YEARBOOK OF GLOBAL CLIMATE ACTION 2022

MARRAKECH PARTNERSHIP FOR GLOBAL CLIMATE ACTION

United Nations
Climate Change Secretariat

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[Inside Cover: Yearbook of Global Climate Action 2022: Marrakech Partnership for Global Climate Action]

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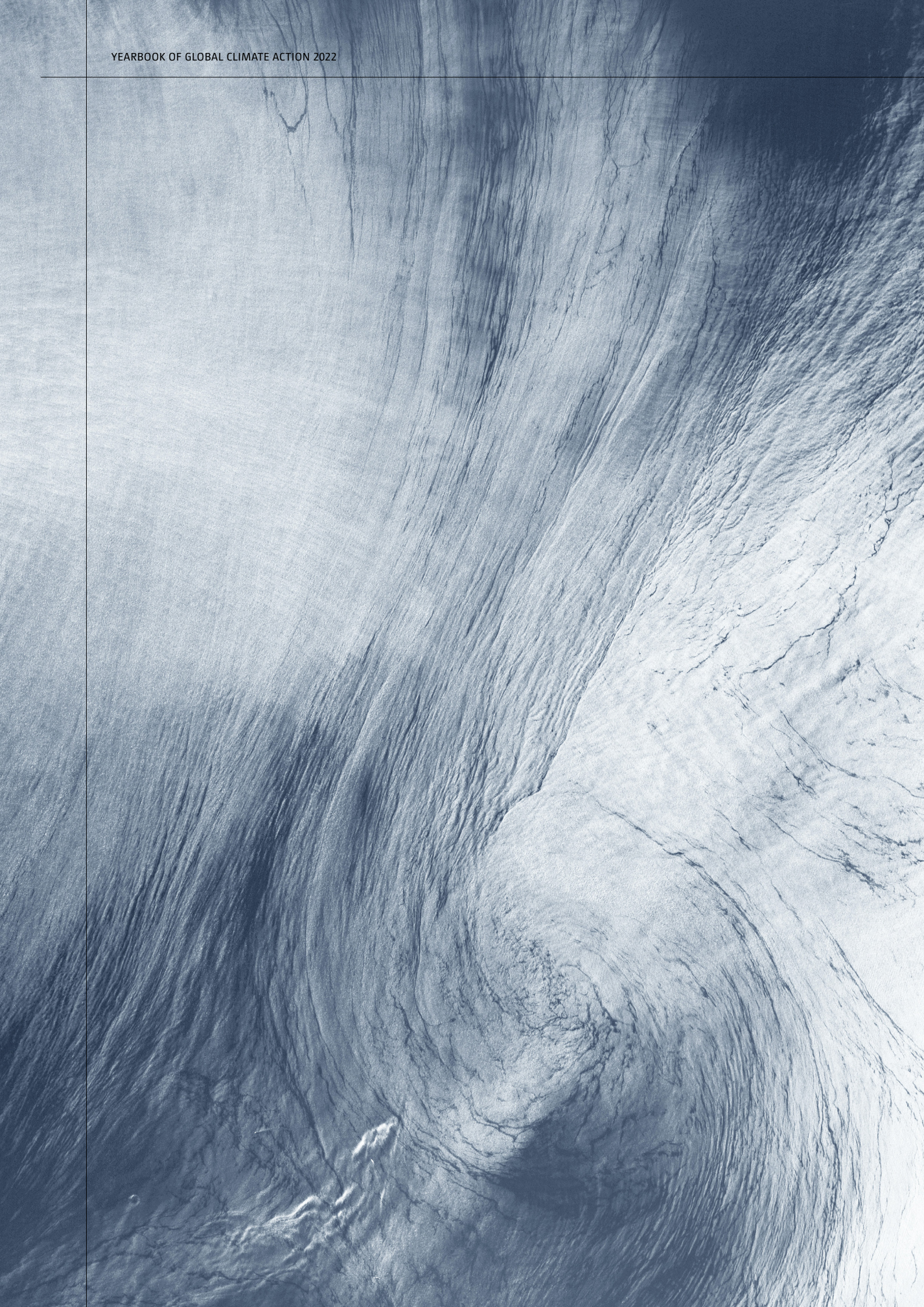

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Foreword: Simon Stiell

Executive Secretary of the UNFCCC

BRIDGING THE GAP

This past year has brought the reality of the climate crisis home for many. Parts of the United States experienced their worst drought in 1,200 years, while Antarctica saw temperatures of 38°C, along with the collapse of the first ice shelf in East Antarctica since satellite monitoring began. The Great Barrier Reef faced a sixth mass bleaching event, while South Africa suffered intense flooding and landslides. Europe has seen its worst drought in 500 years, with rivers drying up, wildfires becoming ever more frequent, and farmers forced to abandon crops. In Pakistan, devastating floods left more than eight million people homeless, and left large swathes of the country underwater, while unprecedented heavy rainfall has displaced more than 39,500 people in Nigeria. This is a glimpse of what a world which does not reach the Paris targets looks like. These events make it very clear: Every tenth of a degree matters. Every year matters. Every choice matters. Every COP matters.

While this year has seen progress, much more needs to be done – ambition needs to be raised, projects need to be scaled up and more money needs to be channeled to developing nations so they can green their economies and build resilience to the unavoidable impacts of climate change.

Parties to the Paris Agreement have recognized the critical importance of limiting the global average temperature rise to 1.5°C. To achieve this, we need to cut emissions by 45 per cent by 2030. That's only eight years away.

However, we are not going fast enough. This year, the Intergovernmental Panel on Climate Change issued its Sixth Assessment report. Its findings were bleak, revealing that although limiting warming to 1.5°C by the end of the century is still within reach, it will require rapid far-reaching changes across all sectors of the economy.

In a recent survey of 1.2 million people across 50 countries, nearly two-thirds said that climate change was an emergency, with respondents calling for a variety of interventions from conserving land to scaling renewable energy to greater investment in green jobs.

It is thus clear that more acceleration of climate action is crucial. However, this cannot be done by governments alone: sub-national governments at all levels, business, investors, civil society and individuals all have a crucial role to play.

At COP 21 in Paris, Parties clearly highlighted the importance of these non-Party stakeholders. And at COP 22, the Marrakech Partnership for Global Climate Action was created to accelerate action and ensure collaboration between governments and non-Party stakeholders.

While there have been multiple commitments made in the past year, it is clear that pledges and commitments alone are not enough – implementation is what counts. This Yearbook of Global Climate Action highlights what needs to happen to reach the 1.5 °C Paris goal, and its goal of resilience. Implementation of clean energy projects, implementation of green finance, implementation ultimately of a net-zero, resilient world by 2050. The climate campaigns under the High-Level Champions' remit – the Race to Zero and the Race to Resilience –along with the Breakthrough Agenda – are gaining momentum, showing what is possible when stakeholders across all areas of society work together.

The ambitious action by non-Party stakeholders will contribute to achieving higher ambition, especially through the Global Stocktake, which is a process that is critical both for implementing the Paris Agreement and for helping set the course for more ambitious climate action.

There are multiple pathways to limit warming to 1.5°C. For example, through decarbonizing electricity, reducing and reversing forest loss, electrifying buildings and transport, using energy more efficiently, and removing previously emitted carbon dioxide from the atmosphere.

We have the map and we know how to get to our destination. The Climate Action Pathways and the Breakthroughs show us the way; we now need to move and move fast.

We must succeed. We have a responsibility to those who have entrusted us with leadership and to the generations who will come after us. We can only make the transformative change needed by working together through inclusive multilateralism.

My thanks go to the High-Level Champions and everyone who contributed to the Yearbook, along with every government and non-Party stakeholder doing their utmost to fight climate change, the greatest challenge of our time.

Foreword:

Nigel Topping

High-Level Champion (United Kingdom of Great Britain and Northern Ireland)

Mahmoud Mohieldin

High-Level Champion (Egypt)

RAISING THE STAKES

This Yearbook arrives at a challenging time for the world. The repercussions of the interlinked health, energy, and food crises are being felt by communities everywhere, especially those who are least responsible for them. It is only through holistic action, which simultaneously addresses development needs, accelerates climate finance, and closes the adaptation gap that we can secure a resilient, 1.5°C aligned future that is fair and just.

The global campaigns we have launched with our partners – Race to Resilience and Race to Zero – have mobilized non-State actors around the world towards a common destination while the Climate Action Pathways and the Breakthrough Agenda signpost how we will get there. Our task now is to fulfil these promises and accelerate implementation.

This Yearbook showcases on-the-ground action, detailing what needs to happen – not by 2050 or even 2030 – but in 2023. A key part of this action is in bridging the gap between governments and non-State actors. Radical collaboration between them can ensure the fulfilment of commitments, increase ambition and, most importantly of all, deliver on our global climate goals and the Sustainable Development Goals (SDGs).

Ultimately, when governments and non-State actors work together, they create an ambition loop: a virtuous circle where policy moves finance towards new technologies, enabling the private sector to innovate, and increasing take-up among all sectors of society, which in turn enables more ambitious policies to be introduced. We have seen signs of progress: the Race to Resilience now comprises 34 Partners, representing more than 1,700 organizations, delivering action in 139 countries. Participation in Race to Zero has almost doubled since September 2021: more than 11,000 non-State actors from 116 countries have joined the campaign, committing to halve global emissions by 2030 and achieve net zero by mid-century at the latest.

The Global Climate Action Portal has seen 38 per cent more participants since COP 26. Of these, there has been a spike of 90 per cent more companies, a testament to the seriousness with which the private sector is approaching climate action.

It is fitting that this year's COP is taking place in Egypt because everyone needs to support developing countries in their shift towards alternative, renewable energy sources.

The key to this is finance. Government debt levels are climbing in developing countries, with sovereign debt crises rising. Climate finance must not exacerbate this situation; rather debt sustainability needs to be linked to climate change and sustainable development within debt restructuring workouts and in institutional arrangements. We need to see more investment, and concessional and blended financing.

Efforts must also intensify to fulfill and scale-up the USD 100 billion beyond the current USD 83.3 billion climate finance provided and mobilized by developed countries. This is a token of trust that has to be achieved. Not only must the amount of finance increase - it must cover adaptation as well as mitigation, and tackle climate and the SDGs hand-in-hand.

It is also important to create enabling conditions to attract private finance, including through country platforms. Innovation in financing instruments and structures are needed, such as debt swaps for climate and nature investments, and means to reduce the cost of sovereign debt.

As we look ahead to next year, we will continue to work with non-State actors to ensure a successful Global Stocktake – a key mechanism to ratchet up ambition under the Paris Agreement. As it starts its first round, we aim to ensure inputs from all regions, as a fulfilment of the Glasgow mandate to facilitate the participation of non-Party stakeholders.

Last year, with notable support from Parties, we launched a five-year plan for the Marrakech Partnership to accelerate immediate action at the scale and pace required by science. As this Yearbook reflects, we have entered the era of implementation, where the Nationally Determined Contributions (NDCs) need to be projectised. While the past year has seen progress, much more still needs to be done. Anything short of immediate action will eliminate the chance of staying on a resilient, 1.5°C path, but such transformative change is possible when we race together.

ACKNOWLEDGEMENTS

The High-Level Champions would like to thank all contributions from many organizations and individuals that made this edition of the Yearbook of Global Climate Action possible. Special thanks go to all Marrakech Partnership stakeholders, the Camda community, the Race to Zero and Race to Resilience Partners, Glasgow Financial Alliance for Net Zero, and the Systems Change Lab team. The High-Level Champions would also like to thank their entire team and the UNFCCC secretariat for their support.

EXECUTIVE SUMMARY

Despite agreements made at the 26th session of the Conference of the Parties (COP 26), we are still off track to reach a 1.5°C world. The Intergovernmental Panel on Climate Change (IPCC) says that, in order to meet the Paris Agreement goal of limiting temperature rise to 1.5°C, greenhouse gas (GHG) emissions need to be cut by 43 per cent by 2030, compared to 2019 levels. However, the latest NDC Synthesis Report revealed that the pledges of 193 Parties under the Paris Agreement will reduce emissions by only 0.3 per cent by 2030, compared to 2019 levels. Another estimate shows that we are heading to a warming of 2.4°C with 2030 targets and even higher, 2.7°C, with current policies. This temperature rise would have a devastating effect on every part of the planet.

The release of the IPCC Report in February highlights the fact that human-induced climate change is already causing dangerous and widespread disruption in nature and affecting the lives of billions of people around the world, particularly those people and ecosystems least able to cope. The message is stark: the world faces unavoidable multiple climate hazards over the next two decades, even with global warming of just 1.5°C. Even temporarily exceeding this warming level will result in additional severe impacts, some of which will be irreversible. Risks for society will increase, including infrastructure and low-lying coastal settlements. To avoid mounting loss of life, biodiversity and infrastructure, ambitious, accelerated action is required to adapt to climate change while making rapid, deep cuts in GHG emissions. The report makes it clear that progress on adaptation is uneven, and there are increasing gaps between actions taken and what is needed to deal with the rising risks.

There are, however, glimmers of hope. While last year's NDC Synthesis Report found countries will increase emissions by 4.7 per cent by 2030 compared to 2019 levels, this year's report shows that the figure is down by 5 per cent. Also, the complimentary report on long-term low-emission development strategies found that current long-term pledges account for 83 per cent of the world's gross domestic product and around 69 per cent of total energy consumption in 2019[i], which is a strong signal that the world is starting to aim for net-zero.

The latest Energy Transitions Commission report provides a stocktake of progress towards the 1.5°C goal, and highlights the role of private sector actions and policy (including to accelerate behaviour change), as well as the required scale up in mitigation finance that will need to be delivered to achieve the world's climate objectives.

Around the world, non-State actors are taking climate action in ever greater numbers. Race to Resilience partners are delivering resilience action in more than 100 countries, with projects that range from the leveraging of financial resources and nature-based solutions to the setting up of early warning systems. More than 11,000 non-State actors – including businesses, financial institutions and cities – from 116 countries have now committed Race to Zero's target of net-zero carbon emissions by 2050. The Global Climate Action Portal (GCAP) has seen 38 per cent more participants since COP 26, while nearly 90 per cent more companies have registered in the past year. Much work has been achieved around improving accountability and ensuring the climate action that does get done is framed in a local and regional context.

This is reflected in the fact that multiple climate action projects are already taking place, some of which we have highlighted in this Yearbook. From a blended finance fund that aims to increase the resilience of 500,000 people living in vulnerable landscapes by 2030 to an initiative helping increase access to clean water in cities across Africa, much great work is being done. Other projects have seen coastlines restored in Indonesia, a simulator that visualizes the potential of rooftop solar power in local homes, sustainable, eco-friendly businesses being set up in the Philippines and Belize, and green, climate-adaptive homes being built in some of Bangladesh's most vulnerable areas.

While many non-Party stakeholders are taking climate action around the world, much more needs to happen. We are running out of time. Radical cooperation is key so that governments and other stakeholders can pivot towards a net-zero resilient society. The work under the Marrakech Partnership for Global Climate Action is set up to support that endeavour. In order to help drive the ambition loop, the High-Level Champions have focused not only on enhancing Parties' and non-Party stakeholders' collaboration but also on bringing non-Party stakeholders' action under a shared vision and providing a roadmap for systems transformation.

i If including Nationally Determined Contributions (NDCs) with long-term pledges, the numbers will be 90 per cent and 79 per cent, respectively.

At COP 26, Parties acknowledged the important role of non-Party Stakeholders and welcomed the improved Marrakech Partnership for Global Climate Action for enhancing ambition as part of the Glasgow Climate Pact. The five-year plan of the improved Marrakech Partnership for enhancing ambition outlines the vision, mandate, core functions and tools, and updated structures intended to increase the scale and impact of its work through 2025. The Champions believe climate action should be based on five priorities for 2022: 1) adopt a holistic approach when addressing climate change; 2) shift from pledges and promises into implementation and investments; 3) regionalize climate action; 4) localize climate action; and 5) mobilize climate finance.

This Yearbook of Global Climate Action, the sixth of the series, reviews the state and scope of global climate action in 2022. It outlines what is needed to accelerate sectoral systems transformation, features case studies of real-world climate action projects, highlights some key global climate action topics – particularly regionalization and accountability – and presents the Champions' contribution to these issues. It also highlights what needs to be achieved in 2023, particularly with regard to the Global Stocktake (GST) and the implementation of the improved Marrakech Partnership.

STATE OF SECTORAL CLIMATE ACTION 2022

The Climate Action Pathways, developed by the Marrakech Partnership, set out sectoral visions for achieving a 1.5°C resilient world in 2050, with overarching transformational milestones and key impacts that need to be achieved. They are living documents which provide a roadmap to help Parties and non-Party stakeholders identify actions needed by 2025, 2030 and 2040, in order to achieve the 2050 vision.

The 2030 Breakthroughs, introduced in 2021 and refined again this year, build upon the Climate Action Pathways and pinpoint specific tipping points or outcomes for 2030 or sooner. These are designed to help accelerate action, by articulating what key actors across more than 30 sectors must do and by when, to deliver the systems change necessary to achieve the exponential growth that will result in a resilient, zero-carbon world.

The 2030 Breakthroughs are focused on mitigation, while an adaptation and resilience outcome targets will be introduced at COP 27 with clear and coordinated targets towards making four billion vulnerable people more resilient by 2030.

The Breakthrough Agenda Report 2022 is an annual progress report requested by the 45 world leaders that endorsed the Breakthrough Agenda; a coalition launched at COP 26. The report, co-produced by the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA) and the High-Level Champions, assesses progress on reducing emissions in five key sectors: power, hydrogen, road transport, steel and agriculture. Together, these sectors account for nearly 60 per cent of global GHG emissions today and could deliver the bulk of the emission reductions needed by 2030, which would make a significant contribution to limiting global warming to a maximum of 1.5°C.

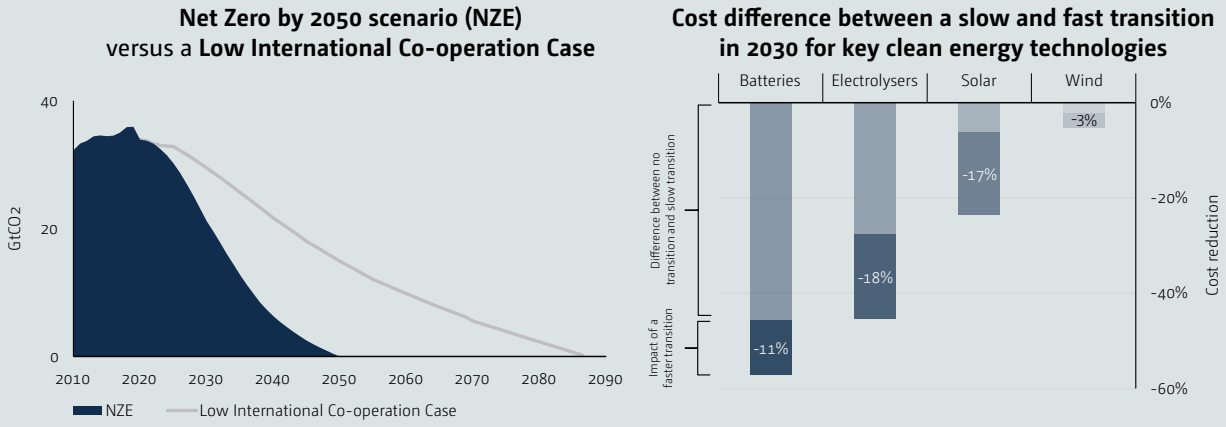
The report notes an increase in practical international cooperation in recent years, and progress in deploying the technologies needed, including:

- A doubling of electric vehicle (EV) sales in 2021 compared to the previous year, to a new record of 6.6 million[1].
- A forecast increase in global renewable capacity of 8 per cent in 2022[2] – pushing through the 300 GW mark for the first time – equivalent to powering approximately 225 million homes.
- A forecast global electricity generation cost reduction of at least USD 55 billion in 2022, based on new renewable capacity added in 2021[3].

However, the report also warns that far greater international cooperation is needed to get the world on track to meet its climate commitments. Without international collaboration, the transition to net zero global emissions could be delayed by decades. The costs of critical low-carbon technologies could be significantly lower in a fast global transition, which can only be achieved by the collective action of many countries.

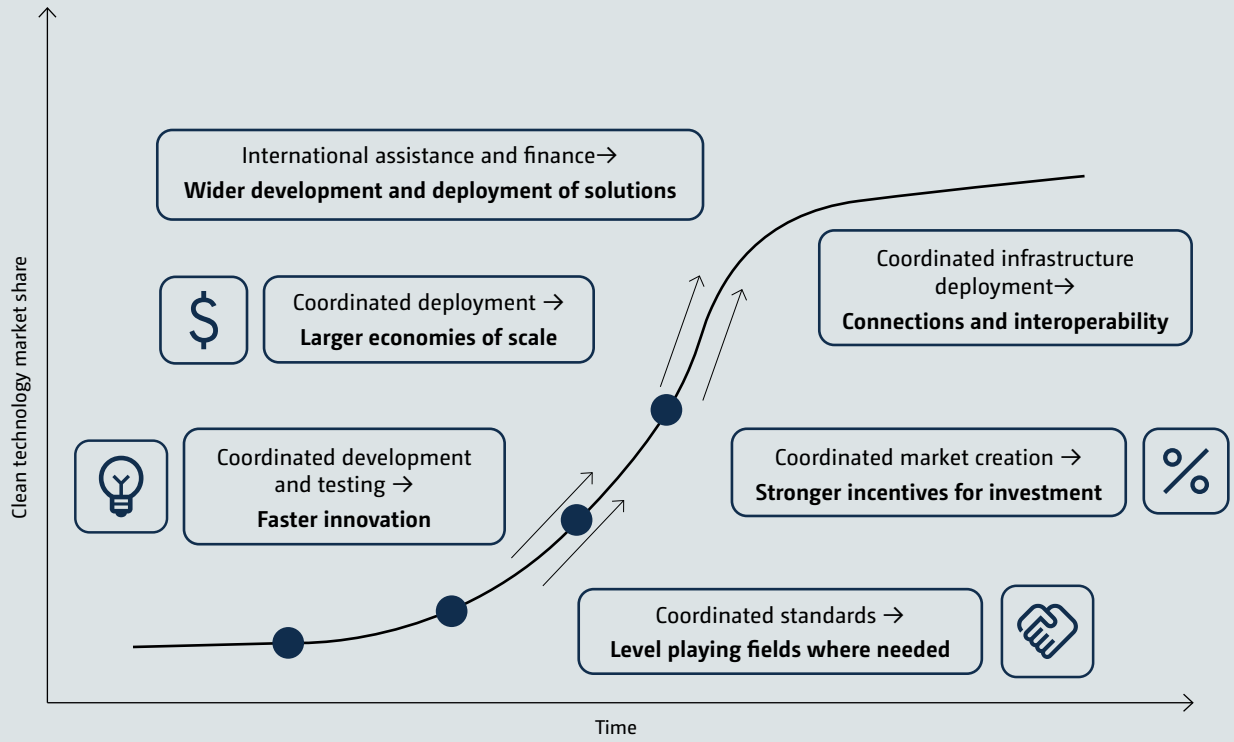
The report sets out 25 recommendations for strengthening international collaboration in these sectors among both Parties and non-Party stakeholders. These recommendations cover areas such as trade, financial assistance, technology co-development, standards and market creation.

FIGURE 1:
International cooperation and technology cost reduction (Breakthrough Agenda Report 2022)



Source: Net Zero by 2050, Empirically grounded technology forecasts and the energy transition

FIGURE 2:
How international collaboration can accelerate progress at each stage of the transition (Breakthrough Agenda Report 2022)



Source: Accelerating the low carbon transition: The Case for Stronger, More Targeted and Coordinated International Action

Published by the World Resources Institute's Systems Change Lab and launched in October ahead of COP 27, the State of Climate Action 2022 (SoCA 2022) is a joint effort by Bezos Earth Fund, Climate Action Tracker (an independent analytic group comprised of Climate Analytics and NewClimate Institute) and the Champions. The report, following analysis in 2020 and 2021, assesses progress across 40 indicators of systems change. The assessment finds that while there are some signs of progress, particularly in scaling up zero-carbon technologies such as EV and solar and wind power, none of the 40 indicators assessed are on track to reach their 2030 targets.

These reports showcase where we need to be in order to drive systems transformation across the Marrakech Partnership's thematic and cross-cutting areas. Some of each area's highlights are shown below.

Energy

- There are signs of positive change in the power sector, including the remarkable fall in the cost of renewable energy technologies as well as record installations of renewable capacity. Between 2015 and 2019, the share of zero-carbon technologies in the global electricity generation mix rose by as much as 21 per cent.

