; a region-wide approach to mitigation, which involves rich states funding carbon offsetting in their neighbors as well as within national borders and finally; massive investment, underpinned by the state's SWF, in technologies such as renewables and carbon capture and storage, and mega clean energy projects.³⁸

In 2020, the G20 endorsed Saudi Arabia's idea of a CCE, accepting the principle that climate change mitigation is not incompatible with an oil-based economy.³⁹ In Egypt and Jordan, the government has also already found two willing participants for its vision of regional cooperation in emissions reduction.⁴⁰

In renewable energy, Saudi Arabia is most advanced among countries in the Index in its plans for nuclear energy. Through its Dumat al-Jandal wind power farm, it is also the only country to gather a substantial amount of its renewable energy from non-solar sources. Solar makes up less than 50% of the total renewable energy mix in Saudi Arabia, whereas it accounts for all the renewable energy capacity in other Gulf states. Even with climate mitigation measures at an embryonic stage, the kingdom has reduced emissions per capita by a startling 16% from 2015 levels by 2020, according to our analysis.

However, our scorecard also shows that the window of opportunity for Saudi Arabia to advance on its model is shrinking. First of all, the country's finances are not limitless. While SWFs offer significant investment firepower, public finances are deteriorating, reducing the amount of money that can be diverted from the general budget each year for investment. Our scorecard shows both a growing national debt, increasing as a share of GDP faster than regional peers, (but slower than economies in Europe), and a consistently negative budget deficit. This trajectory is likely to continue as the government seeks to shelter citizens from global economic turmoil.

The scale of financing needed to fund projects such as smart mega cities, nuclear power plants and giant solar projects, requires substantial private sector involvement. The scorecard indicates the Saudi private sector is strong compared to global averages, but less so when compared to other Gulf states. Both private sector credit as a percentage of GDP and access to loans, for example, trail neighboring states. This will need to change if private sector climate innovation is to thrive, growing the national economy, and also accelerating climate mitigation and adaptation.

Saudi Arabia's regional model for emissions reduction is yet to be formalized. No Gulf or MENA-wide carbon markets exist, meaning Saudi companies lack any financial incentive to offset carbon emissions in other countries. Although, there are signs of change with the recent launch of a voluntary carbon market, and the largest carbon auction taking place in October 2022. There is also no formal mechanism yet to recognize Saudi Arabia's regional activities, such as tree planting, as part of the country's own climate actions.

Finally, the country could invest more in preparing its citizens for a climate impacted future. Although literacy levels and secondary education completion levels are high, only 25% of students in lower secondary education show proficiency in knowledge of environmental science and geoscience. This is the lowest level recorded in the Index.⁴¹ Scientific knowledge is crucial not only in increasing climate awareness among populations, but also for developing technologies which can drive climate mitigation locally.

Solar makes up less than

50% of the total renewable energy mix in Saudi Arabia.

Reduced emissions per capita by a startling

16% from 2015 levels by 2020.

Saudi Arabia

		Indicator	Score
<p>A. Adaptation readiness</p> <p>(The extent to which the country is capable, willing and prepared for climate change adaptation and has considered future scenarios.)</p>	A.1. Government policy	1. Relevent National Climate Change Adaptation Strategy (NCCAS)	1
		2. Implementation of the NCCAS	1
		3. Five-year average y-o-y debt growth rate: percentage of GDP	46.03%
		4. Five-year average fiscal balance	-9.66
		5. Projects announced by the government since the last COP meeting	1
	A.2. Societal readiness	6. Students percentage in environmental science and geoscience	25
		7. Civic participation	No data
		8. Earth Day celebrations	1
		9. Percentage of population over 25 years old completed high school	62.30%
		10. Average education level	11.3
		11. Adult literacy rate percentage	98%
		12. Quality of overall infrastructure	5.25
		13. Global Food Security Index (GFSI): sustainability and adaptation score	53.7
	A.3. Private sector readiness	14. Ease of doing business score	63
		15. Existence of a national startup fund	2
		16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	1
		17. Governance quality	5.25
		18. Soundness of banks	5.47
		19. Venture capital availability	3.54
		20. Ease of access to loans	3.93
		21. Private credit as percentage of GDP	54%

Saudi Arabia

		Indicator	Score	
<p>B. Mitigation readiness</p> <p>(The extent to which the country has developed capabilities and capacity to address mitigation and is preparing for the future.)</p>	<p>B.1. What has already been achieved?</p>	22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	-15.60%	
		23. Market for emissions trading	1	
		24. Protected marine area as percentage of total territorial waters	2.50%	
		25. Groundwater depletion	974.20%	
		26. MW/capita of renewable energy installed	12.3	
		27. kWh/capita of renewable energy generated	7	
		28. Percentage of solar photovoltaic (PV) energy in national energy mix	0.03%	
		29. Percentage of renewables in national energy mix	0.08%	
		<p>B.2. Policy landscape</p>	30. Existence of National Renewable Energy Strategy	2
			31. Implementation of National Renewable Energy Strategy	2
32. Existence of an electric vehicle policy	1			
33. Existence of an environmental regulation agency	0			
34. Existence of a National Climate Change Mitigation Strategy	1			
<p>B.3. Private sector</p>	35. Implementation of National Climate Change Mitigation Strategy	1		
	36. National Stock Exchange issuing written guidance on ESG reporting	1		
	37. ESG reporting required as a listing rule	0		

The UAE



The UAE has achieved a series of firsts within the region. The first state in the GCC to commit to the Paris Climate Agreement⁴², for example, and the only country among the eight covered by the Index to pledge to reach net-zero emissions by 2050.⁴³ In our scorecards, along with Egypt, UAE is the only country to have articulated new climate adaptation, mitigation, and renewable strategies since the start of 2020, and taken concrete steps toward implementing all of them. The UAE's policy initiative extends to financial markets, where its carbon market is among the most developed in the region although still only voluntary and along with Egypt, it is the only country in the Index whose primary stock exchange requires companies to make ESG disclosures.

These policy initiatives have been matched by climate mitigation outcomes. Emissions per capita declined precipitously between 2015 and 2020, at a rate more than double that of any other country in the Index. The UAE has significantly more installed renewable energy capacity than any other state, largely due to an early and sustained embrace of solar energy. As early as 2013, the UAE opened a US\$600m concentrated solar power (CSP) plant in Abu Dhabi, which the UAE says remains the largest operational CSP plant in the world.⁴⁴ CSP uses mirrors to concentrate the sun rays to increase energy generation.