- Green hydrogen is set to play a vital role in supporting a rapid clean energy transition, primarily in hard-to-abate applications where other clean energy solutions may not be available, such as heavy industry, maritime shipping, aviation and seasonal electricity storage. In order for the necessary progress to be made, countries and companies need to agree on strong and clear near-term targets for the deployment of green hydrogen in sectors where hydrogen is currently used.

Transport

- EV sales have begun to take off in key segments, and battery costs have dropped by 89 per cent in just over a decade. The higher cost of zero-emission vehicles compared to internal combustion engine vehicles is a barrier to a faster transition. International collaboration will be key in driving currently more expensive technologies, such as batteries, down the cost curve.

- Zero-carbon transport by truck, boat, and plane is in our future, but significant policy and investment efforts are needed to develop and bring solutions to market.

Land Use

- There are multiple barriers to scaling up land-based mitigation measures, such as weak or incoherent policies, fragmented governance, limited institutional capacity, corruption, complex land tenure regimes, and misaligned public and private finance. Some of these challenges are especially acute in developing countries, which hold 85 per cent of the world's cost-effective potential for protecting, restoring, and sustainably managing carbon-rich ecosystems[4].

Water

- Joint water and climate governance need to be coordinated and strengthened. Mainstreaming fresh water in all climate mitigation planning and action requires polycentric and inclusive governance arrangements that can facilitate integrated approaches[5].

Oceans and Coastal Zones

- The ocean plays a major role in the renewable energy sector, with the costs of offshore wind having declined 48 per cent in the past decade[6]. Yet, in order to reach the Paris Agreement targets, the global cumulative installed capacity of offshore wind power would need to increase almost ten-fold by 2030 (to 228 GW) and substantially towards 2050, with total offshore installation nearing 1,000 GW by 2050[7].

Human Settlements

- There is still significant potential for building regulations to improve energy and carbon intensities in most countries. This potential could be tapped by making existing regulations more stringent; expanding the coverage of regulations to more countries, including existing buildings as well as new buildings, and mandating fossil-free energy sources and reductions in energy demand[8].

Industry

- Transforming industry to achieve deep GHG emissions reductions is possible, but it will require

significant interventions, as well as the participation of a wide range of actors to maximize energy efficiency, achieve circularity in production and consumption, electrify industrial heat, and develop new fuels, feedstocks, and technologies to decarbonize industrial processes that cannot easily be electrified, particularly those in the system's highest-emitting industries: cement and steel.

Finance

- The total amount of global climate finance would need to increase more than eightfold to reach the SoCA 2022 indicator target of USD 5.2 trillion per year by 2030. This equates to an average increase of USD 458 billion per year between 2020 and 2030, which is more than 10 times the historical rate of increase.

- When it comes to finance, the key barrier is not a shortage of funds, but how these funds are allocated[9]. Capital is concentrated in the hands of relatively few individuals and entities, who are currently misallocating it to high-emissions activities. These resources could be used to meet urgent climate investment needs.

- International financial institutions could be more accommodating of governments spending more on climate action, both through the policy advice they offer and by facilitating additional financing for poorer countries[10].

Resilience

- We need to simultaneously muster efforts behind the adaptation outcome targets, because millions of people globally are already experiencing the economic, social and ecosystem impacts of climate change. In 2021 alone, extreme weather driven by climate change caused more than USD 170 billion in damages[11].

- Adaptation and resilience outcome targets can be achieved when multiple sectors and actors move together to deploy adaptation solutions and manage climate risks, mutually reinforce sectoral transformations, and enhance innovation on how finance, governance, policy and access to technology and information are delivered. When many of these groups of actors across several sectors see each other working towards a common milestone, their actions and progress mutually reinforce to overcome obstacles, break silos, enhance synergies and create catalytic action.

REGIONALIZING CLIMATE ACTION

Regional collaboration is a vital part of global climate action. Engaging stakeholders from under-represented regions is key to ensuring more balanced perspectives are taken into account and is an important priority of the Champions and the Marrakech Partnership. Throughout the year, they have worked with local stakeholders around the world to understand the needs and priorities of different regions and help mobilize further engagement. Reflecting this, the Champion's team has developed a new Africa team and is the most globally diverse it has ever been, which has allowed it to strengthen relationships to the Marrakech Partnership in key regions such as Africa and Latin America. Going forward, while the Champions have focused on Africa throughout the year, they will place more weight on Asia-Pacific in 2023.

Regional Climate Weeks

Regional Climate Weeks (RCWs) are conferences organized by the UNFCCC secretariat and partner organizations, where Parties and non-Party stakeholders can strengthen their responses to climate change at the regional level. They are collaborative platforms that allow governments and stakeholders to address climate issues together within a localized context. RCWs also enable regional stakeholders to have their voices heard and forge partnerships across countries. There have been three RCWs this year: the Middle East and North Africa Climate Week (MENACW 2022), Latin America and the Caribbean Climate Week (LACCW 2022) and Africa Climate Week (ACW 2022).

In addition to the Marrakech Partnership Regionalization Workshops, each of the RCWs featured a number of events, including the Marrakech Partnership Implementation Labs. During MENACW 2022, the Lab was held in collaboration with the International Water Management Institute and featured national governments and non-Party stakeholders who discussed how recycled water can support climate resilience and ensure water and food security in the region. During ACW 2022, the Implementation Lab on Waste management and the circular economy was organized with the leadership of ICLEI and focused on achieving sustainable waste management

as part of a robust transition towards inclusive circular economies and climate-resilient communities across Africa. During LACCW 2022, the Implementation lab; Resilience of Human Settlements and Marine Ecosystems in Coastal Zones, focused on identifying the Latin American and Caribbean breakthroughs and actions which will build the resilience of coastal human settlements and natural ecosystems in the region.

The High-Level Champions engaged in several other events and opportunities throughout the RCWs. This includes an event in ACW 2022 where participants focused on strengthening the integrity of carbon markets and urged corporations to invest in high-quality credits, both crucial to reaching net-zero emissions by 2050.

Towards COP 27: Regional forums on Climate Initiatives to Finance Climate Action and the SDGs

The Champions recognize the importance of both regionalizing climate action and mobilizing finance. Along with the United Nations (UN) Regional Commissions and the incoming Egyptian Presidency of COP 27, they organized a series of five regional forums: Towards COP 27: Regional forums on Climate Initiatives to Finance Climate Action and the Sustainable Development Goals (SDGs). These forums brought together key stakeholders from the public and private sectors. With a focus on SDGs 7, 9, 13 and 17 as vehicles for change, the five regional forums took a holistic approach towards financing the 2030 Agenda for Sustainable Development in the new global environment.

The five regional forums – held between August and October in the headquarters of the five UN Regional Commissions – included presentations of climate action projects in need of financing, as well as discussions between project owners, financiers and development partners about how they could develop those projects and what was needed to secure private finance interest and investment.

The forums focused on the practicalities of project pipelines, with over 400 projects reviewed and over 70 projects presented at the forums, across mitigation and adaptation. The projects were sourced from member States in collaboration with the UN Regional Commissions and the High-Level Champions. Private finance actors engaged positively on the projects, providing initial reflections and input on their needs as financiers. Partners such as IRENA participated and shared their efforts to build and accelerate the project pipeline.

A key output from the forum included a compendium, with illustrative projects from the regional forums, and an expanded regional list of projects.

Aligned with this work, the High-Level Expert Group on Scaling-Up Investment and Finance to Deliver on Climate Ambition and Development Goals, co-chaired by Vera Songwe and Nick Stern, provided recommendations on priorities for public and private sector finance. These recommendations, together with the insights from the regional forums, point the way to further action needed to scale-up finance in developing countries.

ENSURING ACCOUNTABLE CLIMATE ACTION

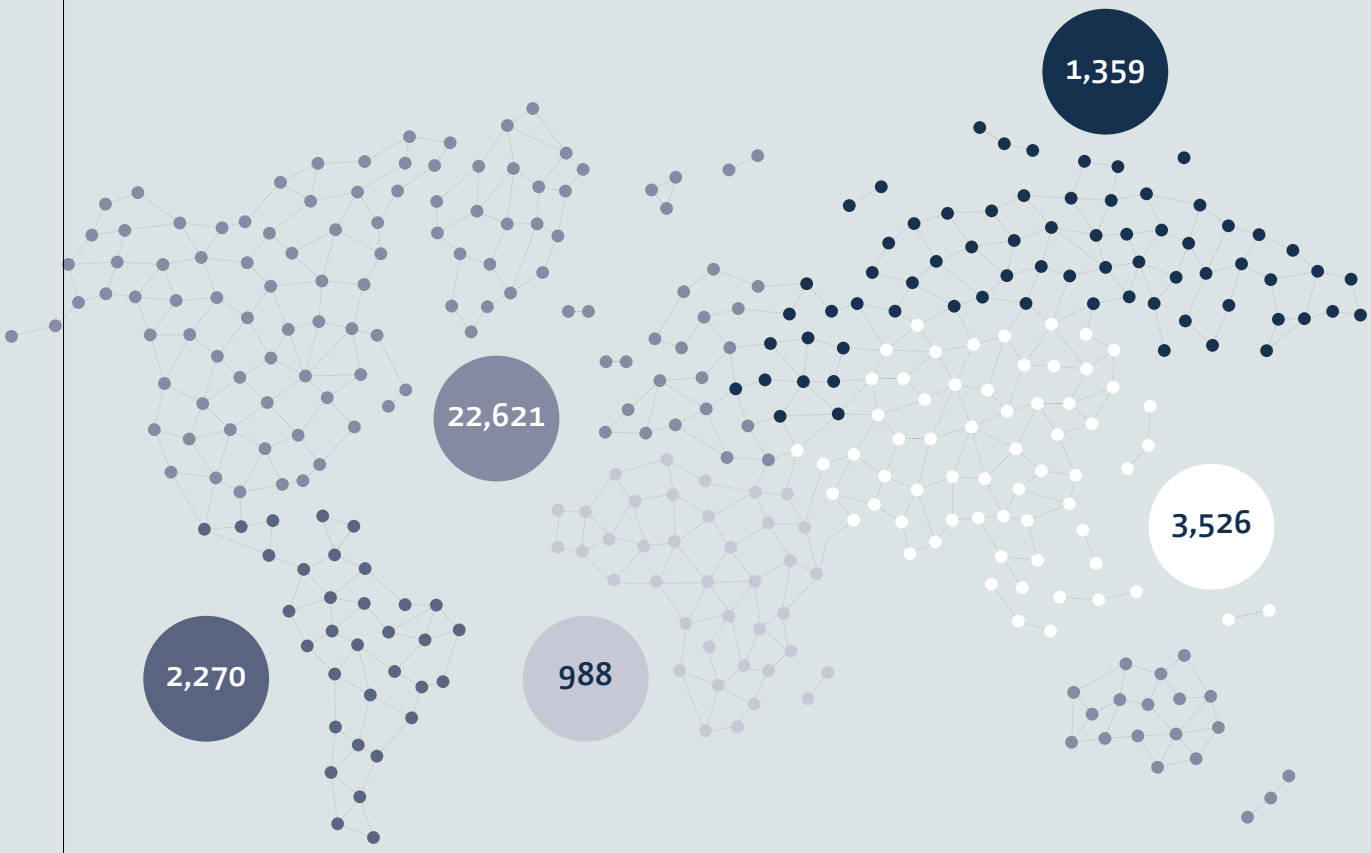
A key focus of last year's Global Climate Action High-Level Event at COP 26 was on how to build trust in order to ensure climate action is recognized and enhanced while greenwashing is called out. At the heart of trust is accountability, which is why ensuring accountability of climate action by non-Party stakeholders is now a key priority. This is why the Champions have placed accountability at the centre of their post-COP 26 agenda and listed it as one of the key functions of their work in the five-year plan.

Current Tools and Data

GCAP plays an important role in showcasing climate commitments that are taking place around the world and across all sectors of society. Celebrating progress in climate action encourages more ambition and engagement from a wide range of actors. Launched in 2014, GCAP is a collaboration between the UNFCCC and data partners supported by members of the climate data and analysis community.

As of October 2022, GCAP registered 30,764 climate actors around the world, an increase of more than 38 per cent from what was reported in the 2021 Yearbook. There was also a jump of nearly 90 per cent in the number of companies taking climate action, a testament to the seriousness with which the private sector is taking the need for robust climate action. The largest increase was in the Asia-Pacific region (78 per cent), followed by Africa (67 per cent). Currently, on the portal there are 13,909 companies, 1,562 investors, 3,451 organizations, 287 regions, 11,361 cities, and 194 countries.

FIGURE 3:
Actions per United Nations Region in the Global Climate Action Portal (October 2022)



ASIA-PACIFIC GROUP	
Cities	476
Regions	28
Companies	2,259
Organizations	486
Investors	222
Countries	55
Total	3,526

EASTERN EUROPE AN GROUP	
Cities	1,067
Regions	5
Companies	179
Organizations	38
Investors	47
Countries	23
Total	1,359

AFRICAN GROUP	
Cities	233
Regions	23
Companies	325
Organizations	308
Investors	45
Countries	54
Total	988

WESTERN EUROPEAN AND OTHERS GROUP	
Cities	8,852
Regions	135
Companies	10,055
Organizations	2,354
Investors	1,196
Countries	29
Total	22,621

LATIN AMERICA AND CARIBBEAN GROUP	
Cities	733
Regions	96
Companies	1,091
Organizations	265
Investors	52
Countries	33
Total	2,270

TOTAL	
Cities	11,361
Regions	287
Companies	13,909
Organizations	3,451
Investors	1,562
Countries	194
Total	30,764

GCAP, along with its data partners, addressed the request by Parties and other stakeholders to improve climate action data so that progress can be adequately and successfully tracked. While it remains crucial to recognize climate action across all sectors – that is, registering the number and nature of climate actions – the information around them should gradually progress from tracking the pledges to measuring the actual implementation and outcomes.

GCAP provides insight into the progress of individual stakeholders and international climate initiatives through the application of a progress framework developed in collaboration with the Camda climate data and analysis community.

Ongoing Work

A New Phase in Accountability:
The Expert Group by the UN Secretary-General

At COP 26, The UN Secretary-General António Guterres flagged a clear need for more credible and robust standards and criteria for measuring, analysing and reporting net-zero emissions pledges by non-State actors. As a key step towards meeting that need, the High-Level Expert Group on the Net-Zero Emissions Commitments of Non-State Entities (UN-HLEG) was established in March 2022.

The group provided its recommendations to the UN Secretary-General, focusing on four key areas:

- Current standards and definitions for setting net-zero targets
- Credibility criteria to assess the objectives, measurement and reporting of net-zero pledges
- Processes for verification and accounting of progress toward net-zero commitments and reported decarbonization plans
- A road map to translate standards and criteria into international and national-level regulations

Ultimately, UN-HLEG's recommendations will help alleviate what the UN Secretary-General described as "another climate crisis today. A climate of mistrust is enveloping our globe. Climate action can help rebuild trust and restore credibility."

Mobilizing non-Party stakeholders:
The Global Campaigns

Mobilizing non-Party stakeholders and accelerating their action while keeping them accountable to shared goals is a core priority of the Champions. The global campaigns launched by the Champions between 2019 and 2020 – Race to Resilience and Race to Zero – are key tools to foster accountability. Both campaigns set up a consultation process to work on their criteria, which resulted in a shared report published in September that revealed the progress made and highlighted the successes and challenges non-State actors face when addressing mitigation and adaptation. The Champions believe that enhancing the accountability of non-Party stakeholder action will not only contribute to building trust but also highlight the status of systems transformation and provide evidence of enhanced action, which will help achieve the goals of the Paris Agreement.

Race to Zero

Race to Zero rallies non-State actors across the world to halve global emissions by 2030 while driving inclusive, sustainable growth. It covers 116 countries around the world regions. It features 26 partners and has 11,309 members including; 8,307 companies; 595 financial institutions; 1,136 cities, 52 states and regions; 1,125 educational institutions; and 65 healthcare institutions. This is almost twice the number from September 2021, with a 30 per cent increase in Asia-Pacific representation since July 2022.

Of the 455 larger companies who have been in the campaign for more than a year and reported to the CDP in 2022, 77 per cent have transition plans in line with 1.5°C, 98 per cent are proceeding with immediate action and about 68 per cent have publicly committed to align their policy engagement with their climate targets in line with the recent criterion of 'Persuade'.

To further ensure its integrity, prevent greenwashing and accelerate meaningful progress towards halving global emissions by 2030, Race to Zero published its updated criteria in June 2022. As a result of this, a fifth criterion – Persuade – was added. These criteria are now set and will no longer be reviewed on an annual basis, as the campaign focuses on delivery and implementation.

In addition, the High-Level Champions and Race to Zero partners supported the work of the UN-HLEG by

providing their real world experience of supporting companies, financial institutions, cities and regional governments to set net zero targets and develop plans to decarbonize in line with their transition plans.

Acknowledging the limits of voluntary action, the Champions convened a group of over 40 leading non-State actors and institutions which will work to set robust standards for net-zero alignment, and to support governments' efforts to set up the policy framework and regulations needed to accelerate the net-zero transition of non-State actors. It is crucial to build a stronger "conveyor belt" from voluntary action to the rules governing the economy overall. To achieve this, voluntary action must; help the harmonization and strengthening of existing standards to resolve confusion and bring coherence to a fragmented system; introduce new policies and regulation, in line with country capacities, tackle greenwashing and incentivize investment; and remove regulations that currently inhibit ambitious action by non-State actors.

Race to Resilience

Race to Resilience campaign aims to drive climate resilience across the world, by mobilizing action from non-Party stakeholders and ensuring that the voices of front-line communities are heard. Currently, Race to Resilience has 34 Partner Initiatives, which are all coalitions of non-State actors. Together, these initiatives and their 1,762 members deliver action in 139 countries to build adaptive capacities and strengthen the resilience of vulnerable urban, rural and coastal communities with the goal of protecting four billion people by 2030.

Race to Resilience organizes the adaptation and resilience community around a shared goal, prioritizing people and nature, and leading the development of a common framework to help partners and initiatives to measure progress. In this regard, the partners give priority to arange of vulnerable groups in their resilience building.

It is crucial to show how businesses, cities, regions and investors can tackle risk, embed resilience into their operations and engage with the communities they operate in. The campaign also understands that data gathering is a critical component of measuring risk, and that partners need our support in gathering the relevant data from their activities.

To understand how actions are progressing towards this goal, identify what works and what does not, and monitor and evaluate its partners, the Campaign needs a way to measure 'increased resilience'. This is why, following the IPCC's definition of resilience, the Race to Resilience Metrics Framework was launched last year. It aims to track and monitor the resilience-building efforts by non-State actors in the campaign. It provides a comprehensive outlook on the commitments, plans, progress, and outcomes of the campaign's partner initiatives across a broad range of sectors, scales, and action types.

Race to Resilience is now developing specific outcome targets with high-impact solutions across systems (food, water, oceans, human settlements, infrastructure) to further gear action towards adaptation and resilience implementation.

The High-Level Champions are also working to accelerate actions by non-Party stakeholders on loss and damage associated with the adverse effects of climate change with a focus on the most vulnerable urban, rural, and coastal communities in developing countries. They held workshops including the one during the 56th Subsidiary Bodies session and now undertaking a mapping exercise on the actions non-Party stakeholders are taking to address climate losses and damages.

In addition, one Race to Resilience partner, InsuResilience, is supporting the newly agreed Global Shield financial protection cooperation.

Why Open Data Matters:
Climate Data Steering Committee

To translate commitments into credible and transparent actions, high-quality, widely accessible climate transition-related data is crucial, which is why the Climate Data Steering Committee was created by the French President, Emmanuel Macron, and the UN Special Envoy for Climate Solutions, Michael Bloomberg, in June 2022. The aim of the Committee is to advise on the setting up of an open-data public platform that will collect, aggregate and standardize net-zero climate transition data based on private sector commitments.

In September, the Committee released a whitepaper outlining its proposed recommendations, including the development of the Net Zero Data Public Utility, which will support the transition of global private finance to

net zero. The committee has called for feedback on its draft recommendations by the end of October. Based on the feedback received, a final version of the recommendations will be published during COP 27.

MESSAGE FOR 2023

The Global Stocktake and the High-Level Champions

GST is designed to raise ambition by helping Parties to see what they have achieved so far in implementing their NDCs, identify how they can achieve their remaining NDC targets and identify the approaches that can be taken to enhance their efforts. Essentially, it's a way for everyone to understand what has been achieved, and what needs to be achieved in the future in order to meet the Paris Agreement targets. The first GST began at COP 26 and will conclude at COP 28.

As part of the mandates from COP 26, Parties encouraged the Champions to support the effective participation of non-Party stakeholders in the GST. The Champions have been working to encourage non-Party stakeholders contribution to the GST in the following ways: 1) encourage stakeholders to collaborate with each other to provide inputs that are concise yet comprehensive around a set of key messages and game-changing solutions; 2) ensure all the GST themes are covered and ensure that developing country perspectives are well-represented; and 3) be forward-looking by focusing on what is possible going forward in the near-term, highlighting impactful opportunities across different sectors and how non-Party stakeholders can help raise ambition. The Champions' priority is to continue working on the improved Marrakech Partnership's five-year plan, which was launched last year. The Breakthrough Agenda Report is one of the key contributions by the Champions. Moreover, they made submissions in February and August, and called for non-Party stakeholders in several regions to engage in the process through opportunities such as the RCWs.

The role of non-Party stakeholders in the GST is vital: they not only identify where more action is needed but also highlight opportunities and approaches to accelerate climate action. In addition to reducing emissions and accelerating adaptation actions to build resilience, climate solutions can help address pressing development needs, including health, energy access and security, food security and biodiversity conservation.

Operating the Improved Marrakech Partnership

The Champions published the Improved Marrakech Partnership at COP26, which looked at the areas where the Champions will focus on up to 2025. The Champions will continue to work with the Marrakech Partnership to complete the development of the five-year plan. They believe in developing a fit-for-purpose structure that effectively coordinates the activities of the Marrakech Partnership across all members and allows for a transparent and clear process of engagement among members.

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INTRODUCTION

There was cautious optimism following the 26th session of the Conference of the Parties (COP 26) in Glasgow last year that the world would finally move to a more resilient, less fossil fuel-reliant economy. COP 26 saw Parties finalize guidelines for the full implementation of the Paris Agreement, while nations for the first time agreed to phase down unabated coal power and work to remove inefficient fossil fuel subsidies.

Yet, the past year has made clear that we are nowhere near where we need to be. The recent World Meteorological Organization report, Uniting in Science, revealed that far more ambitious action is needed if we are to avoid climate change having an increasingly devastating effect on the planet. Greenhouse gas (GHG) concentrations continue to rise to record highs, and fossil fuel emission rates are now above pre-pandemic levels, after a temporary drop due to lockdowns, pointing to a huge gap between aspiration and reality.

We know we are still off track to reach a 1.5°C world. The Intergovernmental Panel on Climate Change (IPCC) says that, in order to meet the Paris Agreement goal of limiting temperature rise to 1.5°C, GHG emissions need to be cut by 43 per cent by 2030, compared to 2019 levels. However, the latest NDC Synthesis Report revealed that the pledges of 193 Parties under the Paris Agreement will reduce emissions by only 0.3 per cent by 2030, compared to 2019 levels. Another estimate shows that the world is heading to a warming of 2.4°C with 2030 targets, and to a warming of 2.7°C, with current policies. This temperature rise would have a devastating effect on every part of the planet. If the world reaches a climate tipping point, we will be faced with irreversible changes to the climate system. Indeed, as the IPCC assessment on the impacts of climate change makes clear, the rise in weather and climate extremes has already led to irreversible impacts as natural and human systems are pushed beyond their ability to adapt. Adaptation action and resilience must accelerate, building at pace and at scale now if we are to prepare for the future impacts we know are coming. We must forge deeper alignment, collaboration and a common vision for a resilient world in which people don't just survive climate shocks and stresses but thrive despite them.

The past seven years were the warmest on record, and there is almost a 50-50 chance that, in the next five years, the annual mean temperature will temporarily be 1.5°C higher than the 1850-1900 average.

There are, however, glimmers of hope. While the last year's NDC Synthesis Repot found countries will increase emissions by 4.7 per cent by 2030 compared to 2019 levels, this year's report showed that the figure is down by 5 per cent. Also, the complimentary report on long-term low-emission development strategies found that current long-term pledges account for 83 per cent of the world's gross domestic product (GDP) and around 69 per cent of total energy consumption in 2019[i], which is a strong signal that the world is starting to aim for net-zero. The latest Energy Transitions Commission report provides a stocktake of progress towards the 1.5°C goal and highlights the role of private sector actions and policy (including those that accelerate behavioural change), as well as the scaling up of mitigation finance that needs to be delivered to achieve the world's climate objectives.