Masdar, played a leading role in Shams⁴⁵ and developed significant expertise in solar as a result. It has gone on to operate solar plants across the region from Egypt to Morocco and Mauritania, which between them now account for 20% of the entire installed solar capacity in Africa, according to IRENA.⁴⁶ Masdar now also operates solar plants as far afield as the Caribbean and South Pacific and has also branched out into wind energy and waste to energy.⁴⁷

The UAE is already among the highest generators of solar energy per capita in the world,⁴⁸ but individual emirates are continuing to invest heavily in additional capacity. Masdar is one of many partners currently building the world's largest solar power plant of any variety in Abu Dhabi, which would bring the emirate's solar capacity up to 3.2 GW.⁴⁹ That would place the individual emirate, with a population of just 1.5 million, among the top 30 countries in the world by total solar energy capacity.⁵⁰ Dubai, meanwhile, plans to build a CSP site plant larger than Shams as it seeks to generate 75% of its energy needs from renewables by 2050.⁵¹

The UAE can maintain and build momentum on climate change. While national debt is growing, in common with other countries in the Index, budget deficits have been small, averaging just 1.6% of GDP in the past five years, at a time when those in several other states have topped 5%. The country's multiple SWFs, which sit at the level of the federation and individual kingdoms, provide financial firepower. These sovereign funds have been actively seeding renewable energy companies, in addition to passively investing in portfolio companies.

The UAE's private sector is thriving relative to global averages and its neighbors. Its banks are the soundest in the region, scoring 5.78 out of a maximum 7 on a WB scale,⁵² and it has the widest availability of venture capital among countries in the Index. In the WB's ease of doing business rankings, the UAE was the only country from the MENA region to appear in the top 20.⁵³ Only Qatar compares to the UAE when it comes to ease of access to loans, according to our scorecards. But there is room for improvement. Private credit is close to 100% of GDP, for example, but this still lags the global average and regional peers including Qatar and Kuwait.⁵⁴

Finally, the UAE's human capital appears strong, with among the highest levels of literacy, high school graduation and scientific understanding in the Index. The ingredients are fiscal, policy and human capital are all present for the UAE to continue making strong progress on both climate adaptation and mitigation.

Only country among the eight covered by the Index to pledge to reach

net-zero emissions by 2050.

As early as 2013, the UAE opened a

US\$600m

concentrated solar power (CSP) plant in Abu Dhabi, which the UAE says remains the largest operational CSP plant in the world.

The UAE



		Indicator	Score
<p>A. Adaptation readiness</p> <p>(The extent to which the country is capable, willing and prepared for climate change adaptation and has considered future scenarios.)</p>	A.1. Government policy	1. Relevent National Climate Change Adaptation Strategy (NCCAS)	2
		2. Implementation of the NCCAS	2
		3. Five-year average y-o-y debt growth rate: percentage of GDP	15.48%
		4. Five-year average fiscal balance	-1.55
		5. Projects announced by the government since the last COP meeting	1
	A.2. Societal readiness	6. Students percentage in environmental science and geoscience	31%
		7. Civic participation	0.32
		8. Earth Day celebrations	1
		9. Percentage of population over 25 years old completed high school	71.50%
		10. Average education level	12.8
		11. Adult literacy rate percentage	96%
		12. Quality of overall infrastructure	6.31
		13. Global Food Security Index (GFSI): sustainability and adaptation score	55.2
	A.3. Private sector readiness	14. Ease of doing business score	16
		15. Existence of a national startup fund	2
		16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	2
		17. Governance quality	6.31
		18. Soundness of banks	5.78
		19. Venture capital availability	4.57
		20. Ease of access to loans	5.17
		21. Private credit as percentage of GDP	88.40%

		Indicator	Score	
<p>B. Mitigation readiness</p> <p>(The extent to which the country has developed capabilities and capacity to address mitigation and is preparing for the future.)</p>	<p>B.1. What has already been achieved?</p>	22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	-35.00%	
		23. Market for emissions trading	1	
		24. Protected marine area as percentage of total territorial waters	11.50%	
		25. Groundwater depletion	1630.70%	
		26. MW/capita of renewable energy installed	288.7	
		27. kWh/capita of renewable energy generated	585	
		28. Percentage of solar photovoltaic (PV) energy in national energy mix	3.81%	
		29. Percentage of renewables in national energy mix	3.99%	
		<p>B.2. Policy landscape</p>	30. Existence of National Renewable Energy Strategy	2
			31. Implementation of National Renewable Energy Strategy	2
32. Existence of an electric vehicle policy	1			
33. Existence of an environmental regulation agency	1			
34. Existence of a National Climate Change Mitigation Strategy	2			
<p>B.3. Private sector</p>	35. Implementation of National Climate Change Mitigation Strategy	2		
	36. National Stock Exchange issuing written guidance on ESG reporting	1		
	37. ESG reporting required as a listing rule	1		

Qatar

Qatar has embarked on the path to climate adaptation and mitigation, but needs to accelerate its pace to catch up with regional peers. It is the only country in the Index where carbon emissions per capita trended upwards from 2015 to 2020, and it scores low on renewable energy adoption indicators such as the percentage of renewables in the overall energy mix, solar generating capacity and actual generation.

Like many of its peers, Qatar has strategies for renewables, climate change adaptation and mitigation, but some have not been updated since 2020 and implementation is so far uneven. Its flagship National Environment and Climate Change Strategy was only published in October 2021,⁵⁵ making it too early to evaluate progress in 2022.

Qatar positions its strategy as doing things right and not necessarily first. It has been a public critique of other countries' vague climate change commitments and net-zero pledges, without proper plans to achieve them. In its own case, it seeks to take limited, but sure and certain steps toward climate commitments that are both feasible, practical and have the potential to deliver the results as per the allocated timelines.

The country is set to accelerate both adaptation and mitigation measures. Apart from the UAE it has had the smallest budget deficit as a percentage of GDP in the Index over the last five years. The quality of its infrastructure is among the highest in the Index. It has a notably solid private sector, scoring highly for the soundness of banks, availability of loans and particularly venture capital. Finally, it can call on a range of climate-change adaptation funds, including a joint initiative between the Qatar Investment Authority and the Gates Foundation for adaptive agriculture.⁵⁶

Structural changes are necessary and there are a lot of room for improvement on educational attainment, for example, and while its position in the WB's ease of doing business Index is above average for the MENA region, as a whole, it is behind other GCC nations. Qatar has so far taken a deliberative approach to climate change, putting in place structures and detailed plans rather than making bold but unrealistic promises.

Qatar positions its strategy as doing things right and not necessarily first. It has been a public critique of other countries' vague climate change commitments and net-zero pledges, without proper plans to achieve them. In its own case, it seeks to take limited, but sure and certain steps toward climate commitments that are both feasible, practical and have the potential to deliver the results as per the allocated timelines.



		Indicator	Score
<p>A. Adaptation readiness</p> <p>(The extent to which the country is capable, willing and prepared for climate change adaptation and has considered future scenarios.)</p>	A.1. Government policy	1. Relevent National Climate Change Adaptation Strategy (NCCAS)	2
		2. Implementation of the NCCAS	0
		3. Five-year average y-o-y debt growth rate: percentage of GDP	18.44%
		4. Five-year average fiscal balance	-2.68
		5. Projects announced by the government since the last COP meeting	1
	A.2. Societal readiness	6. Students percentage in environmental science and geoscience	29%
		7. Civic participation	No data
		8. Earth Day celebrations	1
		9. Percentage of population over 25 years old completed high school	41.30%
		10. Average education level	9.7
		11. Adult literacy rate percentage	93%
		12. Quality of overall infrastructure	6.09
		13. Global Food Security Index (GFSI): sustainability and adaptation score	51
	A.3. Private sector readiness	14. Ease of doing business score	77
		15. Existence of a national startup fund	2
		16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	2
		17. Governance quality	6.09
		18. Soundness of banks	5.75
		19. Venture capital availability	4.67
		20. Ease of access to loans	5.29
		21. Private credit as percentage of GDP	138.90%

		Indicator	Score	
<p>B. Mitigation readiness</p> <p>(The extent to which the country has developed capabilities and capacity to address mitigation and is preparing for the future.)</p>	<p>B.1. What has already been achieved?</p>	22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	5.40%	
		23. Market for emissions trading	1	
		24. Protected marine area as percentage of total territorial waters	2.30%	
		25. Groundwater depletion	431.00%	
		26. MW/capita of renewable energy installed	1.9	
		27. kWh/capita of renewable energy generated	3	
		28. Percentage of solar photovoltaic (PV) energy in national energy mix	0.02%	
		29. Percentage of renewables in national energy mix	0.02%	
		<p>B.2. Policy landscape</p>	30. Existence of National Renewable Energy Strategy	1
			31. Implementation of National Renewable Energy Strategy	2
32. Existence of an electric vehicle policy	1			
33. Existence of an environmental regulation agency	0			
34. Existence of a National Climate Change Mitigation Strategy	2			
<p>B.3. Private sector</p>	35. Implementation of National Climate Change Mitigation Strategy	0		
	36. National Stock Exchange issuing written guidance on ESG reporting	1		
	37. ESG reporting required as a listing rule	0		

Bahrain

Bahrain stands well above the regional MENA average in certain areas of climate change response readiness, particularly education and societal awareness, where it is among the best performing of the eight countries. While Bahrain does not have standalone climate change adaptation or mitigation strategies, it has made progress in both. The country's AE10 project with the Global Green Growth Institute focuses on adaptation⁵⁷ and emissions per capita fell at more than 10% a year on average over the last five years.

Bahrain first adopted a Renewable Energy Action Plan (NREAP) in 2017,⁵⁸ alongside a National Energy Efficiency Action Plan (NEEAP)⁵⁹ both of which sit under the country's Sustainable Energy Authority. The former included ambitious plans for renewables to form 5% of public power capacity by 2025 and 10% by 2035.⁶⁰ For now, at 8.2 MW per capita the country's installed renewable energy capacity currently falls short of the Index average of 78.4 MW per capita and the MENA average of 99.4 MW per capita.

Aligned with the regional trend of increasing public debt and carrying a negative fiscal balance, Bahrain's ability to fund adaptation efforts from public money is constrained, although it fares better than peers in terms of the growth rate of its debt. Financial sector's health is strong, with above average performance compared to regional and eight-country average in terms of ease of access to loans and venture capital availability. Bahrain has one of the leading measures for governance quality in the Index, significantly outperforming the regional average, indicating a strong institutional framework for progress on climate change.

The former included ambitious plans for renewables to form 5% of public power capacity by 2025 and

10% by 2035.

The country's AE10 project with the Global Green Growth Institute focuses on adaptation and emissions per capita fell at more than

10% a year on average over the last five years.



		Indicator	Score
<p>A. Adaptation readiness</p> <p>(The extent to which the country is capable, willing and prepared for climate change adaptation and has considered future scenarios.)</p>	A.1. Government policy	1. Relevent National Climate Change Adaptation Strategy (NCCAS)	1
		2. Implementation of the NCCAS	1
		3. Five-year average y-o-y debt growth rate: percentage of GDP	14.49%
		4. Five-year average fiscal balance	-9.52
		5. Projects announced by the government since the last COP meeting	1
	A.2. Societal readiness	6. Students percentage in environmental science and geoscience	30%
		7. Civic participation	No data
		8. Earth Day celebrations	1
		9. Percentage of population over 25 years old completed high school	68.70%
		10. Average education level	11.1
		11. Adult literacy rate percentage	91.0%
		12. Quality of overall infrastructure	5.18
		13. Global Food Security Index (GFSI): sustainability and adaptation score	47.3
	A.3. Private sector readiness	14. Ease of doing business score	43
		15. Existence of a national startup fund	2
		16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	1
		17. Governance quality	5.12
		18. Soundness of banks	5.39
		19. Venture capital availability	3.83
		20. Ease of access to loans	4.70
		21. Private credit as percentage of GDP	73.90%