Around the world, non-State actors are taking climate action in ever greater numbers. Race to Resilience partners are delivering resilience action in more than 100 countries, with projects ranging from the leveraging of financial resources and nature-based solutions to the setting up of early warning systems. More than 11,000 non-State actors – including businesses, financial insti-

i If including Nationally Determined Contributions (NDCs) with long-term pledges, the numbers will be 90 per cent and 79 per cent, respectively.

tutions and cities – from 116 countries have now committed Race to Zero's target of net zero carbon emissions by 2050. The Global Climate Action Portal (GCAP) has seen 38 per cent more participants since COP 26, while 90 per cent more companies have registered in the past year. We have seen much work achieved in improving accountability and ensuring the climate action that does get done is framed in a local and regional context.

This is reflected in the fact that multiple climate action projects are already taking place, some of which we have highlighted in this Yearbook. From a blended finance fund that aims to increase the resilience of 500,000 people living in vulnerable landscapes by 2030 to an initiative helping increase access to clean water in cities across Africa, much great work is being done. Other projects have seen coastlines restored in Indonesia, a simulator visualizing the potential of rooftop solar power in local homes, sustainable, eco-friendly businesses being set up in the Philippines and Belize, and green, climate-adaptive homes being built in some of Bangladesh's most vulnerable communities.

Mobilizing non-Party Stakeholders in the era of implementation

While many non-Party stakeholders are taking climate action around the world, much more needs to happen. We are running out of time. Radical collaboration is key so that governments and other stakeholders can pivot towards a net-zero resilient society. The work under the Marrakech Partnership for Global Climate Action is set up to support that endeavour. In order to help drive the ambition loop, the High-Level Champions have focused not only on enhancing Parties' and non-Party stakeholders' collaboration but also on bringing non-Party stakeholders' action under a shared vision and providing a roadmap for systems transformation.

At COP 26, Parties acknowledged the important role of non-Party Stakeholders and welcomed the improved Marrakech Partnership for Global Climate Action for enhancing ambition as part of the Glasgow Climate Pact. The five-year plan of the improved Marrakech Partnership for enhancing ambition outlines the vision, mandate, core functions and tools, and updated structures intended to increase the scale and impact of its work through 2025.

The High-Level Champions have outlined five main priorities on which climate action should be focused this year: holistic approaches; implementation; regionalization; localization; and finance.

- The first priority is to ensure that a holistic approach is used when addressing climate change. Climate action cannot exist in a vacuum: it also needs to take poverty, hunger, employment and women's empowerment into account.

- Equally important is the need to move from pledges and promises to implementation and investments. New ideas need to be turned into projects, while existing projects need to be replicated and scaled up.

- Regionalization is vital, too, as, with regional cooperation and coordination, far more impact can be achieved.

- Ordinary people often look at big climate conferences such as COP and wonder how it relates to their day-to-day lives. It is crucial to reflect on how these huge conferences can benefit the lives of local citizens.

- Lastly, none of this would be possible without finance, which is why mobilizing finance is key to effective climate action.

The High-Level Champions and the Marrakech Partnership will help build on the legacy of their predecessors to engage with non-Party stakeholders and further activate the 'ambition loop' with national governments.

This Yearbook of Global Climate Action, the sixth of the series, reviews the state and scope of global climate action in 2022. It outlines what is needed to accelerate sectoral systems transformation, features case studies of real-world climate action projects, highlights some key global climate action topics – particularly regionalization and accountability – and presents the High-Level Champions' contribution to these issues. It also highlights what needs to be achieved in 2023, particularly with regard to the Global Stocktake (GST) and the work being done on implementing the improved Marrakech Partnership.

It is a snapshot of where we are and what needs to be done to get us to a 1.5°C resilient world.

PART 1

State of Sectoral Climate Action 2022

HOW CAN WE ACCELERATE SECTORAL SYSTEMS TRANSFORMATION?

Launched in 2019 and updated in 2021, the Climate Action Pathways set out sectoral visions for achieving a 1.5°C resilient world by 2050, with the transformational milestones that need to be achieved to realise them. The Pathways cover the Marrakech Partnership thematic areas (land use, water, oceans and coastal zones, energy, industry, human settlements and transport), as well as the cross-cutting areas of resilience and finance.

The Climate Action Pathways are living documents which are updated as climate action is taken. They are a roadmap to help both Parties and non-Party stakeholders to identify what needs to happen by 2025, 2030 and 2040 if we are to achieve a net-zero world by 2050.

The 2030 Breakthroughs pinpoint specific tipping points across a range of sectors within the thematic areas that need to be achieved by 2030 in order to keep on track with the Pathways' vision. So, where the Pathways tell us what the world needs to look like, the Breakthroughs tell us what needs to happen to get there.

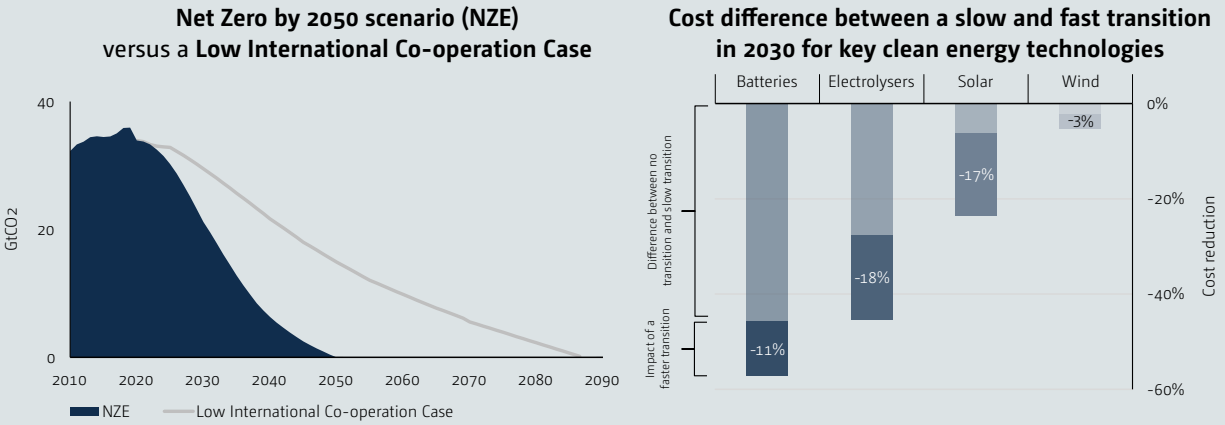
The 2030 Breakthroughs are focused on mitigation, while adaptation and resilience outcome targets will be introduced at COP 27 with clear and coordinated targets across impact systems like food, oceans, water, human settlements and infrastructure at pace and at scale, towards making four billion vulnerable people more resilient by 2030.

They serve as important tools for the Marrakech Partnership participants and all economic actors to better align their efforts in pursuit of shared goals and milestones.

The Breakthrough Agenda was launched by 45 world leaders at COP 26 in Glasgow. It aims to align countries' actions and coordinate investment to scale up deployment and drive down costs across five key sectors: power, road transport, steel, hydrogen and agriculture. World leaders asked the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA) and the High-Level Champions with the support from the Systems Change Lab to prepare an annual report to track progress on this commitment and make recommendations for stronger collaboration. The first edition of the report – The Breakthrough Agenda Report 2022 – was launched in September and sets out the actions needed to deliver on the historic clean technology commitments across the five current 'breakthrough' sectors. Together, these sectors account for nearly 60 per cent of GHG emissions today and could deliver the bulk of the emission reductions needed by 2030 in a pathway that would make a significant contribution to limiting global warming to a maximum of 1.5°C, in line with the Paris Agreement goals.

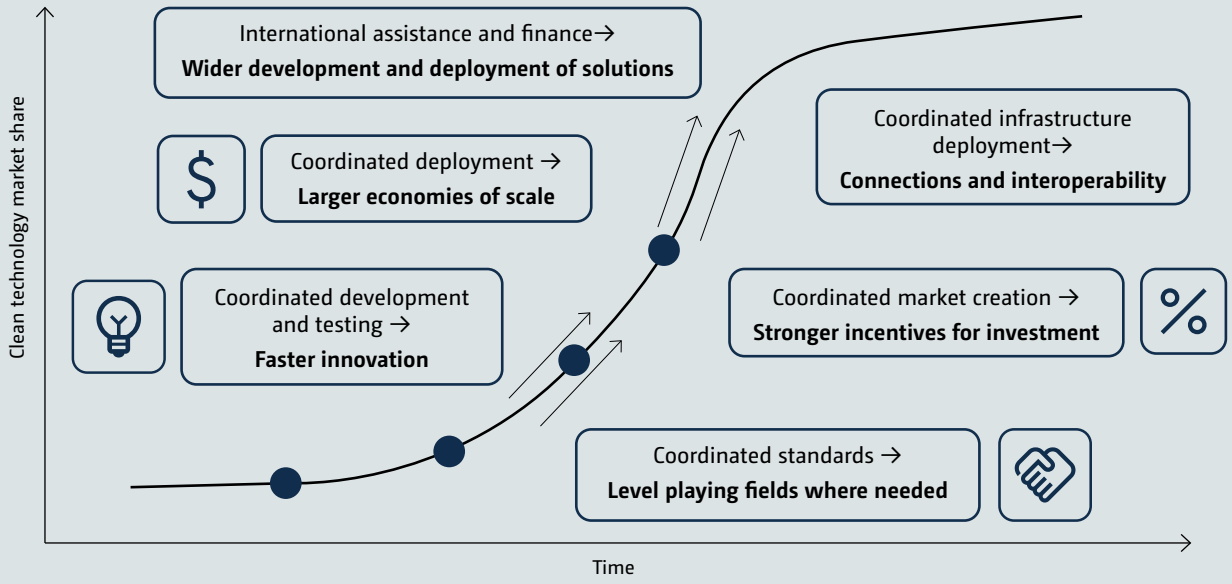
The report also warns that far greater international cooperation is needed to get the world on track to meet its

FIGURE 1:
International cooperation and technology cost reduction (Breakthrough Agenda Report 2022)



Source: Net Zero by 2050, Empirically grounded technology forecasts and the energy transition

FIGURE 2:
How international collaboration can accelerate progress at each stage of the transition (Breakthrough Agenda Report 2022)



Source: Accelerating the low carbon transition: The Case for Stronger, More Targeted and Coordinated International Action

climate commitments. Without international collaboration, the transition to net zero global emissions could be delayed by decades. The costs of critical low-carbon technologies could be significantly lower in a fast global transition, which can only be achieved by the collective action of many countries.

The report sets out 25 recommendations for strengthening international collaboration in these sectors among both Parties and non-Party stakeholders. These recommendations cover areas such as trade, financial assistance, technology co-development, standards and market creation.

There are some bright spots shown in the report – an increase in practical international cooperation in recent years, and progress in deploying the technologies needed, including:

- A doubling of Electric Vehicle (EV) sales in 2021 from 2020, to a new record of 6.6 million[1]

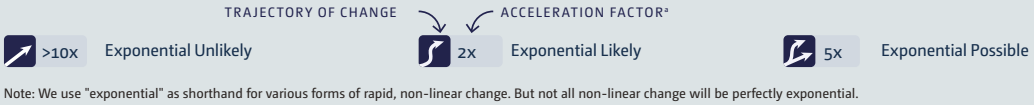
- A forecast increase in global renewable capacity of 8 per cent in 2022[2] - pushing through the 300 GW mark for the first time and equivalent to powering approximately 225 million homes

- Forecast global electricity generation cost reduction of at least USD 55 billion in 2022, based on new renewable capacity added in 2021[3]

The State of Climate Action 2022 (SoCA 2022) report was launched in October by the Systems Change Lab as a joint effort among Bezos Earth Fund, Climate Action Tracker (an independent analytic group that includes Climate Analytics and NewClimate Institute), the High-Level Champions, and World Resources Institute. It provides a detailed snapshot of the gap between current climate action and those needed to limit temperature rise to 1.5°C across key systems that together, account for over 85 per cent of GHG emissions and highlights key enabling conditions that can accelerate transformational change.

The report, following analysis in 2020 and 2021, assesses the progress across 40 indicators of systems change. Once again, the assessment finds that, while there are some signs of progress, particularly in scaling up zero-carbon technologies like electric vehicles and solar and wind power, none of the 40 indicators assessed are on track to reach their 2030 targets. Change is heading in the right direction at a promising but insufficient speed for 6 indicators, and in the right direction but well below the required pace for 21. Change in another 5 indicators is heading in the wrong direction entirely, and data are insufficient to evaluate the remaining 8. Getting on track to achieve 2030 targets will require an enormous acceleration in effort. Unabated coal in electricity generation, for example, must be phased out six times faster than recent global rates. Global improvements in cement production's carbon intensity must increase much more quickly – by a factor of more than 10. And reductions in the annual deforestation rate must accelerate 2.5 times faster.

FIGURE 3:
State of Climate Action 2022: Summary of progress towards 2030 targets



Note: We use "exponential" as shorthand for various forms of rapid, non-linear change. But not all non-linear change will be perfectly exponential.

ON TRACK: Change is occurring at or above the pace required to achieve the 2030 targets.

None

OFF TRACK: Change is heading in the right direction at a promising, but insufficient pace

6x	Share of zero-carbon sources in electricity generation
1.7x	Share of electricity in the industry sector's final energy demand
5x	Share of electric vehicles in light-duty vehicle sales
>10x	Share of battery electric vehicles and fuel cell electric vehicles in bus sales
1.5x	Reforestation
1.3x	Ruminant meat productivity

WELL OFF TRACK: Change is heading in the right direction, but well below the required pace

5x	Carbon intensity of electricity generation
6x	Share of unabated coal in electricity generation
5x Commerical 7x Residential	Energy intensity of building operations[e,f]
>10x	Carbon intensity of global cement production
>10x	Green hydrogen production
6x	Number of kilometers of rapid transit (metro, light-rail and bus rapid transit) per 1M inhabitants (in the top 50 emitting cities)
>10x	Number of kilometers of high-quality bike-lanes per 1,000 inhabitants (in the top 50 emitting cities)
>10x	Share of electric vehicles in the light-duty vehicle fleet
Ins. data	Share of battery electric vehicles and fuel cell electric vehicles in medium- and heavy-duty vehicle sales
Ins. data	Share of sustainable aviation fuels in global aviation fuel supply
Ins. data	Share of zero-emission fuel in maritime shipping fuel supply
2.5x	Deforestation
6x	Crop yields
5x	Ruminant meat consumption[i]

WELL OFF TRACK: Change is heading in the right direction, but well below the required pace

>10x	Technological carbon removal
>10x	Global total climate finance
>10x	Global public climate finance
>10x	Global private climate finance
>10x	Share of global emissions under mandatory corporate climate risk disclosure
8x	Median carbon price in jurisdictions with pricing systems
5x	Total public financing for fossil fuels

WRONG DIRECTION: Change is heading in the wrong direction, and a U-turn is needed

N/A	Share of unabated fossil gas in electricity generation
N/A	Carbon intensity of global steel production
N/A	Share of kilometers traveled by passenger cars
N/A	Mangrove loss
N/A	Agricultural production GHG emissions

INSUFFICIENT DATA: Data are insufficient to assess the gap in action required for 2030

Ins. data	Carbon intensity of building operations[f]
Ins. data	Retrofitting rate of buildings
Ins. data	Carbon intensity of land-based passenger transport
Ins. data	Peatland degradation
Ins. data	Peatland restoration
Ins. data	Mangrove restoration
Ins. data	Share of food production lost
Ins. data	Food waste

To learn more, read the: State of Climate Action 2022 report

The following pages provide a thematic overview of where we are, where we need to be and how we can get there. They combine the Climate Action Pathways, the action milestones (2030 Breakthroughs and adaptation and resilience outcome targets), the State of Climate Action 2022 report and the Breakthroughs Agenda Report 2022, along with information from other reports.

This section also features on-the-ground action by non-Party stakeholders around the world; climate action projects that help both communities adapt to, and mitigate against, the worst effects of the climate crisis. Non-State actors from the private and public sector are taking bold action in every sector and in every corner of the globe, seeing both the urgent need and huge benefits of climate action.

The message is clear: although much has been achieved, much more needs to be done, and more quickly, if we are to undertake the systemic transformation needed to meet the goals of the Paris Agreement and achieve a 1.5°C resilient world.

CLIMATE ACTION PATHWAYS

ACTION MILESTONES

STATE OF CLIMATE ACTION 2022 (SOCA 2022)

BREAKTHROUGH AGENDA REPORT 2022

ENERGY

The Energy Pathway vision for 2050 is a world where energy systems are decarbonized, resilient and efficient, and where there is universal access to energy services, enabled by affordable, reliable, sustainable and modern energy sources. The energy we use is primarily electric, and at least 90 per cent of our electricity is being generated from renewable energy sources, with the remaining 10 per cent from carbon neutral sources. Energy demand and intensity has been dramatically reduced, and the infrastructure now in place is more resilient to market shocks and the impacts of climate change.

The action milestones to achieve such vision include that solar and wind power make up at least 40 per cent, and all renewables make up at least 60 per cent of global electricity generation by 2030 so that the global electricity system is fully decarbonized by 2040; and for up to 850 GW of green hydrogen capacity must be deployed by 2030, so that 500–800 Mt production capacity is deployed by 2050.

WHERE WE ARE AND WHERE WE NEED TO BE TO REACH THAT GOAL:

- The power sector transition is underway, with significant shifts observed over the last two decades, driven by the increasing pace of renewables deployment and their dramatic cost reductions. Installed renewable capacity increased by 1.7 TW (8.7 per cent per year) from 2011-21, while non-renewable sources grew by 1 TW (2.2 per cent per year) over the same period. However, the pace and scale of decarbonization must increase urgently, driving emissions from the power sector down by more than seven per cent each year to 2030.

- Electricity and heat production account for around 32 per cent of global GHG emissions and remain the single largest source of CO2 emissions globally[1]. Yet global energy demands are rising, and decarbonization pathways across other sectors (e.g., buildings and transport) will rely on zero-carbon electricity. Globally, around 733 million people still do not have access to electricity in 2020[2], and it is crucial we improve their access to energy in a sustainable manner.

- Of the four indicators highlighted in SoCA 22, one is heading in the right direction at a promising but insufficient speed (share of zero-carbon sources in electricity generation), two are headed in the right direction but well below the required pace (carbon-intensity of electricity generation; and share of unabated coal in electricity generation), and one (share of unabated fossil gas in electricity generation) is headed in the wrong direction entirely.

- There are signs of positive change in the power sector, including the remarkable fall in the cost of renewable energy technologies as well as record installations of renewable capacity. Between 2015 and 2019, the share of zero-carbon technologies in the global electricity generation mix rose by as much as 21 per cent. While the importance of these trends cannot be overstated, it is widely recognized that a much faster energy transition is still needed.

- A steep decline in global coal power generation during the COVID pandemic caused the carbon intensity of global electricity generation to fall by three per cent between 2019 and 2020[3]. Yet, it is estimated that a strong rebound in coal-fired generation in 2021 will push this indicator higher once more, highlighting the need to rapidly phase out coal from the global power system. The recent rate of decline in the carbon intensity of the power sector needs to accelerate nearly five-fold to meet the 2030 target.

- The growth of zero-carbon power generation (such as solar, wind, hydro, nuclear, geothermal, marine and biomass technologies) is key to decarbonizing the power system[4]. The share of zero-carbon power has shown almost no net change between 2000 (35.2 per cent) and 2019 (36.4 per cent). This is because the growth in zero-carbon power has been matched by the growth in total generation. Renewable power shares in electricity generation have increased from 20 per cent in 1990, reaching 29 per cent in 2020[5]. Nonetheless, the current growth in the share of zero-carbon power is off track to meet the target of 74-92 per cent in 2030. Fortunately, the share of zero-carbon power in generation may experience some form of nonlinear, rapid growth in the coming decades, particularly as solar, wind, and storage technologies continue to decline in costs. Achieving such dramatic increases in zero-carbon power will, however, require decision-makers to make tough decisions by supporting clean energy while phasing out coal and fossil gas.

- Coal makes up around 75 per cent of power sector CO2 emissions[6]. The share of unabated coal in electricity generation increased from 39 per cent in 2000 to 41 per cent in 2007 but has since been declining gradually. As of 2019, coal shares in electricity generation stood at 37 per cent. Overall, this indicator is heading in the right direction, but it is well off track from reaching the 2030 target, which is critical to aligning the power sector with 1.5°C compatibility. This rate of this decline needs to accelerate sixfold to achieve the 2030 target.

- The notion of fossil gas as a transition fuel in national energy policy is globally pervasive, which is worrying as it could lead to carbon lock-in risks, stranded assets, and hinder the development of zero-carbon energy[7]. A significant advancement in decarbonization policy is needed to reverse this trend.

- Developing and emerging countries account for two-thirds of global population, yet only one-fifth of total clean energy investment. This is despite the fact that the average cost for reducing emissions in these countries is roughly half that of developed countries[8]. Switching current levels of power from fossil fuels to zero-carbon sources without increasing electricity access would lead to vastly unequal outcomes. Critically, realizing a net-zero power sector in developing and emerging economies should be supported by international assistance given that these regions have contributed much less to cumulative carbon emissions[9].

- Green hydrogen is set to play a vital role in supporting a rapid clean energy transition, primarily in hard-to-abate applications where other clean energy solutions may not be available, such as heavy industry, maritime shipping, aviation, seasonal electricity storage. Yet, in 2020, only 1 Mt per year of renewable and low carbon hydrogen was being produced, versus the 140-155 Mt per year needed by 2030. This equates to a necessary annual growth rate of nearly 70 per cent. Barriers are many and include agreeing common standards and scaling research, development and demonstration investments.

- In order for the necessary progress to be made, countries and companies should agree on strong and clear near-term targets for the deployment of green hydrogen in sectors where hydrogen is currently used. Countries and companies should agree on the full portfolio of international standards and associated certification schemes for green hydrogen. Countries need to work together to dramatically increase the number and geographical distribution of hydrogen demonstration projects and to ensure that these appropriately cover each of hydrogen's high-value end use sectors, including maritime shipping, heavy industry, and long-duration energy storage. Donor countries and multilateral development banks should significantly increase concessional finance available for well targeted uses that can mobilize large-scale private investment in hydrogen projects in developing countries.

WHAT'S HAPPENING ON THE GROUND

SOLARCITY SIMULATOR
WHERE: WORLDWIDE

The SolarCity simulator is a web application developed by IRENA as part of the Global Atlas for Renewable Energy. The simulator is designed to support households, businesses, and municipal authorities in assessing their cities' technical and financial potentials for rooftop solar power installations by testing different installation scenarios, policy instruments, and incentive schemes. The simulator allows users to assess the technical potential of each selected roof, and the financial potential and socio-environmental case studies of different case studies. The methodology of the SolarCity simulator can be deployed cost-effectively worldwide, including in locations where the solar potential is high but not yet fully evaluated. The first implementations of the simulator were in the districts of Kasese in Uganda and Chongli in Zhangjiakou, China. Up to now, the methodology has been scaled up to support more developing cities, including the coastline area of Antigua and Barbuda, San Salvador in El Salvador and Bamako in Mali, among others. Right now, there are 17 developed and five under development, with future projects planned for Comoros, Saint Kitts in St Kitts and Nevis, Kiribati, and Solomon Islands.

WEST BAKR WIND FARM
WHERE: GULF OF SUEZ, EGYPT

Opened in 2021, the West Bakr Wind Farm currently provides 252 MW of renewable energy annually, and is expected to produce more than 1,000GWh per year, while saving more than 550,000 tonnes of carbon dioxide emissions annually. Set up and managed by the renewable power company, Lekela, the project is part of the Egyptian Government's Build, Own, Operate framework, and it has increased Egypt's wind energy capacity by 18 per cent. The Wind Farm is a key pillar of Egypt's ambition to generate 20 per cent of its electricity from renewable energy sources by the end of this year. The West Bakr Wind Farm has a long-term commitment to the nearby local community of Ras Ghareb, through a community investment programme supporting education, entrepreneurship and the environment. Lekela has also helped set up an ornithological training centre, as the region is used by more than 1.5 million migratory birds each year.

TRANSPORT

The Transport Pathway vision for 2050 is that passenger and freight transport is completely decarbonized by shifting to a more sustainable, diverse and resilient range of modes and vehicle technologies. Light-duty vehicles and railway trains are completely electrified, whereas heavy-duty vehicles use a mix of batteries and liquid zero-emission fuels. For shipping and aviation, electrification is employed on short routes, whereas liquid fuels are used on longer routes. Society is thriving due to the improved efficiency and inclusivity of transport systems and the challenges of the first and last mile of transport have been resolved with affordable and accessible door-to-door mobility services for both freight and passenger transport. New and existing transport infrastructures have been made resilient to the impacts of climate change, and maintenance is prioritized to maximize the operational resilience of critical infrastructure.