		Indicator	Score	
<p>B. Mitigation readiness</p> <p>(The extent to which the country has developed capabilities and capacity to address mitigation and is preparing for the future.)</p>	<p>B.1. What has already been achieved?</p>	22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	-13.20%	
		23. Market for emissions trading	0	
		24. Protected marine area as percentage of total territorial waters	1.20%	
		25. Groundwater depletion	133.70%	
		26. MW/capita of renewable energy installed	8.2	
		27. KWh/capita of renewable energy generated	8	
		28. Percentage of solar photovoltaic (PV) energy in national energy mix	0.03%	
		29. Percentage of renewables in national energy mix	0.03%	
		<p>B.2. Policy landscape</p>	30. Existence of National Renewable Energy Strategy	1
			31. Implementation of National Renewable Energy Strategy	2
32. Existence of an electric vehicle policy	0			
33. Existence of an environmental regulation agency	1			
34. Existence of a National Climate Change Mitigation Strategy	1			
<p>B.3. Private sector</p>	35. Implementation of National Climate Change Mitigation Strategy	1		
	36. National Stock Exchange issuing written guidance on ESG reporting	1		
	37. ESG reporting required as a listing rule	0		

Kuwait

Kuwait's emissions per capita have fallen at a faster rate than the average for the MENA region in the last five years, while the government is seeking to increase the share of renewable energy to 15% of total demand by 2030 under a national energy outlook launched in 2019.⁷¹ The government is also investing in specific areas, for example, as part of the country's Vision 2035, there are plans to build an "EV city" to attract global manufacturers of electric vehicles. A tendering process is beginning for the design of the city.⁷²

Yet the country faces a stark environmental challenge. With the highest groundwater depletion rate versus renewable resources in both the GCC and the wider MENA region, Kuwait has extreme climate challenges related to water resources protection. The government has adopted a medium-term National Adaptation Plan for 2019-30⁷³ and implementation needs to accelerate.

While the public financing outlook is constrained, due to growing national debt levels over the past five years and negative budget balances, Kuwait has SWF assets, giving it the fiscal resources to drive major structural change to its economy.

The outlook for private finance is strong with the soundness of banks, venture capital availability and ease of access to loans all exceeding the average for the MENA region. With the private finance accounting more than 90% of GDP, higher than any other country in the Index, there is a depth of private credit.

Government is seeking to increase the share of renewable energy to

15%
of total demand by 2030

As part of the country's Vision 2035, there are plans to build an

"EV city"
to attract global manufacturers of electric vehicles.



		Indicator	Score
<h2>A. Adaptation readiness</h2> <p>(The extent to which the country is capable, willing and prepared for climate change adaptation and has considered future scenarios.)</p>	A.1. Government policy	1. Relevent National Climate Change Adaptation Strategy (NCCAS)	2
		2. Implementation of the NCCAS	1
		3. Five-year average y-o-y debt growth rate: percentage of GDP	6.14%
		4. Five-year average fiscal balance	-9.8
		5. Projects announced by the government since the last COP meeting	0
	A.2. Societal readiness	6. Students percentage in environmental science and geoscience	32%
		7. Civic participation	No data
		8. Earth Day celebrations	0
		9. Percentage of population over 25 years old completed high school	31.20%
		10. Average education level	7.2
		11. Adult literacy rate percentage	96%
		12. Quality of overall infrastructure	4.13
		13. Global Food Security Index (GFSI): sustainability and adaptation score	45.5
	A.3. Private sector readiness	14. Ease of doing business score	83
		15. Existence of a national startup fund	1
		16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	1
		17. Governance quality	3.60
		18. Soundness of banks	5.48
		19. Venture capital availability	3.56
		20. Ease of access to loans	4.38
		21. Private credit as percentage of GDP	90.90%

		Indicator	Score	
<p>B. Mitigation readiness</p> <p>(The extent to which the country has developed capabilities and capacity to address mitigation and is preparing for the future.)</p>	<p>B.1. What has already been achieved?</p>	22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	-12.56%	
		23. Market for emissions trading	0	
		24. Protected marine area as percentage of total territorial waters	1.40%	
		25. Groundwater depletion	3850.50%	
		26. MW/capita of renewable energy installed	24.9	
		27. kWh/capita of renewable energy generated	14	
		28. Percentage of solar photovoltaic (PV) energy in national energy mix	0.07%	
		29. Percentage of renewables in national energy mix	0.08%	
		<p>B.2. Policy landscape</p>	30. Existence of National Renewable Energy Strategy	1
			31. Implementation of National Renewable Energy Strategy	0
32. Existence of an electric vehicle policy	1			
33. Existence of an environmental regulation agency	1			
34. Existence of a National Climate Change Mitigation Strategy	0			
<p>B.3. Private sector</p>	35. Implementation of National Climate Change Mitigation Strategy	0		
	36. National Stock Exchange issuing written guidance on ESG reporting	1		
	37. ESG reporting required as a listing rule	0		

Oman

Oman's National Strategy for Adaptation and Mitigation to Climate Change 2020-40 outlined a strategy for short and long-term development and a combination of public-private support for investment in projects in both areas. It lays out the main strategic directions for both areas of climate change response with three areas of focus: regional climate change; vulnerability of key sectors and systems and increase of GHG emissions.

The Environment Authority has announced the country's projects in the run up to and since COP26 in 2021, including a "green mosque" project and the construction of the country's largest solar-powered desalination plant. While Oman does not yet have a market for carbon emissions trading, there are preliminary explorations in the form of the introduction of a credit system for energy efficient customers.

While outcome data on the level of renewable energy per capita installed and generated is below the MENA average, the Sultanate's recent (2020) National Energy Strategy 2040, promises 30% renewable energy in the power generation mix by 2030. Oman's CO₂ emissions per capita fell by 16% during the period 2015-20. Key projects include the 50 MW Dhofar wind farm, the country's first utility-scale wind farm and the 500 MW solar PV-based power plant in Ibri in northwest Oman.

While Oman's public sector finance is constrained by public debt requirements and negative fiscal balances, government support for the private sector is strong. There is exclusive support for sustainability focused startups in the Vision 2040 plan to support Oman's shift from a fossil-fuel based economy. The financial capacity of the private sector is also strong. The country

outperforms the MENA average for its soundness of banks, venture capital availability, ease of access to loans and private credit as a percentage of GDP.

National Energy Strategy 2040, promises

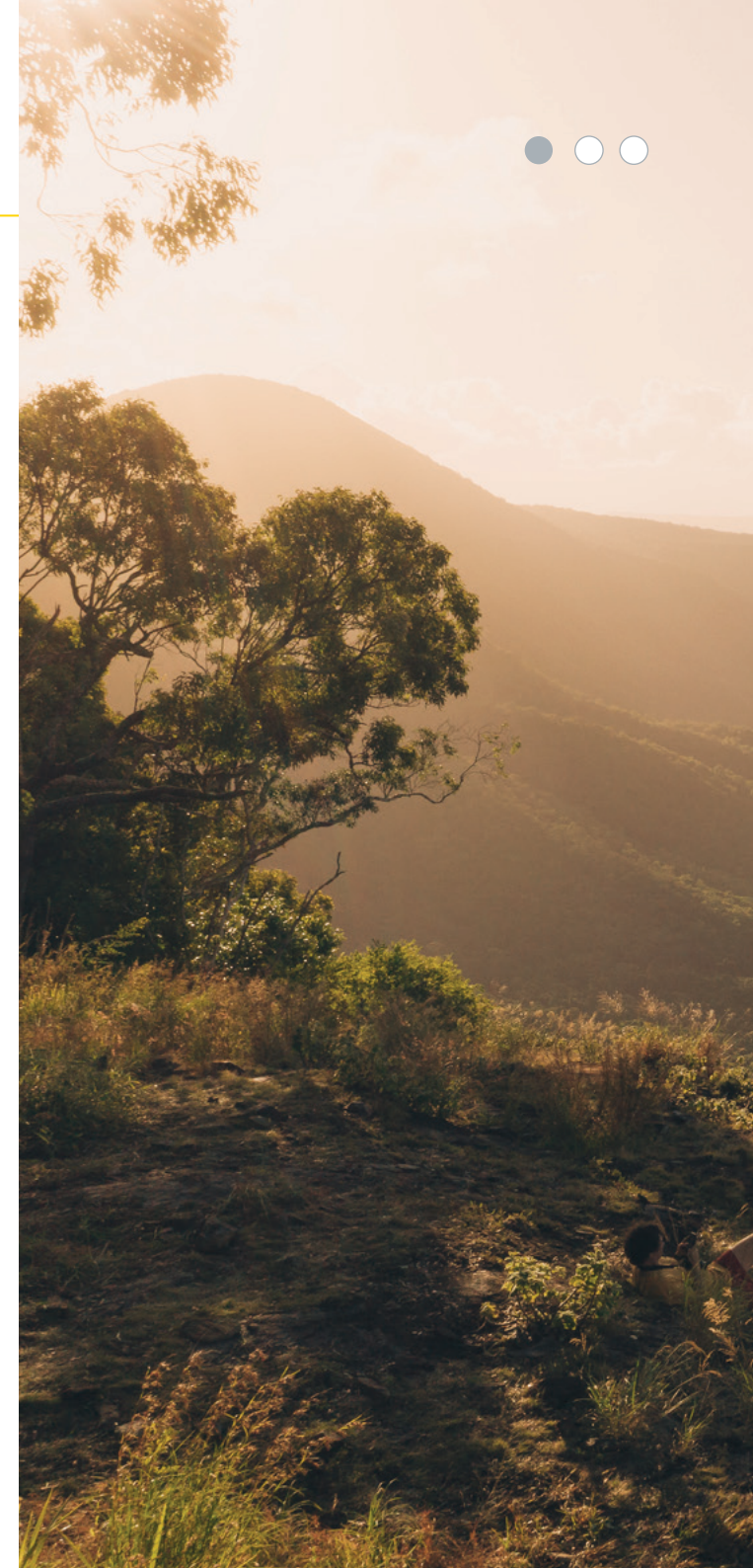
30%
renewable energy in the power generation mix by 2030.

Oman's CO₂ emissions per capita fell by

16% during the period 2015-20.

Key projects include the 50 MW Dhofar wind farm, the country's first utility-scale wind farm and the

500 MW
solar PV-based power plant in Ibri in northwest Oman.



		Indicator	Score
<p>A. Adaptation readiness</p> <p>(The extent to which the country is capable, willing and prepared for climate change adaptation and has considered future scenarios.)</p>	A.1. Government policy	1. Relevent National Climate Change Adaptation Strategy (NCCAS)	2
		2. Implementation of the NCCAS	1
		3. Five-year average y-o-y debt growth rate: percentage of GDP	74.26%
		4. Five-year average fiscal balance	-14.08
		5. Projects announced by the government since the last COP meeting	1
	A.2. Societal readiness	6. Students percentage in environmental science and geoscience	33%
		7. Civic participation	No data
		8. Earth Day celebrations	0
		9. Percentage of population over 25 years old completed high school	62.20%
		10. Average education level	11.7
		11. Adult literacy rate percentage	96%
		12. Quality of overall infrastructure	4.89
		13. Global Food Security Index (GFSI): sustainability and adaptation score	53.6
	A.3. Private sector readiness	14. Ease of doing business score	68
		15. Existence of a national startup fund	2
		16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	0
		17. Governance quality	4.89
		18. Soundness of banks	5.33
		19. Venture capital availability	3.48
		20. Ease of access to loans	4.67
		21. Private credit as percentage of GDP	65.10%

		Indicator	Score	
<p>B. Mitigation readiness</p> <p>(The extent to which the country has developed capabilities and capacity to address mitigation and is preparing for the future.)</p>	<p>B.1. What has already been achieved?</p>	22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	-16.00%	
		23. Market for emissions trading	0	
		24. Protected marine area as percentage of total territorial waters	0.30%	
		25. Groundwater depletion	116.70%	
		26. MW/capita of renewable energy installed	41.5	
		27. kWh/capita of renewable energy generated	47	
		28. Percentage of solar photovoltaic (PV) energy in national energy mix	0.55%	
		29. Percentage of renewables in national energy mix	0.55%	
		<p>B.2. Policy landscape</p>	30. Existence of National Renewable Energy Strategy	2
			31. Implementation of National Renewable Energy Strategy	2
32. Existence of an electric vehicle policy	0			
33. Existence of an environmental regulation agency	1			
34. Existence of a National Climate Change Mitigation Strategy	2			
<p>B.3. Private sector</p>	35. Implementation of National Climate Change Mitigation Strategy	1		
	36. National Stock Exchange issuing written guidance on ESG reporting	0		
	37. ESG reporting required as a listing rule	0		

Egypt



Egypt's climate change scorecard presents a mixed picture. On a series of measures from policy frameworks to renewable energy capacity, the country stands out as highly prepared for climate change. But the country's ability to self-finance a large-scale economic and energy transition is among the most constrained.