The action milestones in this sector include: zero-emission trucks to constitute at least 35-40 per cent of new sales by 2030 so as to reach 100 per cent in leading markets (China, EU, Japan, US) by 2040; zero-emission vehicles (ZEVs) making up 15 per cent of total global passenger vehicles and vans sales by 2025 so as to reach 100 per cent in leading markets by 2035; battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs) make up 60 per cent of global bus sales by 2030; sustainable aviation fuels (SAF) making up 13-15 per cent of fuels globally by 2030, so as to reach 100 per cent by 2050; and zero emission fuels (ZEFs) making up five per cent of international shipping fuels and 15 per cent of domestic shipping fuels by 2030, so as to reach 100 per cent by 2050.

WHERE WE ARE AND WHERE WE NEED TO BE

- Transport has the highest level of reliance on fossil fuels of any sector today, which supplies about 95 per cent of its final energy demand. It accounts for more than 20 per cent of global energy-related direct CO_2 emissions and produces a significant share of air pollution and related threats to public health.

- An estimated 72 per cent of transportation emissions in 2020 came from road vehicles, followed by 12 per cent from maritime shipping, 9 per cent from aviation, and 7 per cent from rail and other sources[1].

- Of the ten indicators examined by SoCA 2022 in this sector, eight are headed in the right direction but seven are well off track: the number of kilometres of rapid transit (metro, light-rail, and bus rapid transit) per one million inhabitants (in the top 50 emitting cities); the number of kilometres of high-quality bike lanes per 1,000 inhabitants (in the top 50 emitting cities); the share of EVs in the light-duty vehicle fleet; the share of BEVs and FCEVs in medium- and heavy-duty vehicle sales; the share of sustainable aviation fuels in the global aviation fuel supply; and the share of ZEFs in maritime shipping fuel supply. The share of EVs in light-duty vehicle sales and the share of battery EVs and FCEVs in bus sales are headed in the right direction but recent progress remains off track. Of the remaining two indicators, one is heading in the wrong direction: the share of kilometres travelled by passenger cars. Data is insufficient for the final indicator: carbon intensity of land-based transport.

- To achieve the necessary reductions in private car trips while improving overall accessibility, governments can increase their spending on both infrastructure and operations of alternative transport modes such as public transport, walking and cycling and can also adopt transport

demand-management policies combined with better zoning practices. As of the end of 2019, governments around the world were investing USD 1.4 trillion in light-rail and metro projects under development – two-thirds of which was being spent in Asia, followed by the Middle East (10 per cent), Europe (9.6 per cent), North America (8 per cent), Latin America (3.6 per cent), and Africa (3 per cent)[2].

- The transition to zero-emission road transport is at a relatively early stage in terms of global market adoption, but progress is accelerating rapidly, with substantial take-up of electric cars, urban buses, and two- and three-wheelers in many countries. However, just over one per cent of cars on the road in 2021 were ZEVs, versus 20-25 per cent needed by 2030. In 2021, ZEVs accounted for under 9 per cent of new car sales globally; by 2030, about 60 per cent of new cars sold will need to be zero emission. Zero-emission trucks, which have only just begun to enter the market in appreciable shares, will need to constitute at least 35-40 per cent of new sales by 2030. Zero-emission buses will also need to rise from nearly 14 per cent of new sales in 2021 to 60 per cent by 2030.

- Sales of ZEVs have increased over the past six years, for which we have data but are uneven across vehicle categories due to different needs in different categories. Sales of new passenger electric vehicles are growing the fastest, most recently seeing an increase of 67 per cent from 2020 to 2021. Currently, they make up 8.7 per cent of global passenger vehicle sales. While this seems low, it represents tremendous growth from 2015: an average of about a 50 per cent increase per year[3].

- One barrier to increased uptake of zero-emission passenger vehicles, buses and medium- and heavy-duty vehicles is cost: they are more expensive to buy than than that of their internal combustion engine (ICE) counterparts, and the consumer choosing a vehicle simply based on purchase price would be hard-pressed to buy a cleaner vehicle. Despite the fact EVs are expected to reach price parity with ICE vehicles over the next decade, waiting for these economics to align naturally does not put the world on a path to 1.5°C on a sufficiently short timeline – and in a world where fossil fuel subsidies totaled USD 5.9 trillion in 2020, some policies are actively working against this alignment[4]. Demand-side measures to increase EV adoption in the short-term, including consumer subsidies and regulations, such as reduced road usage fees or purchase taxes, can help make EV purchasing more attractive[5].

- For many countries, the higher cost of ZEVs compared to ICE vehicles is a barrier to a faster transition. International collaboration will be key in driving currently more expensive technologies, such as batteries, down the cost curve. One positive sign is the reduction of battery costs over the decade.

- The cost of an average lithium-ion battery has fallen from USD 1,220 per kWh in 2010 to USD 132 per kWh in 2021, a reduction of 89 per cent[6].

- Consequently, if large markets align their policies with a fast transition, the cost of ZEVs is likely to fall quicker, benefiting all countries.

- From the supply perspective, common method of pushing decarbonization of vehicles is for governments to set sales mandates for manufacturers, where a percentage of their sales must be electric.

- Business-led initiatives have played an important role in creating early demand for ZEVs. One such initiative is the EV100, a global initiative by the Climate Group that brings together companies committed to switching their owned and contracted fleets up to 7.5 tonnes to EVs and installing charging infrastructure for employees and customers by 2030. As of September, 123 companies have signed the EV100 commitment to either transition their fleets to EVs by 2030 or install charging infrastructure at their facilities.

- Trucks and buses constitute the next largest global CO_2 emissions source from the transport sector (2.2 $GtCO_2$ in 2020), after passenger cars – more than aviation and shipping emissions combined (1.9 $GtCO_2$ in 2019, the last full year unaffected by the COVID-19 pandemic)[7]. More than half of these 2.2 $GtCO_2$ emissions are from heavy-duty trucks alone, while buses make up just under a fifth. Progress on decarbonizing these forms of transport has been uneven over the last decade.

- At about 12 per cent of total transport CO_2 emissions (about 1 $GtCO_2$), aviation is a small contributor compared to road transport, but emissions have been growing - left unchecked, they could increase to more than 2 $GtCO_2$ by 2050[8].

- Zero- or even low-carbon options for aviation are in the early stages of development. The share of SAFs, including fuels made from biomass, alcohol, or electricity, in the global aviation fuel supply was less than 0.1 per cent in 2020, the only historical data point currently available[9]. The production cost of fuels derived from electricity is highly dependent on future electricity prices (and the electricity being zero-carbon) and producing these fuels will require significant investment on research and development to bring down costs to compete with their fossil fuel counterparts[10]. Hydrogen and battery electric planes are in development, but they are still in the early stages and will require time to reach maturity and commercial adoption.

- Shipping accounts for about 13 per cent of total transport CO_2 emissions (just over 1 $GtCO_2$) and total GHG emissions closer to 1.1 Gigatonne CO2 equivalent ($GtCO_2e$)[11]. The International Maritime Organization has committed to at least halving GHG emissions from 2008 levels by 2050, an initial strategy that features short- and long-term measures, including fuel efficiency controls as well as the use of alternative fuels[12]. Zero-carbon options for shipping are also in the early emergence stage of development. Ammonia, biofuels, hydrogen, and batteries are generally considered the major technology options that could become available to decarbonize shipping[13]. Green hydrogen and ammonia (which are produced using renewable energy) are widely viewed as the most promising fuels due to their favourable life-cycle GHG emissions, economics, and scalability[14].

WHAT'S HAPPENING ON THE GROUND:

SHIPPING'S ENERGY TRANSITION: STRATEGIC OPPORTUNITIES IN SOUTH AFRICA, MEXICO AND INDONESIA
WHERE: SOUTH AFRICA, MEXICO AND INDONESIA

The P4G Getting to Zero Coalition Partnership, a multi-stakeholder partnership on green shipping, implemented a project from 2020-2022 looking into the role that emerging and developing economies can play in accelerating shipping's energy transition. It first sought to understand the energy landscape and renewable energy potential of South Africa, Mexico and Indonesia – all P4G partner countries near busy shipping routes. The project partners – the World Economic Forum, Global Maritime Forum, Friends of Ocean Action, Environmental Defense Fund, University College London, and the International Association of Ports and Harbors – alongside key local stakeholders then worked to highlight business opportunities for renewable energy production in each country and assessed gaps stalling or preventing offtake. They identified three key business opportunities in each country which have propelled action and further conversation around renewable energy production and trade (both local and cross-border).

LAND USE

The Land Use Pathway vision is for emissions from the loss and degradation of remaining primary forests and other natural terrestrial ecosystems to have dropped by at least 70 per cent by 2030 from 2020 levels, in order to become a net sink by 2050. By 2030, at least 350 million hectares (Mha) of degraded land is brought under restoration, including by improving the resilience and productivity of farmland; and emissions from agriculture and food systems are reduced thanks to the expansion of regenerative and resilience practices in food and agriculture systems. Sustainable land management is the norm, with adequate action and support for adaptation outcomes, maintaining habitats for biodiversity and ensuring climate resilience, particularly for vulnerable populations, and the provision of goods and services from key ecosystems that support water and food security. In 2050, food systems are economically sustainable and profitable; they have broad-based benefits for society and have a positive or neutral impact on the natural environment. Food loss and waste have reduced to 50 per cent by 2030 and up to 75 per cent by 2050, compared to 2020, through a set of measures targeting both the supply and demand sides while ensuring that future generations are well-nourished and food-secure. Consumption has shifted toward plant-based diets for 50 per cent of the global population by 2050.

The action milestone in this sector is; 10 $GtCO_2e$ must be mitigated per year through nature-based solutions, achieving net zero by 2030[ii].

WHERE WE ARE AND WHERE WE NEED TO BE TO REACH THAT GOAL:

- In 2019, agriculture, forestry, and other land use (AFOLU) emitted over one-fifth of GHGs globally (13 $GtCO_2e$)[1], with net anthropogenic releases of carbon dioxide, methane, and nitrous oxide increasing by an average of 1.6 per cent per year over the last decade[2]. CO_2 emissions, which primarily stem from land use, land-use change, and forestry, accounted for about half of all GHG emissions from AFOLU in the same year[3]. And when considering CO2 fluxes from both managed and unmanaged lands' responses to climate change, other anthropogenic environmental changes, and natural climate variability, land remains a net carbon sink globally, sequestering one-third of CO2 emissions from all human activities to help slow climate change[4].

- While SoCA 2022 presents separate indicators for Forest and Land and Food and Agriculture, of the 12 indicators combined, 2 are moving in the right direction but are off track (reforestation; ruminant meat productivity); 3 are well off track (deforestation; crop yields; ruminant meat consumption); 5 have insufficient data (peatland degradation; peatland restoration; mangrove restoration; share of food production lost; food waste); and 2 are headed in the wrong direction (mangrove loss; agricultural production GHG emissions).

- Although permanent forest losses fell by two per cent from 2020 to 2021, these rates are not declining fast enough to hold global warming to 1.5°C. From 2015 to 2021, deforestation occurred across 45 Mha of land (an area, roughly the size of Iraq), emitting a total of 25 GtCO2e[5]. Nearly half of these losses happened in humid tropical primary forests, critical lands for biodiversity and carbon storage. Limiting global temperature rise to 1.5°C will instead require declines in deforestation to occur 2.5 times faster over this decade, falling to just 1.9 Mha per year in 2030.

ii By 2030, protecting 45 Mha, sustainably managing 2 Bha and restoring 350 Mha of land; securing indigenous rights and taking demand-side food system action. By 2050 land based natural systems constitute a 10 Gt/year carbon sink.

- Reforestation represents a readily available, relatively cost-effective carbon removal approach that can deliver additional benefits when implemented appropriately[6]. Although annual data on tree cover gain are not available, historical cumulative data indicate that global progress requires a 1.5-fold acceleration to reforest 100 Mha by 2030 and 300 Mha by 2050 – the amount needed to help limit global warming to 1.5°C .

- Although they cover just three per cent of the world's land[7], peatlands hold at least a fifth of soil organic carbon stocks globally (>600 gigatonne carbon (GtC))[8] and store an order of magnitude more carbon per hectare than forests[9]. From 1850 to 2015, 51.4 Mha were degraded worldwide, including 26.7 Mha across temperate and boreal regions and another 24.7 Mha in the tropics[10]. Limiting warming to 1.5°C will require effectively halting peatland degradation this decade, as well as the restoration of 15 Mha of degraded peatland by 2030 and 20 by 2050[11].

- Mangroves are another vital carbon sink, storing at least twice as much carbon per hectare as boreal, temperate, and tropical forests[12]. But from 1999 to 2019, the world lost an estimated 0.56 Mha of these coastal wetlands due to both natural and anthropogenic causes, with half of these losses attributable to direct human activities (e.g., conversion to aquaculture ponds)[13]. If the 2030 target is to be met, mangrove loss needs to be dramatically reduced to just 4,900 hectares per year. At present, it is increasing globally. Equally critical, the world must restore 0.24 Mha of mangrove forests this decade.

- There are multiple barriers to scaling up land-based mitigation measures, such as weak or incoherent policies, fragmented governance, limited institutional capacity, corruption, complex land tenure regimes, and misaligned public and private finance. Some of these challenges are especially acute across developing countries, which hold 85 per cent of the world's cost-effective potential for protecting, restoring, and sustainably managing carbon-rich ecosystems[14].

- As the world's population climbs from nearly 8 billion in 2022 to nearly 10 billion by 2050[15], feeding more people more nutritiously while advancing socioeconomic development and reducing GHG emissions from agriculture and food systems will be a major challenge. While it is encouraging that agricultural production emissions are not growing quickly and the emissions intensity of agriculture is declining, targets for 2030 and 2050 call for significant reductions, so a major step change is still needed. Recent growth in crop yields will need to accelerate by six times in the next decade. Per capita consumption of beef, lamb, and goat meat across high-consuming regions would need to decline five times faster to realise 2030 targets.

- Paris-aligned pathways make clear that agricultural production emissions need to be reduced by 39 per cent by 2050 and land use change needs to halt, while at the same time, the sector must increase production to provide food for a global population estimated to reach 9.8 billion[16].

- Farmers increase crop yields in part by using higher quality seeds or through better management practices such as adding more water, using fertilisers or legumes, using agronomic information, or introducing basic machinery. Small additions of inputs to nutrient-starved soils can result in high productivity improvements. For example, shifting nitrogen fertiliser inputs from fields that apply too much to those that apply too little could increase cereal production by about 30 per cent globally while reducing nitrous oxide emissions[17].

- Regarding food loss and waste, the most recent global estimates show that 14 per cent of global food production is still lost between the farm gate and processing stages of the food supply chain[18], and another 17 per cent of food at the retail level is wasted in households, food service, and retail[19].

WHAT'S HAPPENING ON THE GROUND:

LANDSCAPE RESILIENCE FUND WHERE: SUB-SAHARAN AFRICA, SOUTH AND SOUTHEAST ASIA AND LATIN AMERICA

The Landscape Resilience Fund (LRF) uses a blended finance approach – combining grants from the public, philanthropic, and private sectors – to invest in and support Small and Medium Enterprises (SMEs) practising climate-smart agriculture and forestry in developing countries. The LRF improves climate resilience through increased and diversified income for smallholder farmers, sustainable stewardship of local natural resources and opportunities for equitable development by supporting women and underrepresented groups.

Co-developed by the South Pole and WWF, the LRF aims to increase the resilience and strengthen the livelihoods of 500,000 people living in landscapes vulnerable to climate change by 2026. LRF's investments will ensure the sustainable management of 200,000 hectares of land, increase biodiversity from 10,000–20,000 additional hectares under conservation, and reduce 2,080,000 metric tonnes of CO_2. By providing catalytic capital, every USD 1 million investment from the LRF will unlock up to USD 3 million in additional finance from commercial investors; increasing much-needed adaptation finance for climate-smart SMEs.

Koa, a Swiss-Ghanaian sustainable cocoa fruit company, was the first recipient of investment from the LRF in May 2022. This investment and hands-on support will deliver benefits to smallholder farmers' livelihoods and protect forests in Ghana. Koa's business model increases smallholder farmers' income by 20-30 per cent, reduces food waste by 40 per cent, and uses a highly efficient solar-powered method to process previously unused cocoa fruit pulp. The USD 3.5 million investment from the LRF, made alongside co-investors IDH Farmfit Fund, will help Koa to set up a new processing facility in Ghana, increasing production capacity more than tenfold by 2024 and creating additional income for up to 10,000 cocoa farmers.

WATER

The Pathway vision for 2050 is a world where the contribution of the water sector to the global mitigation goal of the Paris Agreement has been attained through the protection and restoration of freshwater resources for ecosystems and people; the sustainable use and distribution of water for agriculture, energy, industry, and human settlements; and the reuse of freshwater and wastewater at a global scale. All activities to extract, store, deliver, use, treat and reuse water have been fully decarbonized in environmentally sustainable ways, and these activities have transitioned from being largely non-renewable to becoming a source of net-positive renewable energy.

The action milestone in this sector is for water and wastewater services to be fully decarbonized in 20 countries by 2030 so that they are fully decarbonized globally by 2050.

WHERE WE ARE AND WHERE WE NEED TO BE TO MEET THAT GOAL

- Water and climate change go hand in hand. Since life depends on water, projected changes in precipitation patterns due to climate change are an increasing global concern. Water utilities, by their nature of ensuring customer access to water, are especially realising the urgency to proactively prevent the worst climate futures. Many actors are already weaving climate change considerations into their integrated resource planning, supply chain sourcing and capital planning decisions. However, to truly create a more resilient future, the mainstreaming of climate change considerations into decision-making must occur more ubiquitously and more quickly across all organizations[1].

- Water features prominently in most countries' NDCs and national adaptation plans (NAPs) of most countries. Sustainable Development Goals (SDGs) cannot be met without adequate and safe water, and water is fundamental to all systems transition[2].

- Roughly half of the world's eight billion people are estimated to experience severe water scarcity for at least some part of the year due to climatic and non-climatic factors, while since the 1970s, 44 per cent of all disaster events have been flood-related[3].

- Climate change impacts via water availability changes are projected to increase with every degree of global warming, but there are high regional uncertainties. Between three and four billion people are projected to be exposed to physical water scarcity at 2°C and 4°C global warming levels[4].

- By 2100, one-third of the 56 large-scale glacierised catchments are projected to experience a mean annual runoff decline of more than 10 per cent, with the most significant reductions in central Asia and the Andes. Expected impacts may be felt by roughly 1.5 billion people who are projected to critically depend on runoff from the mountains by the mid-21st century[5].

- Climate mitigation measures depend on freshwater resources. Present and future freshwater availability need to be accounted for in climate mitigation planning and action[6].

- Many mitigation measures, such as carbon capture and storage, bioenergy and afforestation and reforestation, can have a high-water footprint. The water intensity of mitigation must be managed in socially and politically acceptable ways to increase synergies with SDGs, improve water security and reduce trade-offs with adaptation[7].

- Water and sanitation management can reduce GHG emissions. Climate mitigation planning and action should include the substantial emission reduction potential in drinking water and sanitation services and through the management and protection of freshwater resources[8].

- Nature-based solutions to mitigate climate change can deliver multiple benefits for people and the environment. Priority should be given to measures that can safeguard freshwater resources, protect biodiversity, and ensure sustainable and resilient livelihoods[9].

- Nature-based solutions, combining 'green' and 'grey' infrastructure, are promising but need urgent scaling. They are often conducive to achieving multiple objectives, such as creating local jobs in operations and maintenance while building climate resilience[10].

- Deltas need dedicated governance structures organized on water management principles. Deltas often cut across administrative and national boundaries, creating significant governance challenges[11].

- Joint water and climate governance need to be coordinated and strengthened. Mainstreaming freshwater in all climate mitigation planning and action requires polycentric and inclusive governance arrangements that can facilitate integrated approaches[12].

- While limiting global warming to 1.5°C would minimize the increase in risks in the various water use sectors and keep adaptation effective, many mitigation measures can potentially impact future water security. Therefore, minimizing the risks to water security from climate change will require a holistic view that considers the direct impacts of mitigation measures on water resources and their indirect effect via limiting climate change[13].

- **Milestones towards the 2050 vision include:**

  - By 2021, to have all NDCs and NAPs updated to include resilient water management approaches and tools for GHG mitigation; stakeholders to make a concerted effort to further unlock climate finance for water-related projects prioritising the world's most vulnerable communities and populations; and for social accountability and water stewardship pilot programmes to be developed with the participation of civil society organizations and communities.

  - By 2025, to ensure all NDCs and NAPs are accompanied by a specific water plan and budget that addresses the climate-water interactions across all sectors; and to double the share of sustainable renewable energy used in water extraction, supply, treatment, and reuse, all the while ensuring that the level of water extraction and consumption in energy generation does not increase.

  - By 2030, to ensure water and wastewater utilities reach complete decarbonization and improved climate resilience through climate risk management; to protect and restore 30 per cent of the Earth's water-related natural ecosystems; to achieve universal and equitable access to safe, affordable and climate-resilient drinking water and sanitation services and enshrining the human right to water in policy and law, especially servicing the most vulnerable populations who are first to be affected by the impacts of climate change.

  - By 2040, to phase out industrial activities that jeopardise climate and water so that a just transition to a net-zero, climate-resilient future can be achieved; to ensure the global water sector is a net-positive provider of renewable energy and nutrients, and that 100 per cent of all municipal, industrial and agricultural wastewater is treated for reuse or discharge into the environment; to double the area of protected water-based ecosystems and the number of free-flowing rivers since 2020; and to ensure 100 water-insecure cities around the world achieve net-zero emissions and are no longer water-stressed.

WHAT'S HAPPENING ON THE GROUND:

THE GREATER CAPE TOWN WATER FUND
WHERE: CAPE TOWN, SOUTH AFRICA

The Greater Cape Town Water Fund (GCTWF), a public-private partnership between the Nature Conservancy, the national government, Western Cape Provincial Government, the City of Cape Town, CapeNature, the private sector and WWF, is working to restore 55,300 hectares in the Boland Mountains of the Western Cape Province in South Africa in order to increase water resilience for more than four million people. Central to the project is controlling water-hungry invasive tree species as well as protecting biodiversity in the Cape Floristic Region, which is a global biodiversity hotspot. The project uses nature-based solutions to create green jobs, improve climate resilience and enhance water security. By working with nature, the GCTWF expects to save 55 billion litres of water per year within the first six years (the equivalent of two months' worth of water supply to the city) at 10 per cent the cost of grey infrastructure solutions under consideration.

URBAN WATER RESILIENCE (UWR) IN AFRICA INITIATIVE
WHERE: AFRICA

The World Resources Institute's Urban Water Resilience in Africa Initiative (UWR) helps cities overcome water challenges by increasing capacity and working with local stakeholders to build resilience and provide access to high-quality water and protect residents from hazards. UWR has designed city action plans for water resilience in Johannesburg and Gqeberha in South Africa, Addis Ababa and Dire Dawa in Ethiopia, and Kigali and Musanze in Rwanda.

Over the past two years, the Initiative helped establish the African Cities Water Adaptation Platform (ACWA Platform). The ACWA Platform is a growing coalition of 21 endorsing partners, including cities, research institutes, civil society actors, development agencies, national governments, and businesses, joining forces to advance urban water resilience in Africa. Driven by a broad consensus on a set of strategic priorities as identified in the 2030 Joint Agenda for Urban Water Resilience in Africa, the ACWA Platform will act as a technical assistance and capacity building coalition for the African Cities Water Adaptation Fund (ACWA Fund). The ACWA Fund aims to leverage USD 5 billion to finance transformative urban resilience in 100 African cities by 2032.

Workshop by the Urban Water Resilience Initiative (World Resource Institute)

OCEANS AND COASTAL ZONES

The Pathway vision for 2050 in this sector is for all fish stocks to have been recovered and to be fished sustainably, for coastal and marine ecosystems to have been restored, and a massive loss of coastal and open ocean ecosystems (coral reefs, mangroves, seagrass, deep seas, etc.) reversed. The pace of ocean warming, acidification and deoxygenation have been dramatically slowed, and sustainable ocean-based activities have been leveraged to provide employment, food and energy security for the world's growing population. Crucially, coastal communities have been protected from and have been provided the means to adapt to the worst consequences of climate change. The ocean is now 100 per cent sustainably managed, ocean renewable energy is a major source of clean energy and the aquatic food industry adopted sustainable and climate-smart practices while increasing its production to feed a population of 10 billion.