While Egypt has yet to announce a net-zero climate pledge, the government has created a coherent policy framework for tackling climate change that is, institutionally, ahead of most of its peers in the MENA region. The scorecard shows that the government has published up-to-date and fully capacitated climate adaptation, mitigation and renewable energy strategies. It has an early-stage carbon trading market, and its exchange requires listed companies to make ESG disclosures.

Over the past decade, Egypt has undergone a renewable energy revolution. As recently as 2014, blackouts were routine in the country as power supply could not keep up with demand,⁶¹ but now the country has the capacity to generate more electricity than it uses.⁶² Along with gas-fired power stations, the government has invested heavily in solar energy plants and, in particular, wind energy capacity. Along with existing hydroelectric power projects, renewables now make up 12% of the country's total energy mix according to the scorecard, far higher than in any other country in the Index.

The build-out of renewable energy capacity has coincided with a major offshore gas find, which propelled Egypt into Africa's top three gas producers after Nigeria and Algeria. As a result, fossil fuels continue to account for more than 90% of electricity generated for the domestic market.⁶³ The prospect of excess power supply has led to Egypt positioning itself instead as a potential exporter of

clean energy, to neighboring Arab states and beyond to Greece and Cyprus.⁶⁴

Key challenges for the country include human capital and infrastructure. Egypt's population has lower levels of education and literacy than other countries in the Index⁶⁵, but higher than the wider MENA average, while the level of infrastructure also trails each of the other eight countries. Unlike the UAE, the only country in the Index to rival Egypt for the quality of its policy framework for tackling climate change, Egypt has limited ability to generate or attract the financing needed to deliver a transition.

Public finances have been stretched for several years. Although the country now regularly turns primary budget surpluses, a weakening currency is driving up the cost of servicing foreign denominated debt, interest on which can consume up 45% of state revenues.⁶⁶

Private credit is equal to only 25% of GDP, making it very difficult for domestic companies to raise finance, while loans and venture capital are harder to come by in Egypt than in any other country in the Index, according to WB data.

The government has ambitious plans to build out renewable energy resources, but it is dependent on raising funds from the international community to deliver these plans. Egypt is seeking US\$11.4b in international private investment into climate related projects.⁶⁷ The country's natural resources of sun and wind, as well as its proximity to energy hungry and relatively high-cost European power markets, makes it a relatively attractive investment option. BlackRock, for example, is considering making investments in Egypt from its climate infrastructure fund,⁶⁸ while Egypt was the first MENA

state to successfully issue a sovereign green bond to finance climate related projects.⁶⁹ Nevertheless, it must compete against other states for funding to achieve climate goals.

Along with existing hydroelectric power projects, renewables now make up

12% of the country's total energy mix according to our scorecard, far higher than in any other country in the Index.

As a result, fossil fuels continue to account for more than

90% of electricity generated for the domestic market.

Egypt is seeking

US\$11.4b in international private investment into climate related projects.

		Indicator	Score
<p>A. Adaptation readiness</p> <p>(The extent to which the country is capable, willing and prepared for climate change adaptation and has considered future scenarios.)</p>	A.1. Government policy	1. Relevent National Climate Change Adaptation Strategy (NCCAS)	2
		2. Implementation of the NCCAS	2
		3. Five-year average y-o-y debt growth rate: percentage of GDP	0.30%
		4. Five-year average fiscal balance	-10.24
		5. Projects announced by the government since the last COP meeting	1
	A.2. Societal readiness	6. Students percentage in environmental science and geoscience	27%
		7. Civic participation	0.16
		8. Earth Day celebrations	1
		9. Percentage of population over 25 years old completed high school	67.20%
		10. Average education level	9.1
		11. Adult literacy rate percentage	71
		12. Quality of overall infrastructure	3.74
		13. Global Food Security Index (GFSI): sustainability and adaptation score	55.8
	A.3. Private sector readiness	14. Ease of doing business score	114
		15. Existence of a national startup fund	1
		16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	1
		17. Governance quality	3.74
		18. Soundness of banks	5.37
		19. Venture capital availability	2.79
		20. Ease of access to loans	3.90
		21. Private credit as percentage of GDP	27.10%

		Indicator	Score	
<p>B. Mitigation readiness</p> <p>(The extent to which the country has developed capabilities and capacity to address mitigation and is preparing for the future.)</p>	<p>B.1. What has already been achieved?</p>	22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	-12.00%	
		23. Market for emissions trading	0	
		24. Protected marine area as percentage of total territorial waters	5.00%	
		25. Groundwater depletion	141.20%	
		26. MW/capita of renewable energy installed	56.3	
		27. kWh/capita of renewable energy generated	217	
		28. Percentage of solar photovoltaic (PV) energy in national energy mix	2.04%	
		29. Percentage of renewables in national energy mix	12.03%	
		<p>B.2. Policy landscape</p>	30. Existence of National Renewable Energy Strategy	2
			31. Implementation of National Renewable Energy Strategy	2
32. Existence of an electric vehicle policy	1			
33. Existence of an environmental regulation agency	1			
34. Existence of a National Climate Change Mitigation Strategy	2			
<p>B.3. Private sector</p>	35. Implementation of National Climate Change Mitigation Strategy	2		
	36. National Stock Exchange issuing written guidance on ESG reporting	1		
	37. ESG reporting required as a listing rule	1		

Jordan

With abundant solar and wind resources, Jordan has shown strong political will to make climate change a policy priority, with its prime minister announcing the climate action plan as a national priority in 2021. Since 2016, Jordan has made green growth a priority with the adoption of a National Green Growth Plan. The share of electricity from renewables grew from 0.7% in 2014 to over 13% in 2019, making the country a regional front-runner.⁷⁰

The country has outperformed its own expectations on renewable energy targets. The National Energy Strategy 2015-25 sets a target of 40% of energy from domestic output by 2025, with 11% from renewable sources. In May 2019, Jordan increased the 2025 target for renewable sources to 20% as it currently stands at more than 12% of energy coming from renewables, above the regional average of around 10%. Jordan has published a national climate change adaptation plan in 2021, under implementation through a range of programs in water and agriculture.