The action milestone in this sector is to invest USD 4 billion to halt loss, restore half, double protection of 17 Mha of mangroves by 2030, in order to reach 100 per cent conservation and restoration of these ecosystems by 2050.

WHERE WE ARE AND WHERE WE NEED TO BE TO MEET THAT GOAL

- The ocean covers 71 per cent of the Earth's surface and plays a fundamental role in regulating global temperatures – not only does it absorb 93 per cent of the additional heat from rising anthropogenic CO_2 emissions, but it also absorbs approximately 25 to 30 per cent of anthropogenic CO_2 emissions that would otherwise remain in the atmosphere and increase global warming. However, it is also impacted negatively as a result of climate change.

- Climate change has exposed ocean and coastal ecosystems to conditions that are unprecedented over millennia, and this has greatly impacted life in the ocean and along its coasts. Fundamental changes in the physical and chemical characteristics of the ocean acting individually and together are changing the timing of seasonal activities, distribution, and abundance of oceanic and coastal organisms, from microbes to mammals and from individuals to ecosystems, in every region[1].

- The 1901–1990 pace of global mean sea level rise was of the order of 1.3 mm/year, with subsequent acceleration to 3.3 mm/year from 1993–2002 and 4.7 mm/year from 2013 to 2021. The superposition of various 'fingerprints' from larger and smaller scale processes, along with the additional impact of local natural and anthropogenic changes, creates a highly complex pattern of regional and local sea-level rise[2].

- Risks from sea level rise for coastal ecosystems and people are very likely to increase tenfold well before 2100 without adaptation and mitigation action as agreed by Parties to the Paris Agreement. Sea level rise under emission scenarios that do not limit warming to 1.5°C will increase the risk of coastal erosion and submergence of coastal land, loss of coastal habitat and ecosystems, and worsen salinization of groundwater, compromising coastal ecosystems and livelihoods around the world[3].

- Live coral cover on reefs has nearly halved since the 1870s, with the rate of decline most pronounced over the past two to three decades due to increased ocean acidification and water temperature, while seagrass meadows decreased in extent by over 10 per cent per decade from 1970 to 2000.

- Coastal areas are suffering too – global mangrove coverage has declined by roughly 40 per cent, while saltmarsh coverage has declined by an estimated 60 per cent. Climate change is also putting at risk 40 per cent of the world's population who live in coastal areas and/or rely on the ocean for their livelihood and food security. This is, particularly the case in developing countries where coastal communities are recognized to be among the most vulnerable to climate change.

- In order to achieve a system transformation for the ocean and coastal zones, change must occur in four areas: (1) Nature-based Solutions; (2) Aquatic Food production; (3) Zero-emission shipping; and (4) Ocean Renewable Energy.

- Innovative climate adaptation approaches that integrate both technology and nature-based solutions offer potential to be more robust, comprehensive and cost-effective than either solution alone. However, despite the pressing adaptation needs of coastal and island communities, knowledge, capacity, and financing gaps and challenges prevent the widespread implementation and mainstreaming of these integrated approaches[4].

- The aquatic food sector is efficient, has less impact on the environment and emits lower GHG emissions than land-based animal production systems[5]. The FAO's Blue Transformation vision highlights the role of aquatic food systems to support the provision of sufficient aquatic food for a growing population in an environmentally, socially and economically sustainable manner; ensure the availability and accessibility of safe and nutritious aquatic food for all, especially vulnerable populations, and reduce food loss and waste; ensure that aquatic food systems contribute to improving rights and incomes of dependent communities to achieve equitable livelihoods; and support resilience in aquatic food systems, which are highly influenced by dynamic human and environmental processes, including from climate change[6].

- The ocean plays a major role in the renewable energy sector, with offshore wind costs having declined 48 per cent in the past decade[7]. Yet, in order to reach the Paris Agreement targets, the global cumulative installed capacity of offshore wind power would need to increase almost ten-fold by 2030 (to 228 GW) and substantially towards 2050, with total offshore installation nearing 1,000 GW by 2050[8].

- The improved protection and management of coastal blue carbon ecosystems can reduce current total carbon emissions by up to two per cent. However, due to urban and industrial coastal development, pollution and pressures from agriculture and aquaculture, 20-50 per cent of global blue carbon ecosystems have already been lost or degraded. While it is possible to note a reduction in the loss of mangroves, currently at 0.11–0.13 per cent annually, new findings have identified unacceptably high rates of losses salt marshes, at 1-2 per cent annually, and an even more dramatic loss of seagrasses, at 2-7 per cent annually, due to pollution of coastal waters and destructive fishing practices[9].

- Under business as usual projections, the emissions from the shipping sector are projected to increase by 50 per cent over 2018 levels by 2050, which is equal to a 90-130 per cent increase over 2008 levels[10].

- The Ocean and Climate Change Dialogue 2022, mandated by Parties at COP 26, was held in June 2022 during the 56th Subsidiary Bodies session (SB 56). It featured Parties and non-Party stakeholders in discussions about how to strengthen and integrate national ocean climate action under the Paris Agreement and how to enable ocean climate solutions and support, including financial support. The summary report lists the key messages from the dialogue.

WHAT'S HAPPENING ON THE GROUND:

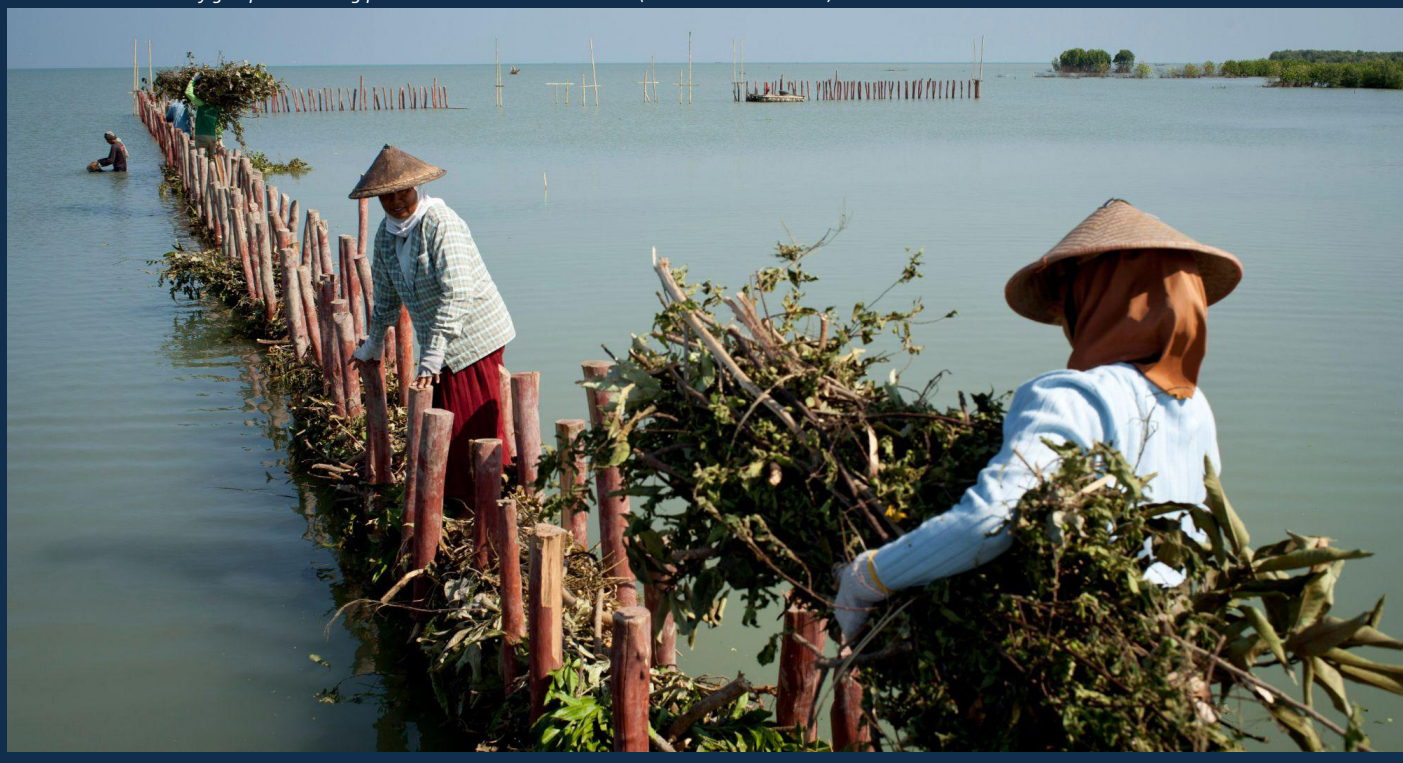
BLUE NATURAL CAPITAL IN PRACTICE
WHERE: GLOBAL

Blue Natural Capital Financing Facility (BNCFF) supports the development of sound, investable Blue Natural Capital projects with clear ecosystem service benefits, based on multiple income streams and appropriate risk-return profiles. So far, BCNCFF has supported 10 projects around the world, leveraging more than USD 5 million for investment into commercially viable and resilient coastal businesses. These projects include, among others, sustainable shrimp farms in Indonesia, mangrove eco-tourism in Belize and sustainable seaweed farming in the Philippines.

BUILDING WITH NATURE IN INDONESIA - RESTORING AN ERODING COASTLINE AND INSPIRING ACTION AT SCALE
WHERE: DEMAK, INDONESIA

The Building with Nature Indonesia project restored 20km of eroded coastline in Demak by enabling the natural regrowth of 19 hectares of mangroves along the coast and rivers by trapping sediment and converting aquaculture ponds into mangroves. The project also ensured the better protection of another 60 hectares of mangroves and introduced mangrove-friendly aquaculture practices. This enhanced coastal security for more than 10,000 people. Projects such as these are a win for nature, communities and economies: the project meets local needs while providing benefits in areas such as fisheries, carbon sequestration, recreation and biodiversity. Restored mangroves along coasts and rivers reduce the force of waves and hold sediment in place, helping to delay land loss and subsidence. Engineers were inspired to embrace nature and communities as strong allies in coastal rehabilitation. The social cohesion within and among coastal villages in Demak increased, and their voices are now heard in policy dialogues for support for mitigation and adaptation measures.

A community group constructing permeable structures in Indonesia (Wetlands International)



HUMAN SETTLEMENTS

The Pathway vision for 2050 is for all human settlements to be decarbonized, healthy places that are affordable and accessible, where people lead lives compatible with a 1.5 °C world and have radically changed their consumption patterns. Buildings and construction have net-zero emissions across the whole life cycle, cities conserve resources, are zero waste, and have social equity at the heart of climate action. Human settlements protect their citizens and economies by implementing climate-resilience strategies and facilitating adaptation efforts in all activities. All policy and investment decisions are considered under a climate change mitigation, adaptation and resilience lens, and cities adopt a cross-sectoral and integrated approach when undertaking upgrades to and/or new developments in city infrastructure.

The action milestones in this sector include:

- For 100 per cent of built environment projects due to be completed in 2030 or after to be net-zero carbon in operation (with at least 40 per cent less embodied carbon compared to current practice) so that 100 per cent of projects (new and existing) are net-zero carbon across the whole life cycle by 2050.
- For 20 per cent of global air-conditioner (AC) manufacturers to produce affordable residential AC units that have five times less climate impact than today's units by 2025, so that all residential AC units are net zero by 2050.

WHERE WE ARE AND WHERE WE NEED TO BE:

- GHG emissions from buildings stem primarily from the energy used for space heating and cooling, water heating, lighting, cooking, and powering appliances. Although the energy intensity of building operations (energy use per unit of floor area) declined during the 2000s and early 2010s, progress has slowed in recent years.
- Of the three indicators in the SoCA 22 report, none are moving in the right direction. There is only sufficient data for one indicator (energy intensity of building operations) although it is well off track. The remaining two indicators (carbon intensity of building operations; retrofitting rate of buildings) have insufficient data, although the available evidence suggests these indicators are also severely lagging.
- Globally, the energy intensity of building operations decreased by 20 per cent from 2000 to 2015 and another two per cent from 2015 to 2019[1]. However, increased demand for electricity now outpaces some of the earlier improvements made in energy efficiency, partly driven by extreme hot weather and consequent demand for cooling[2]. To achieve 2030 targets, gains made from 2015 to 2019 would need to accelerate by a factor of five for commercial buildings and seven for residential buildings.

- Although the carbon intensity of buildings has declined since 2000, the pace of this decline is insufficient to counteract increases in floor area, which rose on average by 2.5 per cent per year. As a result, CO2 emissions from buildings continued to rise[3].

- The necessary transition toward highly efficient and electrified buildings is advancing only slowly, despite the widespread availability of required technologies and know-how. Existing buildings also need to be retrofitted to meet the same zero-carbon standard. Retrofitting rates are currently less than one per cent per year[4], well below the 2.5 to 3.5 per cent per year needed by the end of the decade.

- In a world where climate change causes higher average temperatures, with impacts on health and the ability to work, cooling needs will become particularly important. AC sales have grown rapidly in recent years. Installing highly efficient air conditioning equipment is essential to limit the growth in energy demand caused by the increase in active cooling[5]. The energy needed to cool spaces can be reduced or eliminated through passive cooling measures, including insulation, reflective surfaces, shading, green infrastructure, and natural ventilation[6].

- There are a number of barriers to making buildings more energy efficient, including: a lack of incentives for adopting energy efficiency measures, high up-front costs and financial risks, the complexity of the decision-making processes, competing priorities for key actors (such as landlords and tenants), and a lack of skills and training. Many of these challenges can apply to the same building, and there is no single solution that can address all challenges. However, regulation of energy demand and the carbon intensity of energy use in buildings is the most important policy instrument to decarbonize buildings[7].

- There is still significant potential for building regulations to improve energy and carbon intensities in most countries. This potential could be tapped by making existing regulations more stringent; expanding the coverage of regulations to more countries, including existing buildings as well as new buildings; and mandating fossil-free energy sources and reductions in energy demand[8].

- Direct financial support from governments in the form of grants and tax rebates can kickstart the uptake of new zero-carbon technologies in buildings by lowering overall consumer costs[9]. Fiscal instruments, such as removing fossil fuel subsidies or changing tax structures, can incentivize a shift to zero-carbon technologies[10]. Investment in building energy efficiency is growing. It rose 40 per cent between 2015 and 2018, from USD 129 billion to USD 180 billion. Most of the increase came from a few European countries, however, and these investments need to increase globally to meet energy intensity targets[11].

- To implement climate action that improves city-wide waste management, 21 C40 member cities and 6 non-C40 member cities and states signed the C40 Advancing Towards Zero Waste Declaration. C40 published a report in February 2022 showcasing the progress of the 21 cities, which revealed the action all signatory cities are taking to restrict single-use items such as plastic bags or coffee cups, and how they are moving towards segregate collection[12].

WHAT'S HAPPENING ON THE GROUND:

CLIMATE ADAPTIVE AND GREEN URBAN INFRASTRUCTURE FOR LOW-INCOME SETTLEMENTS WHERE: BANGLADESH

In response to inadequate infrastructure, and the low adaptive capacity of people in informal settlements in Bangladesh, BRAC has worked since 2016 on low-cost climate resilient housing models and green infrastructure in the areas most vulnerable to climate change. The infrastructure designs consider four major vulnerabilities: strong wind, salinity intrusion, waterlogging, and heat stress. The projects use ferro-cement technology and recycled brick for reduced carbon emission, and also have a needs-based provision for renewable energy and rainwater harvesting. BRAC also focuses on tree planting and climate adaptive agriculture in urban spaces as part of promoting green infrastructure in 20 cities. BRAC has also provided agriculture support to more than 43,000 households in informal urban communities in 20 cities and municipalities across Bangladesh.

Low cost climate resilient housing in Bangladesh

BUILDING RESILIENCE OF INFORMAL SETTLEMENT THROUGH NATURE-BASED SOLUTIONS WHERE: MALAWI

The Centre for Community Organisation and Development (CCODE), partnered with the Federation of the Rural and Urban Poor and Lilongwe City Council to set up a variety of biodiversity and nature-based solutions in Lilongwe, the Malawi capital. The action piloted Nature-based Solutions in informal settlements upgrading and climate change resilience building through improving the capacity of local-level structures and communities, restoring vegetative cover and improving waste management. Community waste management systems were set up in informal settlements where the city does not collect waste, which created 90 green jobs for vulnerable communities. The project also restored 16 km of the Lilongwe and Mchesi Rivers, and planted 5,000 trees. Vegetative cover along both rivers was also restored, which will reduce the effect of localized flooding. The projects have significantly reduced flooding, the pollution of water sources and biodiversity, and consequently, have helped reduce property loss, human suffering and the degradation of the environment along the banks of the Mchesi and Lilongwe Rivers.

INDUSTRY

The Pathway vision is for industries to generate emissions in line with what the natural world can safely process by 2050, while providing a dramatically improved quality of life for citizens, and for communities and industries to have become more resilient to climate impacts and other natural disasters, due mostly to local renewable electrification and supply chain redundancies. Due to the complexity of this sector, this Pathway is divided into two main sections: Heavy Industry (including aluminium, cement, chemicals, plastics, steel, and metals and mining sectors); and Light Industry (retail, consumer goods, fashion, mobile and information and communications technology).

The action milestones in this sector include:

- 43 per cent of aluminium production to come from recycling and 35 per cent of all aluminium plants to be low carbon by 2030;
- Over 20 cement plants fitted with Carbon Capture Utilizaton and Storage (CCUS), delivering 130 million cubic metres of cement. Carbon intensity per ton of cement produced is reduced from 616 (2020 baseline) to at least 463 kg CO2/t cement by 2030;
- In mining, by 2030, a 60 per cent reduction in operational emissions, while growing output of critical materials (up to five times), ensuring highest environmental, social and governance standards;
- 70 (near) zero emission steel plants operational by 2030, producing well over 100 Mt of green steel per annum;
- 60 per cent of global chemicals sector electricity use from renewable sources by 2030 plus at least 50-120 Mt of near zero emissions ammonia produced;
- For 100 per cent of plastic packaging to be reusable, recyclable, or compostable by 2025 so that 100 per cent of industry electricity use is decarbonized by 2040;
- The consumer goods industry halves the emissions of company products and retailers halve the environmental impact of shopping baskets;
- For at least 25 per cent of raw materials used in the fashion industry to come from lower climate impact sources by 2025 so that reductions in GHG emissions related to textile fiber and materials production are consistent with net zero industry emissions by 2050;
- For 70 per cent of mobile and 80 per cent of Information and Communications Technology industry electricity use to be decarbonized by 2030 so that it is fully decarbonized by 2040;
- For over 50 new CCUS networks serving heavy industry to reach Final Investment Decision by 2026, totaling 400 Mtpa in new capacity, so that heavy industries achieve net-zero emissions by 2050 and the global electricity system is fully decarbonized by 2040.

WHERE WE ARE AND WHERE WE NEED TO BE

- Direct GHG emissions from industry – which encompasses construction, the production of materials like cement, steel, and chemicals, and the manufacturing of a wide range of other goods – represented nearly a quarter of global emissions in 2019[1]. Decarbonizing industry, then, must play a critical role in limiting warming to 1.5°C.

- Of the four indicators examined by SoCA 2022, one is headed in the right direction but off track (share of electricity in the industry sector's final energy demand), two are well below the required pace (carbon intensity of global cement production; green hydrogen production). And one needs a U-turn entirely (carbon intensity of global steel production).

- Transforming industry to achieve deep GHG emissions reductions is possible, but it will require significant interventions, as well as the participation of a wide range of actors to maximize energy efficiency, achieve circularity in production and consumption, electrify industrial heat, and develop new fuels, feedstocks, and technologies to decarbonize industrial processes that cannot easily be electrified – particularly those in the system's highest-emitting industries: cement and steel.

- One area that can help reduce emissions is energy efficiency. Yet, while innovations have helped reduce carbon intensities in developed countries, these innovations have yet to be deployed in a meaningful way in developing countries.

- Emissions within the industry system can also be reduced by increasing electrification of low- and medium-heat processes – a strategy that is only effective in decarbonizing industry when implemented alongside those that reduce the carbon intensity of power generation. Technologies that can help increase the electrification of low- and medium-heat processes are already commercialized and readily available for adoption. McKinsey, for example, estimates that electricity could replace almost 50 per cent of fuel in industry by adopting existing, best-in-class technologies[2].

- The carbon intensity of steel production has remained steady over the past five years, declining by one per cent annually between 2015 and 2018 and then rising by two per cent annually from 2018 to 2020. Should this average rate of change between 2016 and 2020 continue unabated, the carbon intensity of global steel production will keep rising, placing 1.5°C-aligned targets for both 2030 and 2050 further out of reach.

- Hydrogen is in demand across industry, including in steel production and in other processes that require high amounts of heat and generate process emissions. So far, hydrogen production has relied on fossil fuels, such as methane gas. Green hydrogen — a zero-carbon fuel which is produced through electrolysis using clean electricity — offers an alternative and can be used to decarbonize high-heat processes and reduce process emissions in industry where electrification is not possible. But as an emerging technology that has yet to reach widespread adoption, accounting for just 0.03 per cent of hydrogen production in 2020[3]. Scenarios aligned with limiting global temperature rise to 1.5°C require green hydrogen use to grow rapidly, reaching 81 Mt in 2030 and 320 Mt in 2050[4].

- Despite the growing number of initiatives in the steel sector, there is no single, authoritative forum in which countries representing the majority of global steel production coordinate on key elements of the transition. The government forum with the highest share of steel production is the Organisation for Economic Cooperation and Development (OECD) Steel Committee, whose members represent 45 per cent of global steel production and 75 per cent of steel exports (including several non-OECD members) and is increasingly focusing on the transition to near-zero emission steel[5]. There is an opportunity to reinforce this international landscape of collaboration on the steel sector's transition to low emissions. This can be done by facilitating ongoing strategic

discussions to coordinate international activity across this agenda, by crowding-in more countries and companies to the most critical initiatives, by strengthening join-up between public and private initiatives and by plugging key gaps in the landscape where they exist.

- As in steel production, process emissions in cement production are also responsible for more than half of cement's carbon emission intensity (about 60 per cent), a figure which has decreased only marginally in recent years. Cement companies could, in theory, reduce or even eliminate these GHG emissions by producing ordinary novel cement using materials that generate significantly lower or no process emissions. To date, however, novel cement has struggled to enter the market due to various barriers. These include the domination of several companies that are reluctant to take the lead in developing new products; little economic incentive to reduce emissions from the industry in the short term; slow processes for updating concrete standards; the construction industry's skepticism about new cement being able to serve the same function as ordinary cement and meet industry standards; and higher cost for buyers.

- Due to various technological and economic challenges associated with eliminating process emissions, decarbonizing industry will likely require significant amounts of CCUS. Technological options for decarbonizing cement production are limited, and raw material availability may constrain the potential of alternative cements. Most decarbonization pathways suggest that cement production, then, will to a large extent rely on CCUS retrofits.

WHAT'S HAPPENING ON THE GROUND:

PENSION FUND ADOPTS NEW AND STRENGTHENED FOSSIL STRATEGY WHERE: DENMARK

The Danish pension company, AP Pension, revised its fossil fuel policy earlier this year, ensuring the company's USD 23 billion fund will only be invested in fossil fuel firms on a net-zero pathway and aligned with the Paris Agreement. The strategy includes the following exclusion criteria: coal companies are excluded if they have more than 5 per cent revenue from the extraction of thermal coal or have expansion plans; utility companies are excluded if they have more than 25 per cent revenue from energy production with thermal coal or they have expansion plans; fossil companies are excluded if they have more than 5 per cent revenue from the extraction of tar/oil sands; oil and gas companies are excluded if they have more than 20 per cent revenue from upstream activities. Fossil companies which are assessed to have taken significant steps but cannot yet demonstrate a transition compatible with the Paris Agreement will be placed on AP Pension's observation list.

FINANCE

- The Pathway vision for this sector is that, by 2050, financial markets, institutions and systems are in place to support and fund a resilient zero-carbon economy and society, ensuring that temperature rise remains limited to 1.5°C. There is already growing ambition and action from leading financial institutions but unlocking systemic change will require further scaling of these commitments and enhancing coordination between all finance sub-sectors.

The action milestones in this sector include:

- For major asset managers to set and achieve targets for assets under management aligned with net zero by 2050, with a commitment to interim targets and to at least halve emissions by 2030, so that all client portfolios are fully net zero by 2050;
- For major asset owners to set and achieve five-year (2025 and 2030) targets for net zero-aligned portfolios covering emissions reduction, engagement on sector transition, policy advocacy and financing transition, so that all portfolios are fully net zero-aligned by 2050;
- For systemically important banks to set and achieve 2030 targets for net-zero emissions from all activities and portfolios by 2050, so that all activities are net zero by 2050;
- For major insurers to set and achieve five-year (2025 and 2030) targets for net zero aligned investment, insurance and reinsurance underwriting portfolios, so that all investment, insurance and reinsurance underwriting portfolios are net zero by 2050.

WHERE WE ARE AND WHERE WE NEED TO BE:

- Transforming power, buildings, industry, transport, agriculture, and land use, as well as scaling up technological carbon removal, all require significant shifts in financial flows[1]. Yet the global financial system is a major underwriter of GHG emissions and carbon lock-in, with many of the world's leading financial institutions investing in fossil fuels, commodities that drive deforestation, and other activities that will put the Paris Agreement's 1.5°C target out of reach.
- While the total global flow of climate finance reached USD 640 billion in 2020, total global investment in fossil fuels was estimated at USD 726 billion the same year, 13 per cent more than the total tracked climate finance[2]. The total amount of global climate finance would need to increase more than eightfold to reach the SoCA 2022 indicator target of USD 5.2 trillion per year by 2030. This equates to an average increase of USD 458 billion per year between 2020 and 2030, which is more than 10 times the historical rate of increase.
- Of the six indicators in the SoCA 2022 report, all remain well off track, including: global total climate finance; global public climate finance; global private climate finance; share of global emissions under mandatory corporate climate risk disclosure; median carbon price in jurisdictions with pricing systems; and total public financing for fossil fuels.
- Despite global public climate finance flows amounting to USD 300 billion in 2020 - an average growth of USD 15 billion per year between 2016 and 2020[3] – total funds would need to increase more than tenfold to reach the USD 2 trillion per year target set in SoCA 2022 by 2030. This

requires an average growth of USD 170 billion per year between 2020 and 2030, more than 10 times faster than recent increases.

- Private finance comprises the largest share of the global economy but is not yet aligned with climate goals. Global private climate finance flows from financial institutions, institutional investors, corporations, and households amounted to USD 340 billion in 2020[4]. Private climate finance grew by an average of USD 23 billion per year between 2016 and 2020. Although heading in the right direction, current efforts remain well off track, and private climate finance will need to grow more than 11 times by 2030 to reach USD 3.3 trillion per year (full range: USD 2.62-3.92 trillion per year) target for 2030 set by SoCA 2022. This requires an average growth of USD 290 billion more each year between 2020 and 2030, over 10 times faster than historic growth rates.

- Disclosure of climate-related risks can help align private sector financial flows with 1.5°C pathways by enabling corporations, investors, and regulators to correctly assess and price those risks, as well as factor them into their decision-making and net-zero planning. Several countries and jurisdictions, including Brazil, the European Union, Japan, New Zealand, and the United Kingdom, have announced plans or issued proposals for mandatory climate disclosure[5]. Most of the disclosure requirements have been based on the Task Force on Climate-Related Financial Disclosures (TCFD) framework, which has become the standard framework for climate-related financial disclosures[6]. Disclosure of climate risks is still mostly done on a voluntary basis, with inconsistent quality that is not fully aligned with the TCFD's recommended disclosures[7]. As of April 2022, the number of jurisdictions with mandatory climate-related disclosures has grown to four, including France, Singapore, Japan, and the United Kingdom[8]. These countries correspond to about four per cent of global emissions. It is expected that by the end of 2022, a total of eight jurisdictions will have mandatory requirements, including Brazil and India, presenting about 20 per cent of global emissions.

- Climate change has been called "the greatest and widest-ranging market failure ever seen," with a wide range of economists arguing that market prices do not properly account for the costs of the damage that rising GHG emissions inflict upon communities around the world[9]. Putting a sufficiently high price on carbon sends a market signal that can help shift investment and consumption decisions in a way that contributes to reducing emissions to a level compatible with a 1.5°C pathway[10]. Carbon pricing through a carbon tax or an emissions trading system covered 23 per cent of global GHG emissions in 2022, only a slight increase from the 2021 coverage of 21.5 per cent[11]. Just four per cent of global emissions are currently covered at or above the USD 40–USD 80/t CO_2e range that is currently estimated to be consistent with a 2°C pathway, and no countries are pricing at the target minimum of USD 170/t CO_2e required by 2030 to be consistent with a 1.5°C pathway[12].

- Global public financing for fossil fuels has fallen by an average of USD 15 billion per year between 2016 and 2020 but needs to fall by an average of USD 69 billion per year between 2020 and 2030 for it to be phased out by 2030, almost five times the historic rate of decrease.

- Although global fossil fuel subsidy data for 2021 and 2022 are not yet available, fossil fuel production and consumption subsidies in 51 major economies covering 85 per cent of the world's energy supply nearly doubled from 2020 levels to USD 697 billion in 2021, 17 per cent above 2019 levels[13]. Fossil fuel capital expenditure by G20 state-owned entities has fluctuated but has not shown signs of lasting decline and was slightly higher in 2019 than in 2013[14]. The only area with a clearly positive trend is fossil fuel financing by Multilateral Development Banks and G20 countries' public finance institutions, which has fallen by nearly half in the past five years from a high of USD 119 billion in 2016[15].

- In developing countries, investments into fossil fuels are three times greater than investments into renewable sectors. In Africa, USD 37 Billion of government subsidies was spent on fossil fuels in 2019 and 2020, while between 2016 and 2021 USD 29 Billion went into fossil investments. Over the same period, only USD 9.4 Billion was spent on renewables[16].

- When it comes to finance, the key barrier is not a shortage of funds, but rather how they are allocated[17]. Capital is concentrated in the hands of relatively few individuals and entities, who are currently misallocating it to high-emissions activities. These resources could be used to meet urgent climate investment needs.

- International institutional structures also place barriers to increasing climate investment. International financial institutions could be more accommodating of governments spending more on climate action, both through the policy advice they offer and by facilitating additional financing for poorer countries[18]. Countries with high debt levels and/or poor credit ratings may struggle to raise additional resources through further debt issuance, and indeed climate impacts are already raising the cost of capital for vulnerable countries[19]. Debt relief and reform of international capital markets can improve governments' ability to raise public finance through borrowing[20].

- Net-zero alliances have made progress towards the breakthroughs in the finance sector. This work includes:

    1. Asset managers: Major asset managers are setting inaugural interim targets, with the Net Zero Asset Managers Initiative comprising 273 signatories with USD 61.3 trillion in assets under management, as of October 2022.

    2. Asset owners: Major asset owners have set and are making progress towards interim net zero targets. The Net Zero Asset Owner Alliance has 74 members with USD 10.6 trillion in assets under management, and two thirds of those are assets are held by members who have set intermediate net zero targets. 56 asset owners have made a net zero commitment through the Paris Aligned Investment Initiative, representing USD 3.4 trillion in assets under management.

    3. The Net Zero Banking Alliance has 119 members, representing 40 per cent of global banking assets and is working towards setting interim net zero targets.

    4. Banks: Insurance: The Net Zero Insurance Alliance has more than 29 insurers, representing more than 14 per cent of world premium volume globally, and is working towards setting interim net zero targets.

THE ROLE OF GFANZ

The Glasgow Financial Alliance for Net Zero (GFANZ) is a global coalition of seven sector-specific alliances, representing over 550 signatories across more than 50 countries, who have voluntarily made ambitious science-based, sector-specific commitments, in support of net zero. GFANZ is committed to accelerating and mainstreaming the decarbonization of the global economy to reach net-zero and acts as a forum for addressing pan-financial sector challenges associated with the net-zero transition and helps to support high levels of ambition and credible action.

During 2022, GFANZ has organized its work around three core pillars: Net-zero Transition Plans, Mobilizing Capital to emerging markets and developing economies (EM&DEs) and Net-zero Public Policy. Key developments include:

Net-zero Transition Plans: GFANZ has developed a common, pan-sector framework for credible net-zero transition planning. The framework is underpinned by the view that delivering on net-zero commitments is only possible if transition planning aligns finance and related services with the reduction of GHG emissions in the real economy. To that end, GFANZ has identified four key financing strategies that define transition finance. Aligning strategy and decision making to scale the four key financing strategies is essential. GFANZ commissioned BloombergNEF research that examined what different 1.5°C scenarios mean for energy investment. The research estimates that by 2030, clean energy investment needs to scale so that for every dollar maintaining necessary fossil fuel energy capacity, at least four are invested in the clean energy infrastructure.

Mobilizing Capital to EM&DEs: For net-zero transition to be successful, it requires a truly global effort. Throughout 2022, GFANZ has worked to support public-private efforts to mobilize climate finance in support of just transition in a number of EM&DEs to economies with clean, affordable, and accessible energy. GFANZ has convened private sector working groups in support of the Indonesia and Vietnam Just Energy Transition Partnerships and the Egyptian Nexus on Water, Food and Energy platform. GFANZ also launched the Africa and Asia-Pacific regional networks to support engagement with financial institutions and policymakers and to ensure its work on net zero is inclusive and applicable to all.

Net-Zero Public Policy: Action by financial institutions, while critical, is no substitute for action by government and certain responsibilities cannot be shifted to finance. In 2022, GFANZ has continued to advocate for the wider reforms needed to align the financial system to net zero while ensuring an orderly and just transition. Ambitious, credible national government transition plans are needed now if the world is to avoid a disorderly transition.

WHAT'S HAPPENING ON THE GROUND:

ADAPTA2+ - AN EXAMPLE OF LOCAL LED ADAPTATION IN COSTA RICA WHERE: COSTA RICA

Adapta2+ is a programme that helps vulnerable populations in Costa Rica implement solutions to face the impacts of climate change, such as warming temperatures, longer dry periods and increasing rainfall intensity that have placed agricultural production, water resources, and natural coastal areas at risk. The programme has helped improve the resilience of around 50,000 people through investments in agriculture, water resource access, coastal areas and capacity building.

The programme addresses vulnerability in these critical sectors by working directly with local stakeholders to promote tailored, effective adaptation interventions, technical assistance and training that improve climate resilience. Local-led adaptation has been a key factor in the programme's success, with more than 40 organizations implementing actions at the local level along with more than 200 stakeholders. The program has also strengthened access to climate finance for nature-based adaptation investments.

So far, more than 1,000 farmers have implemented adaptation measures and smart agricultural and land management practices that focus on water and soil conservation. Around 50 hectares of aquifer recharge areas have been reforested, and community coastal reforestation programs have been established. Around 25 hectares of mangrove have also been reforested, while around 100 community-based water management organizations have implemented water infrastructure improvements, which has resulted in more than 40,000 people improving their water supply.

RESILIENCE

The Pathway vision is that, by 2050, we all live in a 1.5°C warmer world where all regions, countries, cities, businesses, communities and individuals thrive in the face of multiple risks, uncertainty and threats posed by climate change. Where cities, industrial communities and informal settlements have become healthy, safe and thriving spaces that support resilient livelihoods, having achieved urban resilience; where smallholder farmers, rural entrepreneurs, and industries across food and agriculture supply chains are adaptive, equitable, and equipped to thrive in the face of climate change whilst protecting nature, having achieved rural resilience; and where coastal and riverine cities, communities and businesses through increased investment in adaptation and resilience and protection of natural ecosystems safeguard and support those livelihoods and economies, having achieved coastal resilience.

Adaptation refers to the process for human and natural ecosystems to adjust to actual or expected climate and its effects in order to moderate harm or exploit potential benefits. Adaptation is needed to ensure the safety of populations and the security of assets. Resilience is the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation.

The action milestones in this sector include:

- Climate-resilient, sustainable agriculture increases yields by 17 per cent without expansion of the agricultural frontier, improving livelihoods including those of smallholder farmers.
- The share of food production loss and per capita food waste is halved (relative to 2019), increasing food security.
- The Protection of 45 Mha of land and inland waters; 2 billion hectares (Bha) of land is sustainably managed and 350 Mha of land is restored, securing indigenous rights and local communities with the use of nature-based solutions to improve water security and livelihoods.
- Financial institutions tap into nature-based solutions investment opportunities of USD 354 billion per year needed by 2030. By 2025, financial institutions eliminate commodity-driven deforestation from portfolios contributing to halting land conversion.
- One billion people have better design, construction and access to finance in order that they can live in decent, safe, affordable and climate-resilient homes.
- Three billion people have access to smart and early warning systems.
- USD 4 billion invested to secure the future of 15 Mha of mangroves globally, through collective action on halting mangrove loss, restoring half of recent losses and doubling protection of mangroves globally. Sustainable long-term finance for all existing mangroves leads to increased resilience of coastal communities to storms and enhanced livelihoods.
- A diverse set of clean and climate-resilient energy generation sources enable affordable access to electricity for 679 million people who lack it and higher quality access for 1 billion underserved people.

- 2.2 billion people access low-cost, clean vehicles and mobility solutions through the expansion of affordable and resilient public and private transport services.
- 10,000 cities have evidence-based, actionable adaptation plans.
- Global property and casualty insurance sectors have an industry capabilities framework, actively support project implementation, and institutionalize a longer-term industry approach to climate adaptation.

WHERE WE ARE AND WHERE WE NEED TO BE TO REACH THAT GOAL

- The impacts of climate change are being felt everywhere, from unprecedented cyclones and hurricanes to deadly heat waves, wildfires and floods. The compelling scientific evidence of the growing impacts of climate change across all sectors means that business-as-usual is no longer an option.
- 80 per cent of cities globally faced significant climate hazards – from extreme heat to floods – in 2022, while 25 per cent of cities expect to experience more intense and frequent high-risk climate hazards by 2025[1].
- Climate resilient development can happen when governments, civil society and the private sector make inclusive development choices that prioritise risk reduction, equity and justice, and when decision-making processes, finance and actions are integrated across governance levels, sectors and timeframes. Climate resilient development is facilitated by international cooperation and by governments at all levels working with communities, civil society, educational bodies, scientific and other institutions, media, investors and businesses[2].
- Experience shows that climate resilient development processes are timely, anticipatory, integrative, flexible and action focused. Common goals and social learning build adaptive capacity for climate resilient development. When implementing adaptation and mitigation together, and taking trade-offs into account, multiple benefits and synergies for human well-being as well as ecosystem and planetary health can be realised. Prospects for climate resilient development are increased by inclusive processes involving local knowledge and Indigenous Knowledge as well as processes that coordinate across risks and institutions. Climate resilient development is enabled by increased international cooperation including mobilizing and enhancing access to finance, particularly for vulnerable regions, sectors and groups[3].
- Integrated, inclusive planning and investment in everyday decision-making about urban infrastructure, including social, ecological and grey/physical infrastructures, can significantly increase the adaptive capacity of urban and rural settlements. Equitable outcomes contribute to multiple benefits for health and well-being and ecosystem services, including for indigenous peoples and marginalised and vulnerable communities. Climate-resilient development in urban areas also supports adaptive capacity in more rural places through maintaining peri-urban supply chains of goods and services and financial flows. Coastal cities and settlements play an especially important role in advancing climate-resilient development[4].
- We need to simultaneously muster efforts behind adaptation and resilience outcome targets because millions of people globally are already experiencing the economic, social and ecosystem impacts of climate change. In 2021 alone, extreme weather driven by climate change caused more than USD 170 billion in damages[5].

- Urgent action is needed now at an unprecedented pace and scale. Global adaptation action and finance are growing - but not fast enough, not equally across geographies, and mostly come from the public sector. For example, 39 per cent of the average USD 29.5 billion in climate finance for Africa in 2019 and 2020 went towards adaptation. Yet just 3 per cent of those funds came from the private sector[6].

- Sixty-three per cent of cities are taking people-centred climate action, defined as an action where the needs of people are considered at the assessment, target-setting, planning and implementation stages. The benefits of this approach are clear: cities taking people-centred climate action identified seven times as many co-benefits to climate action as cities that did not take this approach (such as better protection for vulnerable people, better water quality)[7].

- Adaptation and resilience outcome targets can be achieved when multiple sectors and actors move together to deploy adaptation solutions and manage climate risks, mutually reinforce sectoral transformations, and enhance innovation on how finance, governance, policy and access to technology and information are delivered. When groups of actors across several sectors see each other working towards a common milestone, their actions and progress mutually reinforce to overcome obstacles and create increased action.

WHAT'S HAPPENING ON THE GROUND:

FAMILY INSURANCE FOR WOMEN PASTORALISTS IN KENYA'S ARID RANGELANDS
WHERE: KENYA

Social and economic systems in Africa's arid rangelands are dominated by pastoralism, an agricultural livelihood based on livestock. Pastoralist households face additional hardship when more frequent and severe droughts threaten their livestock, their primary source of income. Women and children are particularly vulnerable in drought years when men are forced to range the family's livestock farther away in search of forage and may have little to send home, leaving women to support their children largely on their own. Family Insurance, first implemented as a pilot in 2021 in Kenya, releases payments to support a family's needs. This kind of insurance was designed with the needs of women in mind and provides a powerful means to support household resilience. The Family Insurance approach led to a 20 per cent increase in the number of families who bought insurance. Those who purchased this insurance increased the amount insured by 40 per cent.

THE LOCAL TECHNICAL AGROCLIMATIC COMMITTEES APPROACH IN LATIN AMERICA
WHERE: 11 COUNTRIES IN LATIN AMERICA AND THE CARIBBEAN

Local stakeholders and farmers in Latin America have limited access to agro-climatic information and/or the mechanisms to relate it to the impact that climate can generate at the local level. The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) has co-developed, tested, and scaled out the Local Technical Agroclimatic Committees (LTAC) approach to assess, co-produce, translate and transfer climate information to enable agricultural decision-making. Through LTAC, users access information about climate variations at multiple timescales, understand how these can affect crops, and design measures to reduce crop loss. More than 500,000 farmers were reached by a comprehensive climate risk management strategy of about 60 LTAC in eleven Latin American countries. The participatory nature and diverse composition of LTAC at the territorial level (i.e., public sector, NGOs-private sector, farmers-civil society, among other types of institutions) allowed the generation of a powerful governance structure for rural development and community-level resilience.

PART 2

Regionalizing Climate Action

Regional collaboration is a vital part of global climate action. Engaging stakeholders from under-represented regions is key to ensuring more balanced representation when it comes to global climate action and is an important priority of the High-Level Champions and the Marrakech Partnership. Reflecting this, the Champion's team has developed a new Africa team and is the most globally diverse it has ever been, which has allowed it to strengthen relationships to the Marrakech Partnership in key regions such as Latin America, and particularly in Africa. Throughout the year, they have worked with local stakeholders around the world to understand the needs and priorities of different regions and help mobilize further engagement, through two key platforms. It is clear that countries and communities who contribute the least to the climate crisis are both disproportionately affected by it and have the least resources to adapt to it. As part of this regionalization, and to ensure local needs are highlighted, the Champions are working towards achieving 2030 breakthroughs in specific regions, including Small Island Developing States (SIDS) and Africa. While the Champions have focused on Africa throughout the year, they will focus more on Asia-Pacific in 2023.

REGIONAL CLIMATE WEEKS

Regional Climate Weeks (RCWs) are conferences organized by the UNFCCC secretariat and partner organizations, where Parties and non-Party stakeholders can strengthen their responses to climate change at the regional level. They are collaborative platforms that allow governments and stakeholders to address climate issues together within a localized context. RCWs also enable regional stakeholders to have their voices heard and forge partnerships across countries. There have been three RCWs this year: the Middle East and North Africa Climate Week (MENACW 2022), Latin America and the Caribbean Climate Week (LACCW 2022) and Africa Climate Week (ACW 2022). Non-Party stakeholders played a big role in all three climate weeks, with the High-Level Champions and the Marrakech Partnership working to embed climate action at all levels of the private and civil sectors.

TOWARDS COP 27: REGIONAL FORUMS ON CLIMATE INITIATIVES TO FINANCE CLIMATE ACTION AND THE SDGS

The High-level Champions recognize the importance of both regionalizing climate action and mobilizing finance. Along with the United Nations (UN) Regional Commissions and the incoming Egyptian Presidency of COP 27, they organized a series of five regional forums: Towards COP 27: Regional forums on Climate Initiatives to Finance Climate Action and the SDGs. These forums brought together key stakeholders from the public and private sectors. With a focus on SDGs 7, 9, 13 and 17[iii] as vehicles for change, the five regional forums took a holistic approach towards financing the 2030 Agenda for Sustainable Development in the new global environment.

iii SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all. SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable. SDG 13: Take urgent action to combat climate change and its impacts.

These forums had a number of objectives, including:

- Facilitate engagement with a broad set of partners and stakeholders, to accelerate public and private investment in initiatives, platforms, and projects, and identify and encourage policy actions that correspond to the distinct needs of the five different regions to address climate change in a holistic manner and narrow the current gap in Paris-aligned financial flows.
- Identify and share climate finance and investment opportunities that also support the acceleration of access to clean energy, food security, and digital transformations, which remain key catalysts for the attainment of the SDGs.
- Highlight successful examples of countries leveraging investment opportunities for climate action as well as financial institutions and investors turning climate commitments into action and financial flows.
- Connect representative groups of development partners, governments, and private sector investors to discuss and advance initiatives that accelerate action towards the Paris Agreement goals and the 2030 Agenda for Sustainable Development.
- Help to establish a transparent process that allows developing countries to showcase their climate action plans and share specific projects with development partners and private sector financiers.

The forums focused on the practicalities of project pipelines, with over 400 projects reviewed and over 70 projects presented at the forums, across mitigation and adaptation. The projects were sourced from member States in collaboration with the UN Regional Commissions and the High-Level Champions. Private finance actors engaged positively on the projects, providing initial reflections and input on their needs as financiers. Partners such as IRENA participated and shared their efforts to build and accelerate the project pipeline.

A key output from the forum included a compendium, with illustrative projects from the regional forums, and an expanded regional list of projects.

Aligned with this work, the High-Level Expert Group on Scaling-Up Investment and Finance to Deliver on Climate Ambition and Development Goals, co-chaired by Vera Songwe and Nick Stern, provided recommendations on priorities for public and private sector finance. These recommendations, together with the insights from the regional forums, point the way to further action needed to scale-up finance in developing countries.

MIDDLE EAST AND NORTH AFRICA

Middle East and North Africa Climate Week 2022

Held in Dubai, United Arab Emirates, MENACW 2022 marked a return to in-person RCWs and was the first-ever RCW held in the region. It provided a platform for governments, cities, private sector leaders, financial institutions and civil society across the Middle East and North Africa to identify opportunities to enhance climate action.

More than 3,000 participants from 135 countries took part in 161 events, which aimed to create momentum towards regional progress; enable commitments and stronger NDCs; engage with the private sector through Race to Zero and Race to Resilience; and amplify the voices of regional stakeholders in the UNFCCC process.

For the High-Level Champions and Marrakech Partnership, MENACW 2022 provided an opportunity to embrace regionalization and elevate local actors as a core component of the five-year plan of the improved Marrakech Partnership and bring together regional Ministers and policymakers with local non-State actors to develop solutions together.

The event saw the launch of the 2022 Work Programme of the High-Level Champions and the Marrakech partnership and the introduction of Mahmoud Mohieldin.

Another important event was the Marrakech Partnership Regionalization Workshop, which examined ways to regionalize the five-year plan for the improved Marrakech Partnership and the 2022 Work Programme. The event featured discussions on the mobilization of non-Party stakeholders, regionalization, systems transformation, collaboration with national governments, tracking progress and credibility, and resilience.

The Marrakech Partnership Implementation Lab also took place in collaboration with the International Water Management Institute. The event featured national governments and non-Party stakeholders discussing how recycled water can support climate resilience and ensure water and food security in the region.

There were also events focusing on climate finance, specifically: 'Climate Finance in MENA Region: where we stand and the way forward,' and a session on mobilizing funds from capital markets to tackle climate challenges in the region. Both events highlighted the need for better flows of finance for adaptation, and the need to strengthen the capacity of national and sub-national actors and institutions through the sharing of expertise.

Regional Forum: Lebanon

At the fourth regional forum in Beirut, Lebanon, 28 projects from Western Asia were presented, representing a total investment of around USD 4.7 billion. Of this, around USD 4 billion in investment is for climate adaptation and resilience, around USD 600 million in investment is for climate mitigation, and around USD 60 million in investment is for mitigation, and adaptation and resilience.

AFRICA

Africa Climate Week 2022

Held in the Gabon capital, Libreville, ACW 2022 brought together more than 2,300 participants from governments, cities, multilateral organizations, the private sector and civil society, joining 176 events.

Africa is at the forefront of the climate crisis, and the event explored two key themes that are critical for Africa and indeed the world: striving for a global average temperature rise of 1.5°C and building a resilient future.

It was a crucial opportunity for the High-Level Champions and the Marrakech Partnership to build momentum for radical collaboration around climate action. The High-Level Champions emphasized their key priorities of a holistic approach, stronger focus on implementation, translating commitments into action, mobilizing finance and ensuring regionalization and localization.