Contrary to the regional trend of increasing debt and negative fiscal balances, Jordan's debt has been steady for the past five years and its fiscal balance is only modestly negative, indicating sound public financing matched by a strong private sector participation. Jordan's private credit as a percentage of GDP (83%) is higher than the MENA regional average. The country's climate change plans form the basis of its mitigation response, and a supportive renewable energy policy has set ambitious targets that are regularly re-evaluated to increase its share of the energy mix. Jordan is also legislating a carbon market, having issued a green bonds guideline in December 2021.

The share of electricity from renewables grew from 0.7% in 2014 to over

13% in 2019.

The National Energy Strategy 2015-25 set a target of

40% of energy from domestic output by 2025, with 11% from renewable sources.

Jordan increased the 2025 target for renewable sources to

20% as it currently stands at more than 12% of energy coming from renewables, above the regional average of around 10%.



		Indicator	Score
<p>A. Adaptation readiness</p> <p>(The extent to which the country is capable, willing and prepared for climate change adaptation and has considered future scenarios.)</p>	A.1. Government policy	1. Relevent National Climate Change Adaptation Strategy (NCCAS)	2
		2. Implementation of the NCCAS	2
		3. Five-year average y-o-y debt growth rate: percentage of GDP	0.76%
		4. Five-year average fiscal balance	-3.4
		5. Projects announced by the government since the last COP meeting	1
	A.2. Societal readiness	6. Students percentage in environmental science and geoscience	31%
		7. Civic participation	0.38
		8. Earth Day celebrations	0
		9. Percentage of population over 25 years old completed high school	50.20%
		10. Average education level	10.5
		11. Adult literacy rate percentage	98%
		12. Quality of overall infrastructure	4.21
		13. Global Food Security Index (GFSI): sustainability and adaptation score	58.9
	A.3. Private sector readiness	14. Ease of doing business score	75
		15. Existence of a national startup fund	2
		16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	2
		17. Governance quality	4.48
		18. Soundness of banks	5.56
		19. Venture capital availability	3.57
		20. Ease of access to loans	4.65
		21. Private credit as percentage of GDP	83.10%

		Indicator	Score
<p>B. Mitigation readiness</p> <p>(The extent to which the country has developed capabilities and capacity to address mitigation and is preparing for the future.)</p>	<p>B.1. What has already been achieved?</p>	22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	-9.42%
		23. Market for emissions trading	1
		24. Protected marine area as percentage of total territorial waters	1%
		25. Groundwater depletion	104.30%
		26. MW/capita of renewable energy installed	193.6
		27. KWh/capita of renewable energy generated	273
		28. Percentage of solar photovoltaic (PV) energy in national energy mix	7.9%
	29. Percentage of renewables in national energy mix	14.5%	
	<p>B.2. Policy landscape</p>	30. Existence of National Renewable Energy Strategy	2
		31. Implementation of National Renewable Energy Strategy	2
32. Existence of an electric vehicle policy		1	
33. Existence of an environmental regulation agency		1	
34. Existence of a National Climate Change Mitigation Strategy		1	
<p>B.3. Private sector</p>	35. Implementation of National Climate Change Mitigation Strategy	2	
	36. National Stock Exchange issuing written guidance on ESG reporting	1	
	37. ESG reporting required as a listing rule	0	

Conclusion

The days when Gulf states could rely on energy exports to fund huge public expenditure appear to be passing. After a decade of financial crisis followed by the global COVID-19 pandemic, MENA government budgets, like those of states across the world, are stretched. Perpetually growing demand for fossil fuels no longer seems guaranteed either. This makes the next decade crucial for the region.

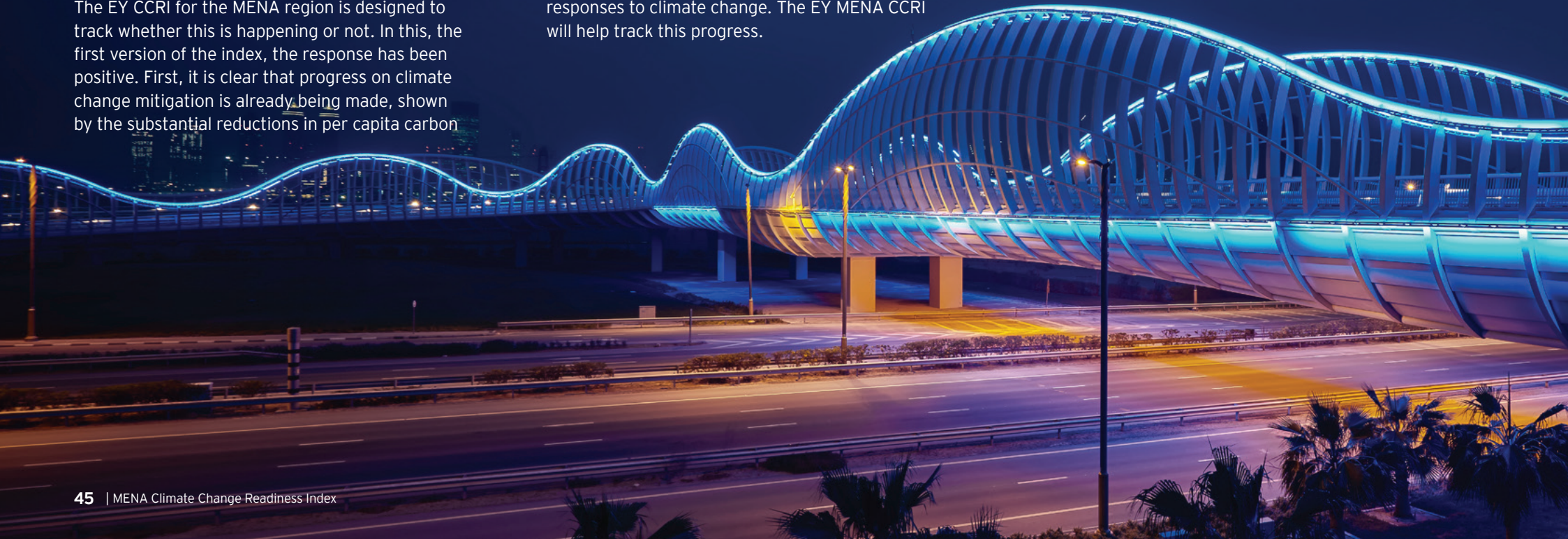
In ambitious new green city projects, and major strategies such as “New Kuwait”, Gulf states are unleashing the resources of their mammoth SWFs to produce a generational transformation of their economies. This provides an unprecedented opportunity to embed climate change adaptation and mitigation at the heart of the region.

The EY CCRI for the MENA region is designed to track whether this is happening or not. In this, the first version of the index, the response has been positive. First, it is clear that progress on climate change mitigation is already being made, shown by the substantial reductions in per capita carbon

emissions since 2015 for almost all countries in the Index. Technology, in particular CCS, that reduces the emissions associated with fossil fuels has been a key part of that progress.

Second, while Gulf states can and do offer climate mitigation funding to less wealthy countries in the region, enabling them to take the lead in key areas of renewable energy. Gulf states should pay heed as they seek to make renewables a larger part of their energy mix over the next decade. Further regional cooperation is also needed, for example, cross-border emissions reduction schemes, and a carbon market to incentivize companies to fund mitigation projects across the region.

The Middle East is a region launching sweeping responses to climate change. The EY MENA CCRI will help track this progress.



Appendices

Indicator	Scoring guideline
1. Relevant National Climate Change Adaptation Strategy (NCCAS)	0 = No. 1 = Yes, but the document is from before 2020/no longer valid/no formal policy but practical efforts 2 = Yes, and it was published after 2020
2. Implementation of the NCCAS	“0 = There is no strategy/there is no implementation/there is no budget 1 = There is partial evidence (e.g. there is a budget and a timeline but no implementing authority has been designated for it OR there is an implementing authority with a budget but the timeline is not set) 2 = There is evidence of implementation, with allocated budget, set timeline and a dedicated agency/authority that handles the implementation”
3. Five-year average y-o-y debt growth rate: percentage of GDP	Independent benchmark: >1% = red (growing debt) -1%<x<1% = yellow (steady debt) < -1% = green (diminishing debt)
4. Five-year average fiscal balance	Independent benchmark: <-1 = red (negative fiscal balance) -1<x<1 = yellow >1 = green (positive fiscal balance)
5. Projects announced by the government since the last COP meeting	0 = No 1 = Yes
6. Students percentage in environmental science and geoscience	Percentage of students in lower secondary education showing proficiency in knowledge of environmental science and geoscience
7. Civic participation	Maximum score is 1
8. Earth Day celebrations	0 = No 1 = Yes
9. Percentage of population over 25 years old completed high school	Educational attainment: % of population over 25 y.o. who have at least completed high school.
10. Average education level	Average education level (proxy: Mean years of schooling)
11. Adult literacy rate percentage	Literacy rate, adult total (% population age 15 and above)
12. Quality of overall infrastructure	Maximum score is 7
13. Global Food Security Index (GFSI): sustainability and adaptation score	Global Food Security Index – Sustainability and Adaptation score
14. Ease of doing business score	Best = 1

Appendices

Indicator	Scoring guideline
15. Existence of a national startup fund	0 = No 1 = Yes, the government supports the startup ecosystem in general 2 = Yes, the government supports the startup ecosystem with a particular focus on sustainability
16. Existence of a National Adaptation Fund for Climate Change (NAFCC)	0 = No 1 = Yes, it has one single climate change adaptation fund (please provide more details if possible) 2 = Yes, it has several funds for climate change adaptation (please provide more details if possible)
17. Governance quality	Maximum score is 7
18. Soundness of banks	Maximum score is 7
19. Venture capital availability	Maximum score is 7
20. Ease of access to loans	Maximum score is 7
21. Private credit as percentage of GDP	Private credit as percentage of GDP
22. Territorial CO ₂ emissions per capita growth rate 2015 vs. 2020	Independent benchmark: <-1% = green (decrease in emissions) -1% to 1% = yellow (steady emissions rate) >1% = red (increase in emissions)
23. Market for emissions trading	0 = No. 1 = Yes, there is a carbon emissions market but it is still very incipient (less than 1 year old) 2 = Yes, there is a carbon emissions market and it is established. (>1 year old)
24. Protected marine area as percentage of total territorial waters	Protected marine area as percentage of total territorial waters
25. Groundwater depletion	Independent benchmark: >100% = red (groundwater depletion rate is greater than renewable freshwater resources) 50%-100% = yellow <50% = green
26. MW/capita of renewable energy installed	MW/capita of renewable energy installed
27. KWh/capita of renewable energy generated	KWh/capita of renewable energy generated
28. Percentage of solar photovoltaic (PV) energy in national energy mix	% of solar PV energy in national energy mix
29. Percentage of renewables in national energy mix	% of renewables in national energy mix

Appendices

Indicator	Scoring guideline
30. Existence of National Renewable Energy Strategy	0 = No the country does not have one 1 = Yes, but the document is from before 2020/no longer valid/no formal policy but practical efforts 2 = Yes, and the document was published after 2020
31. Implementation of National Renewable Energy Strategy	0 = There is no strategy/there is no implementation/there is no budget 1 = There is partial evidence (e.g., there is a budget and a timeline but no specific target) 2 = There is evidence of implementation, with allocated budget, set timeline and specific target
32. Existence of an electric vehicle policy	0 = No the country does not have one 1 = Yes, the country has an EV policy/strategy/plan.
33. Existence of an environmental regulation agency	0 = No agency OR there is an agency but it doesn't have a budget or it cannot issue legally-binding strategies and regulations 1 = Yes, there is an environmental regulation agency with an allocated budget and with full regulatory powers
34. Existence of a National Climate Change Mitigation Strategy	0 = No the country does not have one 1 = Yes, but the document is from before 2020/no longer valid/no formal policy but practical efforts 2 = Yes, and the document was published after 2020
35. Implementation of National Climate Change Mitigation Strategy	0 = There is no strategy/there is no implementation/there is no budget 1 = There is partial evidence (e.g., there is a budget and a timeline but no implementing authority has been designated for it OR there is an implementing authority with a budget but the timeline is not set) 2 = There is evidence of implementation, with allocated budget, set timeline and a dedicated agency/authority that handles the implementation
36. National Stock Exchange issuing written guidance on ESG reporting	0 = No 1 = Yes
37. ESG reporting required as a listing rule	0 = No 1 = Yes

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