As part of the improved Marrakech Partnership for enhancing ambition, the High-Level Champions and the Marrakech Partnership organized a **Marrakech Partnership Regionalization Workshop** to improve under-

standing of what action is needed on the ground in Africa. The event provided concrete evidence of progress of system transformation in the region and forward-looking opportunities for enhanced ambition, implementation, and collaboration between Parties and non-Party stakeholders which can contribute to the GST process. The workshop highlighted the fact that the work of the High-Level Champions and the Marrakech Partnership needs to adopt an inclusive, holistic, bottom-up, and needs-based approach, which supports indigenous people, local entrepreneurs, women and young people.

The **Implementation Lab on Waste management and circular economy**, organized with the leadership of ICLEI, focused on achieving sustainable waste management as part of a robust transition towards inclusive circular economies and climate-resilient communities. The event highlighted the fact that implementing sustainable waste management and moving to a circular economy can turn waste into both a resource and an opportunity for the African economy, and that women, young people and those working in informal sectors must be placed at the centre of this shift to ensure that they benefit from it.

Advancing Climate-Smart, Nature Positive and Nutritious Food Systems in Africa showcased initiatives that are being implemented or are implementation ready, and focused on the short- and long-term policy, finance actions and technical know-how needed to make food systems in Africa climate-smart, resilient, nutritious and nature-positive.

Gender Considerations in Climate Investment highlighted the importance of putting gender considerations front and centre when it comes to climate investment in adaptation and mitigation.

Unlocking Climate Finance as a Vehicle for Trade and Industrialization in Africa examined the state of climate action finance in Africa and showcased a variety of solutions. Hosted by the UNFCCC in collaboration with the Marrakech Partnership and the High-Level Champions, this session focused on priorities identified by both state and non-state actors for trade and finance as a vehicle to drive ambition in the region.

Accelerating Voluntary Carbon Markets in Africa to Unlock Progress for SDG7 focused on strengthening the integrity of carbon markets and urged corporations to invest in high-quality credits, both crucial to reaching net zero emissions by 2050.

Regional Forum: Ethiopia

The first regional forum took place in the **Ethiopian capital, Addis Ababa**, with 19 projects presented over the three-day event, covering a range of sectors from renewable energy and blue carbon accelerator funds to land restoration. Projects included in the final review – which highlighted an additional 17 projects in development – ranged from a Blue Carbon Accelerator Fund in support of the Great Blue Wall initiative, to the African Forest Landscape Restoration Initiative, a pan-African effort to restore 128 million hectares of degraded land by 2030. The forum also discussed the need for de-risking the business environment and policy frameworks for the investments needed in six vital areas: just energy transition; food security; carbon credit markets; digital transformations; the blue economy; and water and cities.

LATIN AMERICA AND THE CARIBBEAN

Latin America and the Caribbean Climate Week 2022

Held in the Dominican Republic's capital Santo Domingo from July 18-22, LACCW 2022 was another key step

on the road to COP 27. The event saw 1,700 in-person participants taking part in 169 sessions.

The week focused on engaging and empowering stakeholders to drive climate action across countries, communities and economies, and demonstrated how collaboration advances climate action, addresses social inequalities and encourages investment that is good for humanity and nature. Partnership building was a key aspect of the events, something which is necessary to solve the myriad pressing challenges the region faces.

The High-Level Champions hosted an event – **Collaborative Solutions for Non-State Action After Impact** – which focused on how businesses can increase resilience in collaboration with the communities they operate in. Participants examined the ways in which resilience discussions have shifted from a philanthropic to an investment perspective. The event also highlighted the hazards which businesses and communities in the region are exposed to as well as the solutions they have created to address them.

Another important event was the **Implementation lab: Resilience of Human Settlements and Marine Ecosystems in Coastal Zones.** This event identified the Latin American and Caribbean Resilience Breakthroughs and actions which will build the resilience of coastal human settlements and natural ecosystems in the region. These include identifying green, blue and grey solutions towards implementing infrastructure plans and accelerating financial flows for coastal resilience and mitigation.

The **Marrakech Partnership Regionalization Workshop** raised awareness of what the Marrakech Partnership does, and how it can strengthen opportunities for non-Party stakeholders to engage in the process and be more effective in their collaboration. The workshop also focused on raising ambition in the region within the framework of the Marrakech Partnership, and how to refine its tools in order to take local context into account.

Accelerating Finance to Enable a Net-Zero and Climate-Resilient Economy featured regional members of GFANZ, who showcased how financial institutions in the region are working towards providing the necessary mitigation and adaptation finance needed.

Regional Forum: Chile

The third regional forum took place in **Santiago, Chile** on September 1-2. The two-day event focused on financing sectors that will help facilitate the energy transition and climate resilience. A range of projects – from solar arrays to electric tuk-tuks – were presented. While financial institutions were interested in investing in some of the projects, it was clear that most of them were not in an investment phase. Key Caribbean actors presented both the challenges and opportunities faced when it comes to accelerating financing and improving regional resilience. Debt was highlighted as a challenge: many countries in the region are in more than 60 per cent of debt of GDP, leaving little fiscal space for greening the economic sector, financing energy transition and building adaptation and resilience.

ASIA PACIFIC

Regional Forum: Thailand

The second regional forum took place in **Bangkok, Thailand** on August 25. The event discussed ten climate projects across Asia and the Pacific – including financing NDCs, public-private partnerships on infrastructure, financing green grids and mobilizing green financing through capital markets – totaling USD 41.1 billion in

investment towards building climate mitigation, adaptation and resilience. The event also saw a focus on implementation and delivering urgent near-term action to build regional climate resilience, advance the 2030 Agenda and SDGs.

ENGAGEMENT WITH OTHER REGIONS

In addition to their focus on developing regions, the High-Level Champions also engaged with stakeholders in other regions.

Despite being responsible for only a tiny proportion of global carbon emissions, SIDS suffer most from the impacts of the climate crisis. The High-Level Champions believe that it is important to hear and amplify SIDS voices, and so Nigel Topping participated in the Innovation Finance Forum 2022, highlighting innovation and projects that are igniting hope in creating positive change for Pacific communities. In August, Nigel Topping took part in a high-level dialogue with SIDS in the Bahamas, where the focus was on supporting public-private action to deliver energy transition, supporting the blue economy, delivering capacity building and technology, and driving adaptation and resilience.

In September, the High-Level Champions and the UN Special Envoy for Climate Solutions, Michael Bloomberg hosted the Race to Resilience and Race to Zero Forum. Business, finance, government, civic and cultural leaders took part in the event which was held during the UN General Assembly and Climate Week NYC. It aimed to bridge the gap between government leaders and non-State actors to ensure the fulfilment of pledges and commitments, and to drive climate action collaboration.

The final regional forum took place in **Geneva, Switzerland** on October 17. The event focused on the potential of crowding-in climate finance and sustainability-focused investments for critical raw materials and the role of public-private partnerships and climate finance approaches and sources, such as green bonds, for mitigation and adaptation efforts. The event also highlighted climate finance and investment opportunities that support the acceleration of access to clean energy and digital transformations, which remain key catalysts for the attainment of the SDGs.

PART 3

Ensuring Accountable Climate Action

WHY ACCOUNTABILITY MATTERS

In the past few years, the world has seen a significant number of new commitments from real economy actors on resilience, mitigation, and mobilization of finance. Along with the Paris Agreement rulebook finalised at COP 26, the focus now needs to be on driving implementation.

Commitments alone are not enough to achieve the goals of the Paris Agreement; on-the-ground action is what is important. In this regard, one of the key questions during the Global Climate Action High-Level Event at COP 26 was on how to build trust in order to ensure climate action is recognized and enhanced, while greenwashing is called out.

Corporate Climate Responsibility Monitor, a recent report by the NewClimate Institute and Carbon Market Watch reveals that while there are a growing number of climate commitments by companies, the fragmentation of approaches is making it difficult to distinguish between real climate leadership and greenwashing, something compounded by a lack of regulatory oversight. Ensuring accountability of climate action by non-Party stakeholders is now a key priority.

This is why the High-Level Champions have placed accountability at the centre of their post-COP 26 agenda and listed it as one of the key functions of their work in its five-year plan.

This section showcases some of the work being done around accountability, and highlights what more needs to be done. We have seen progress around climate action data, climate campaigns, and climate targets, but much more needs to be achieved.

CURRENT TOOLS AND DATA

Global Climate Action Portal

What gets measured gets managed, so the saying goes, and this is particularly true for climate action. In 2014, the UNFCCC secretariat, Peru and France launched the Global Climate Action Portal (GCAP, formerly NAZCA), a web portal designed to track climate action by non-State actors around the world. GCAP is a unique collaboration between the UNFCCC Climate Change and data partners supported by members of the climate data and analysis community.

The portal leverages the expertise of its partners to provide climate action information from cities, regions, companies, organizations, investors and international cooperative initiatives.

The primary source of information from individual actors comes from voluntary disclosures made by non-Party stakeholders to the portal's data partners.[iv] Information from international cooperative initiatives is collected through surveys conducted in coordination with the data partners.

The portal plays an important role in showcasing the climate commitments that are taking place around the world and across all sectors of society. By celebrating progress in climate action, it encourages more ambition and engagement from a wide range of actors.

The interactive site allows users to browse climate actions by geographic area, by engagement type, and by the thematic areas of the Marrakech Partnership, as well as by the type of actor.

Climate action is tracked and updated on an annual basis, so users can not only see what commitments have been made, but what progress has been achieved. Tracked commitments provide information beyond time frames and emissions reduction value, to include, where available, the scope of a commitment (direct or indirect emissions), whether it is approved by the Science Based Targets Initiative (SBTi) (applicable to companies and investors only), the type of target (absolute, intensity, business as usual, fixed level), and the coverage of the commitment (all or selected in scope emissions).

To provide credibility and build trust, progress against voluntary commitments needs to be tracked and communicated. This not only increases accountability and transparency but also recognizes success, allows stakeholders to learn what works, and guides further action.

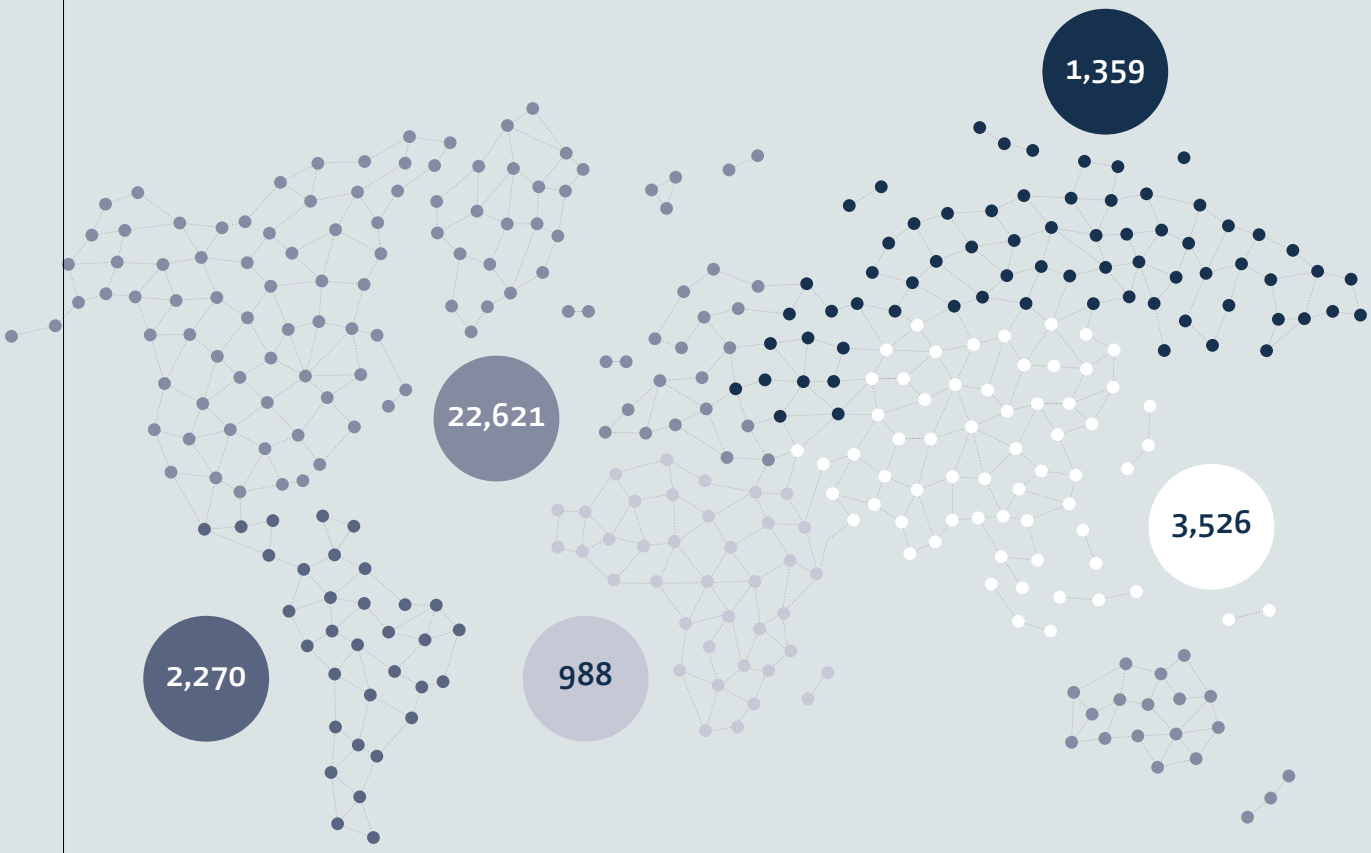
As of October 2022, the Portal registered 30,764 actors around the world, an increase of more than 38 per cent compared to the 2021 Yearbook. This comprises 13,909 companies, 1,562 investors, 3,451 organizations, 287 regions, 11,361 cities and 194 countries. In all actor types there has been an increase compared to the 2021 Yearbook, with the largest jump – of nearly 90 per cent – in the number of companies taking climate action. Regionally, the largest increase was in Asia Pacific (78 per cent), followed by Africa (67 per cent).

This significant growth in the number of non-Party stakeholders - as can be seen in the map below - is expected to increase even further by the end of the year, reflecting the success of the campaigns under the Champions' tutelage, and the efforts made by the portal and its data partners in mapping out and showcasing the broad range of climate action taking place around the world.

Non-Party stakeholders recognized in GCAP are located or headquartered in countries across all five UN regions. The distribution of these stakeholders is illustrated in Figure 4.

iv CDP, Carbonn Climate Registry, The Climate Group, Global Investor Coalition on Climate Change, UN Global Compact, Global Covenant of Mayors, Climate Bonds Initiative and the UN Environment's Climate Initiatives Platform

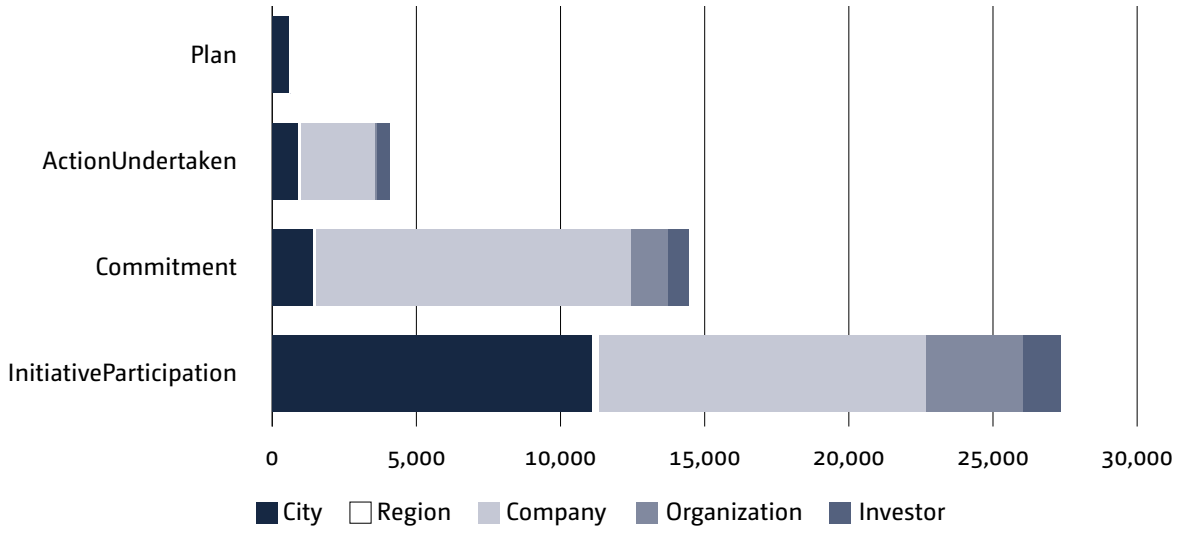
FIGURE 4:
Actions per United Nations Region in the Global Climate Action Portal (October 2022)



ASIA-PACIFIC GROUP		EASTERN EUROPE AN GROUP		AFRICAN GROUP		WESTERN EUROPEAN AND OTHERS GROUP		LATIN AMERICA AND CARIBBEAN GROUP		TOTAL	
Cities	476	Cities	1,067	Cities	233	Cities	8,852	Cities	733	Cities	11,361
Regions	28	Regions	5	Regions	23	Regions	135	Regions	96	Regions	287
Companies	2,259	Companies	179	Companies	325	Companies	10,055	Companies	1,091	Companies	13,909
Organizations	486	Organizations	38	Organizations	308	Organizations	2,354	Organizations	265	Organizations	3,451
Investors	222	Investors	47	Investors	45	Investors	1,196	Investors	52	Investors	1,562
Countries	55	Countries	23	Countries	54	Countries	29	Countries	33	Countries	194
Total	**3,526**	**Total**	**1,359**	**Total**	**988**	**Total**	**22,621**	**Total**	**2,270**	**Total**	**30,764**

Climate actions recognized in GCAP comprise of four engagement types: participation by a stakeholder in one of the 150 international cooperative initiates registered in GCAP (27,337 non-Party stakeholders); reporting of a qualifying commitment through one of the portal's data partners (14,454 stakeholders); publication of either a mitigation or adaptation climate action plan, reported through a data partner (650 cities and regions) and undertaking a climate action, again reported through a data partner (4,079 stakeholders).

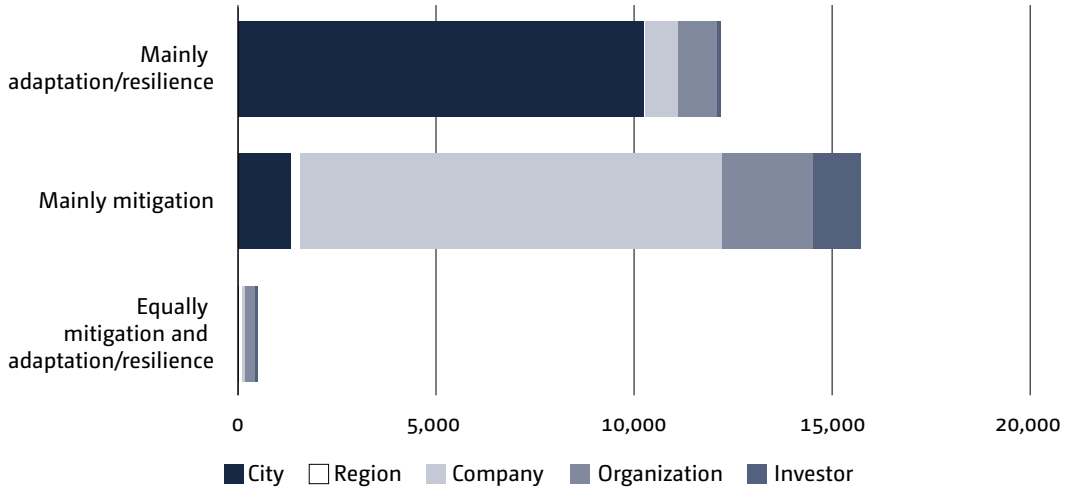
FIGURE 5:
Non-Party stakeholders by engagement type



In order to obtain updated information, the 2022 survey of International Cooperative Climate Initiatives was undertaken by the UNFCCC in partnership with the German Institute of Development and Sustainability, UNEP Copenhagen Climate Centre and Africa Research and Impact Network. The latest information reported in this year's survey, together with information reported 2021, provides a valuable insight into cooperative initiatives.

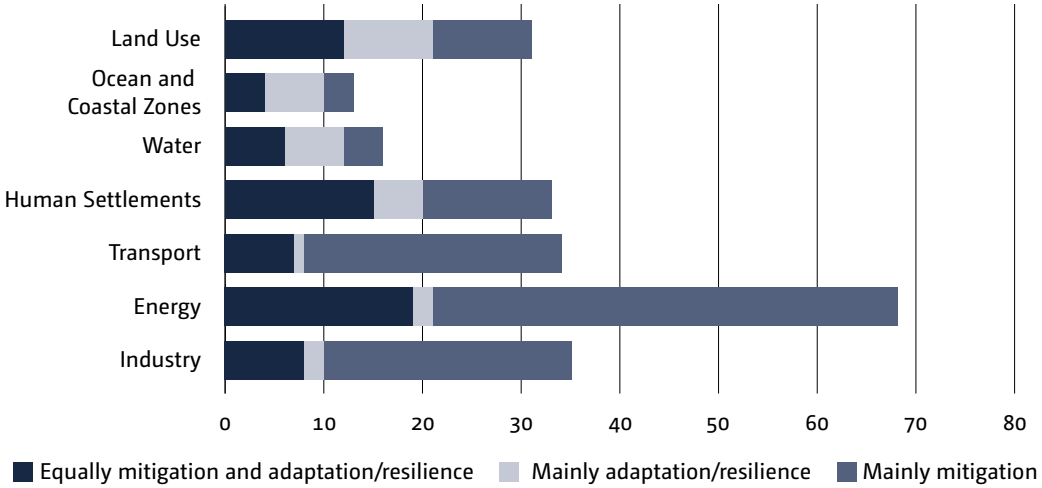
Participation in an international cooperative climate initiative is the most frequently recognized climate action, undertaken by 27,337 non-Party stakeholders. In total 497 of these actors are engaged in initiatives that are mainly focused on adaptation/resilience, 15,740 in initiatives focus mainly on mitigation and 12,198 are focused equally on mitigation and adaptation/resilience (Figure 6).

FIGURE 6:
Distribution of participants in international cooperative initiatives by climate focus



The initiatives recognized in GCAP are classified according to the seven thematic areas of the Marrakech Partnership, together with the cross-cutting themes of Finance and Resilience. Energy is the most common thematic area, associated with 68 initiatives. Land Use is the most common thematic area for initiatives focused on adaptation/resilience. A full breakdown of the Marrakech Partnership themes associated with initiatives is given in Figure 7.

FIGURE 7:
Marrakech Partnership themes associated with international cooperative initiatives



While it remains crucial to recognize climate action across all sectors – that is, registering the number and nature of climate actions – the information around them needs to progress from tracking the pledges to measuring the actual implementation and outcomes.

The Portal, along with its data partners, addressed the request by Parties and other stakeholders to improve climate action data so that progress can be adequately tracked. While it remains crucial to recognize climate action across all sectors – that is, registering the number and nature of climate actions – the information around them should gradually progress from tracking the pledges to measuring the actual implementation and outcomes.

GCAP provides an insight into the progress of individual stakeholders and international cooperative initiatives through the application of a progress framework developed in collaboration with the Camda climate data and analysis community.

The framework incorporates metrics that encompass ambition, robustness and delivery/impact, that when viewed collectively (for example on the portal's actor and initiative profile pages) illustrates the ambition, scope and implementation of an actor or initiative's climate actions. To address their different functions and roles, elements of the framework differ between individual actors and initiatives. The number of non-Party stakeholders and initiatives reporting elements of the framework is shown below for individual non-Party stakeholders (Figure 8) and international cooperative initiatives (Figure 9).

FIGURE 8:
Individual non-Party stakeholder progress framework reporting

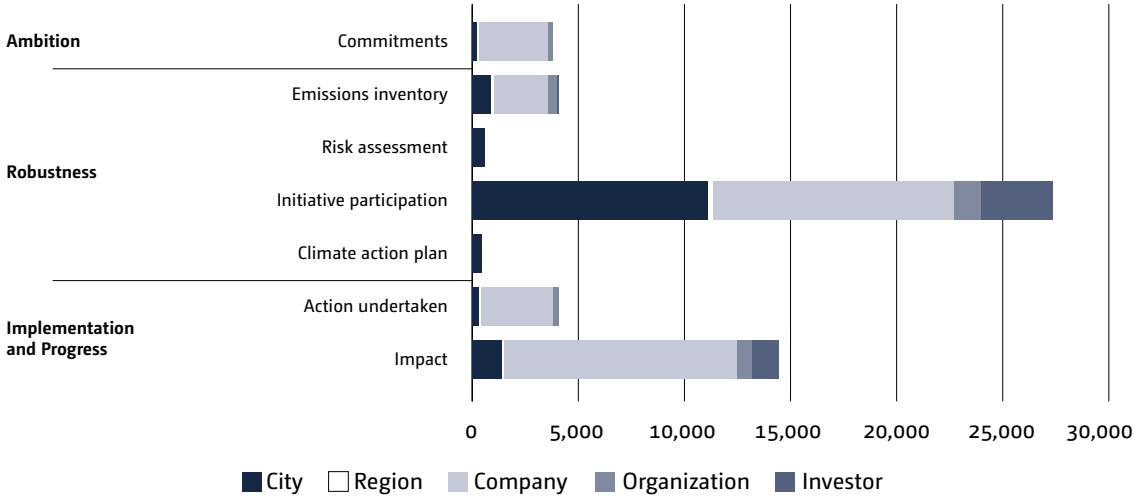
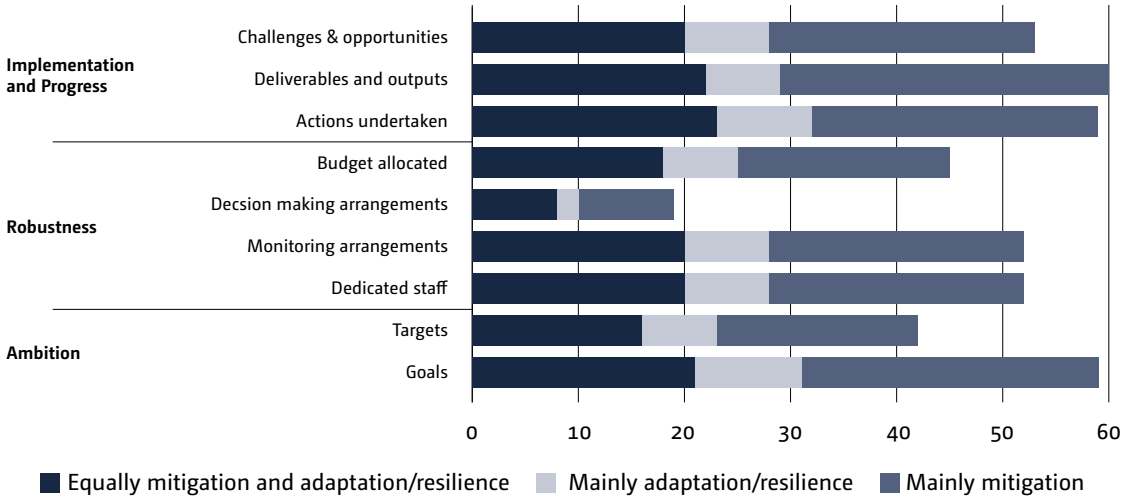


FIGURE 9:
International cooperative initiative progress framework reporting

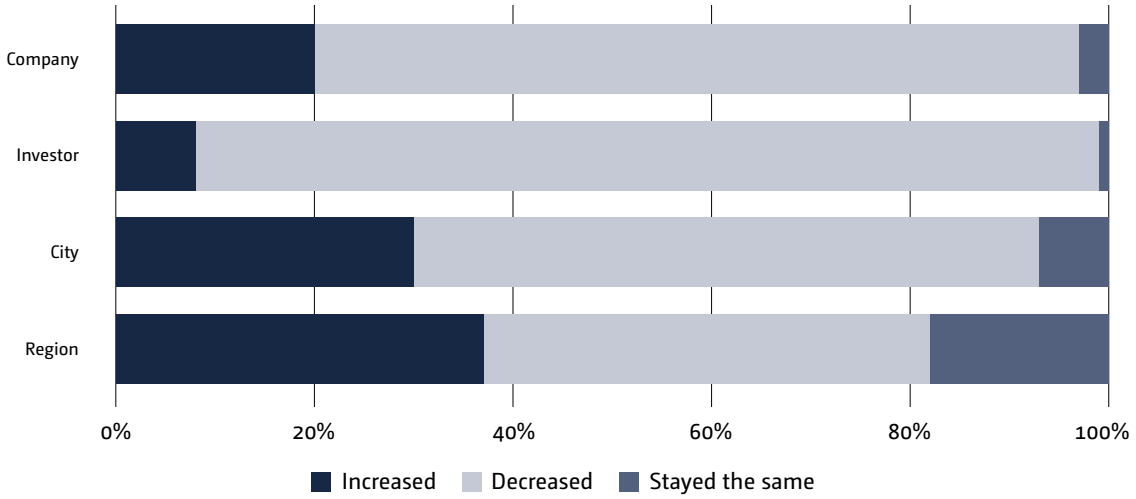


The framework allows a user to view different perspectives of a stakeholders' progress, including progress towards targets and (for individual actors) the emissions reductions compared to a base year and previous inventories.

GCAP shows that 3,296 companies and 246 investors have reported a tracked commitment, with 2,790 companies (85 per cent) and 243 investors (99 per cent) providing information toward at least one of the targets they have set. Because of the non-standardized nature of emissions reduction targets a collective assessment of progress should consider the accompanying information available in the portal regarding the nature of the commitment, including varying reduction values, scopes, coverage, time frame and date the information was provided.

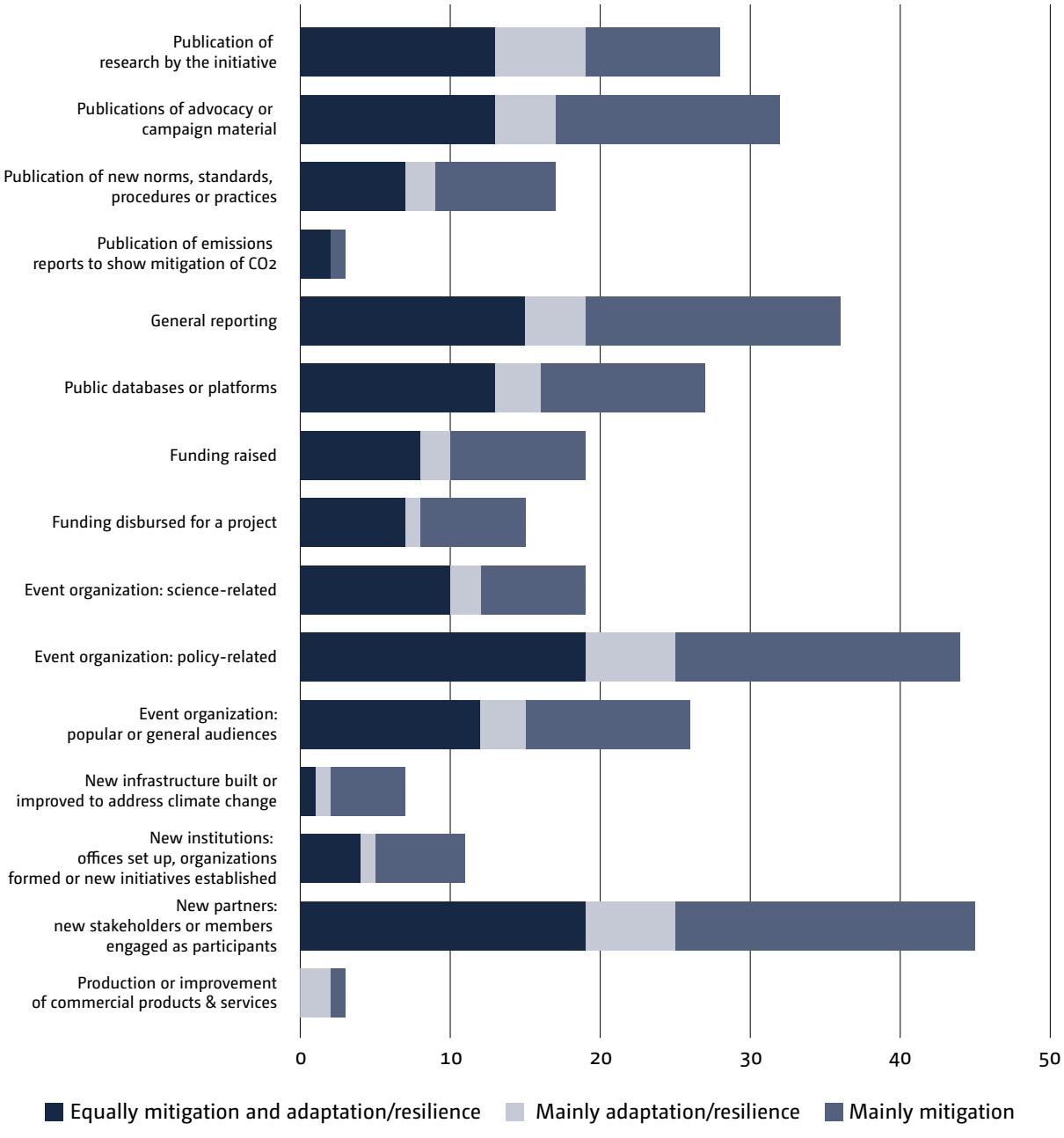
Considering the inventory information reported (within the impact section), 2,443 out of 3,170 companies (77 per cent) and 231 out of 253 investors (91 per cent) reported that their combined Scope 1 and 2 emissions have decreased compared to their previous year's inventory. When considering cities and regions 143 out of 226 cities (63 per cent) and 38 out of 84 regions (45 per cent) reported their emissions had decreased compared to their previous year's inventory.

FIGURE 10:
Changes in emissions since last inventory



Through their responses to the annual International Cooperative Initiatives survey, initiatives provided the latest information on the various elements of the reporting framework. As well as targets and goals - and their progress toward them - initiatives reported on the delivery of actions and outcomes that help them meet their goals and objectives. The outputs reported by initiatives in their latest survey response are shown in Figure 11.

FIGURE 11:
Outputs reported by Initiatives



The survey also collects information regarding the key challenges faced by the initiative (Figure 12) and the support that they are seeking to help achieve their main priorities (Figure 13).

FIGURE 12:
Challenges reported by Initiatives

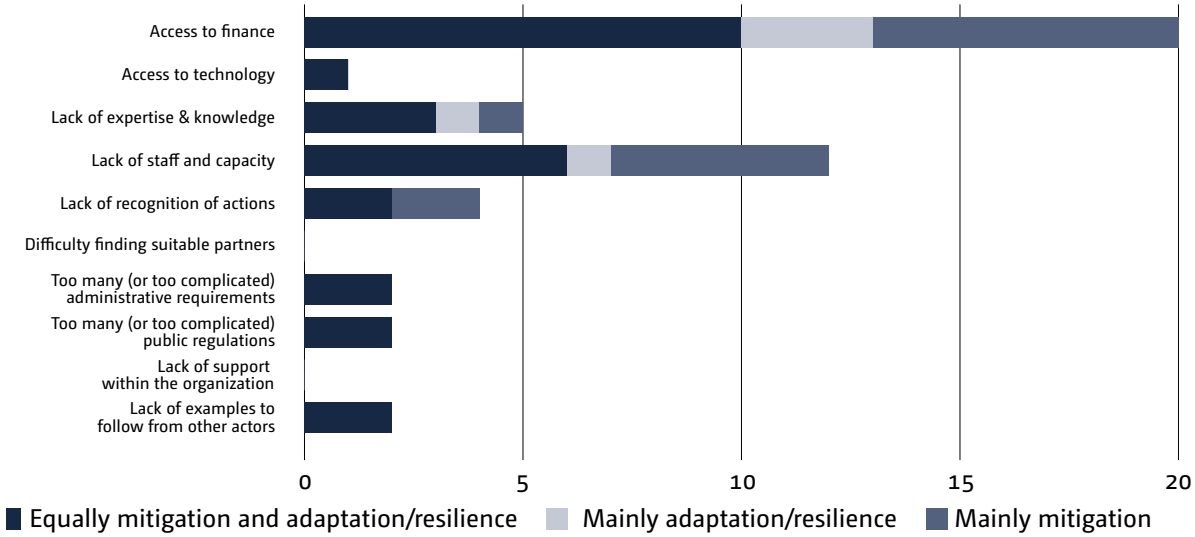
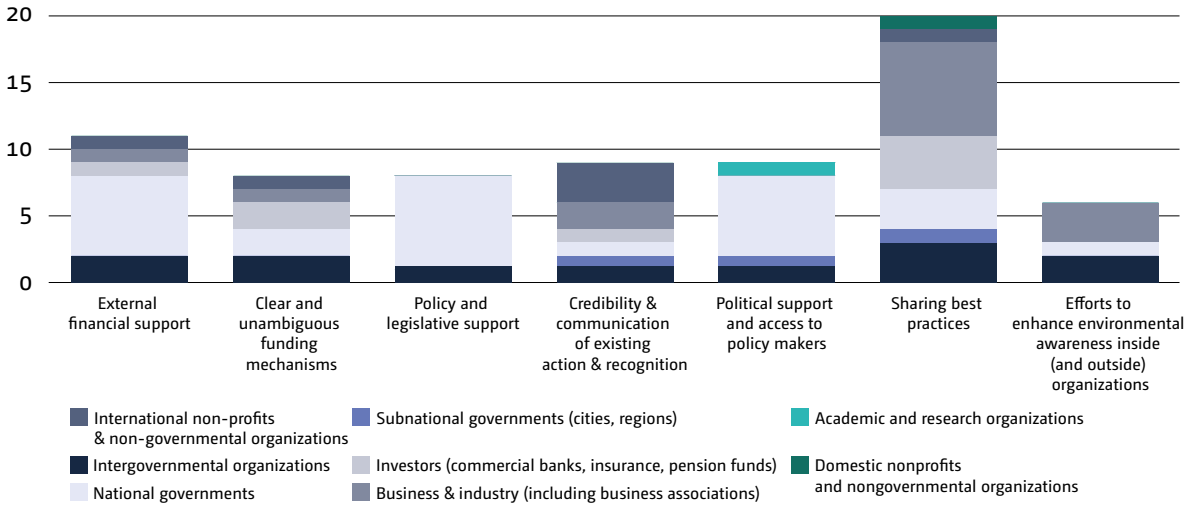


FIGURE 13:
Priorities reported by international cooperative initiatives to achieve success and which actors they seek to work with



Camda has been working closely with GCAP and is currently running the Climate Action Data 2.0 work group which is committed to developing more comprehensive datasets and methods that will enable improved metrics and criteria to inform target setting and progress tracking. In September, the initiative launched the Global Stocktake Climate Datathon which contributes to the development of open data and tools that will support the GST ahead of COP 27. Up to three winners will have an opportunity to present at COP 27. The initiative aims to expand the datathon concept with future iterations that will address gaps in GST data and build capacity for stocktaking.

One of the key enablers towards appropriate tracking of climate action of non-Party stakeholders is acquiring up-to-date and adequate data. CDP, a GCAP data partner, runs one of the oldest global disclosure platforms for investors, companies, cities, states and regions. CDP experienced a 42 per cent growth in corporate disclosure from 2021 to 2022. In 2022, more than 18,700 businesses, worth half of global market capital, disclosed their environmental data through CDP, representing a 233 per cent increase since 2015 when the Paris Agreement was signed. As of October 2022, with the disclosure platform still open, the number of these actors disclosing was once again more than 1,100.

From 2020 to 2022, there was a 43 per cent increase in the number of companies based in Africa disclosing their climate-related performance through CDP. In all three years analysed, South Africa, Egypt and Nigeria remained in the top three positions.

Nearly seven years after the Paris Agreement, and the launch of SBTi, more than 3,700 companies spanning nearly 80 countries and almost 60 sectors, and with a combined market capitalization of more than USD 38 trillion, are working with the SBTi to reduce their emissions at the pace and scale necessary.

ONGOING WORK

A New Phase in Accountability: The Expert Group by the UN Secretary-General

Accountability, credibility and environmental integrity needs to be central to climate action; in order to ensure decarbonization actions are being taken in the short term, at the right speed, and that all stakeholders deliver on their pledges. At COP 26, the UN Secretary-General António Guterres flagged a clear need for more credible and robust standards and criteria for setting, measuring, accounting, analysing and reporting net-zero emissions commitments by non-State actors. As a key step towards meeting that need, the High-Level Expert Group on the Net-Zero Emissions Commitments of Non-State Entities (UN-HLEG) was established in March 2022.

Chaired by Catherine McKenna, Canada's former Minister of Environment and Climate Change, the expert group is composed of climate experts, scientists, CEOs, economists and former politicians from around the world. The group's main objective is to develop recommendations to help ensure credibility, transparency, accountability and measurable progress to the climate pledges made by businesses, investors, cities and regions.

The group provided its recommendations to the UN Secretary-General, focusing on four key areas:

- Current standards and definitions for setting net-zero targets
- Credibility criteria to assess the objectives, measurement and reporting of net-zero pledges
- Processes for verification and accounting of progress toward net-zero commitments and reported decarbonization plans
- A road map to translate standards and criteria into international and national-level regulations

The group recognized transparency and inclusiveness a critical elements in ensuring the success of its work. In line with this, and in order to receive inputs from around the world, the group held various consultations throughout the year, including a call for written submissions through a website portal. Ultimately, the group will help address key issues in order to bring clarity to what the UN Secretary-General described as a deficit of credibility and a surplus of confusion over emissions reductions and net zero targets.

Mobilizing non-Party stakeholders: The Global Campaigns

Mobilizing non-Party stakeholders and accelerating their action while keeping them accountable to shared goals lies as a core priority of the High-Level Champions. The Global Campaigns launched by the Champions between 2019 and 2020 – Race to Resilience and Race to Zero – are key tools to mobilize the non-State actor community. The High-Level Champions believe that enhancing accountability of non-Party stakeholder action will not only contribute to building trust but also better highlight the status of systems transformation and evidence of enhanced action, which will help stakeholders and national governments to accelerate action towards achieving the goals of the Paris Agreement.

The Race to Zero campaign rallies non-State actors across the world to halve global emissions by 2030 while unlocking inclusive, sustainable growth.

The Race to Resilience campaign aims to drive climate resilience across the world, by mobilizing action from non-Party stakeholders towards building the resilience of four billion people by 2030 and ensuring that the voices of front-line communities are heard.

Both campaigns published a report in September that revealed the progress made and highlighted the successes and challenges non-State actors face when addressing mitigation and adaptation. It highlights how members in both campaigns are helping increase resilience and contribute to a 1.5°C world; it celebrates those who are lighting the way to a better world; and identifies the gaps that still need plugging in the run up to COP 27 and beyond.

Together, both campaigns rally more than 13,000 non-State actors to step up their ambition and scale action on adaptation, resilience and on GHG emissions reductions. It showcases the actors racing together to make a resilient, zero carbon world a reality.

Race to Zero

Race to Zero covers 116 countries around the world. As of September this year, it features 26 partners and has 11,309 members, including: 8,307 companies; 595 financial institutions; 1,136 cities, 52 states and regions; 1,125 educational institutions; and 65 healthcare institutions.

Everyone who joins Race to Zero needs to meet five criteria:

1. **Pledge**: pledge to reach net zero as soon as possible, and to contribute to halving emissions by 2050.

2. **Plan:** Publicly disclose a transition plan, including actions by 2030.

3. **Proceed:** Take action to achieve net zero, consistent with your targets and contributing to sector breakthroughs.

4. **Publish:** Report publicly progress on your targets and actions. Feed these into GCAP.

5. **Persuade:** Align policy and engagement, including membership associations, with halving emissions by 2050.

Momentum is growing. Race to Zero membership has almost doubled since September 2021, with a 30 per cent increase in Asia-Pacific representation since July this year. In total, more than 5,000 new non-State actors joined the campaign in the past year. Members of the Campaign are taking action throughout the world to help drive a holistic 'all of society' response to the climate crisis. In the recent progress report, of the 455 larger companies which have been in the campaign for more than one year and reported to CDP in 2022, 77 per cent have transition plans in line with 1.5°C, 98 per cent are proceeding with immediate action and around 68 per cent have publicly committed to align their policy engagement with their climate targets in line with the recent criterion of `Persuade'. Of the 32 states and regions who have been in the campaign for more than one year, 15 have disclosed their actions through CDP, 93 per cent have a public plan and 80 per cent have reported immediate action and are aligning their climate goals with other levels of governments. Of the 765 cities that have been in the campaign for more than one year, 274 reported to CDP and 89 per cent have disclosed a climate action plan; 84 per cent are taking action and 52 per cent are aligning their climate goals with other levels of governments.

To further ensure integrity and accelerate meaningful progress towards halving global emissions by 2030, Race to Zero published its updated criteria, interpretation guide and lexicon in June 2022, as well as a summary report of the discussions which took place throughout the consultation. As a result of this, a fifth

criterion – Persuade – was added. These criteria are now set and will no longer be reviewed on an annual basis, as the campaign doubles down its focus with its Partners on delivery and implementation.

To enhance progress tracking and transparency, Race to Zero and its partners will seek more consistent, cohesive and centralized public reporting to help inform global action. For this purpose, the Champions and their partners are working to develop a data explorer which shows how Race to Zero members are making progress towards net zero.

However, 'net zero' targets vary significantly in robustness, creating a "deficit of credibility and a surplus of confusion", as signaled by the UN Secretary General at COP 26. In response, the High-Level Champions and Race to Zero partners supported the work of the UN-HLEG by providing their real world experience of supporting companies, financial institutions, cities and regional governments to set net-zero targets and develop transition plans. In addition, the International Organization for Standardization (ISO) and UNFCCC Global Innovation Hub, in collaboration with the Race to Zero campaign, established "Our 2050 world" to embed robust science-based net-zero voluntary actions into standards. They are proposing the development of "Net Zero Guidelines" for 167 national standard-setter organizations.

Acknowledging the limits of voluntary action, the Champions convened a group of over 40 experts and leading institutions working to support governments' efforts to set up the policy framework and regulations needed to accelerate this net-zero transition, to write the The Pivot Point, report. The report reinforces the need to build a stronger "conveyor belt" from voluntary action to the rules governing the economy overall. To achieve this, voluntary action must help:

- The harmonization and strengthening of existing standards to resolve confusion and bring coherence to a fragmented system;
- The introduction of new policies and regulation, in line with country capacities, to tackle greenwashing, level the playing field, and incentivise investment;
- The removal of regulations that currently inhibit ambitious action by nonstate actors.

Race to Resilience

Currently, Race to Resilience has 34 Partner Initiatives, all coalitions of non-State actors. Together, its partners and their 1,762 members deliver action in 139 countries, with more than half of this work focused on Asia, Africa and Latin America and the Caribbean. Together, they address multiple hazards including heat stress, extreme heat, droughts and water stress in both urban and rural areas. As of October 2022, the Race to Resilience partners have pledged to increase resilience for 2.9 billion individuals, 264 regions and 471 cities worldwide with resilience-building actions up to 2030[v].

Race to Resilience engages in diverse action strategies spanning all key Marrakech Partnership action areas from the Resilience Pathway, although some need more coverage. The Marrakech Partnership has defined key action pathways to create resilience in the face of climate change, and six broad domains of application.

The key action areas and the proportion of the engagement by the Partners are:

- Climate risk vulnerability assessments; disclosure and monitoring (2 per cent)

v The people pledge value is based on aggregated data reported by 26 of the campaign's partners through the Race to Resilience Metrics Framework after a correction made to reduce error probability.

- Early warning systems and early action (15 per cent)
- Preparedness, contingency plans, emergency response (8 per cent)
- Climate risk governance and capacity building (13 per cent)
- Nature-based solutions to reduce risk (19 per cent)
- Climate-proofing infrastructure and services (13 per cent)
- Risk transfer: insurance and social protection (9 per cent)
- Sharing best practices on climate risk: actions management (6 per cent)
- Increasing the volume and quality of public and private finance (15 per cent)

A lot has been achieved since Race to Resilience was launched nearly two years ago, and much has been learned. The campaign is adding value by convening the adaptation and resilience community around a shared goal, putting people and nature at its centre, and leading the development of a common framework to help partners and initiatives to measure progress. In this regard, the partners give priority to a range of vulnerable groups in their resilience building. Their level of focus is:

- Women and girls: 25 per cent
- LGBTQIA+ people: 2 per cent
- Elderly: 10 per cent
- Children and Youth: 16 per cent
- Indigenous and traditional communities: 13 per cent
- Ethnic or religious minorities: 3 per cent
- Refugees: 5 per cent
- Disabled people: 10 per cent
- Poor: 16 per cent

It is crucial to show how businesses can tackle risk, embed resilience into their operations and engage with the communities they operate in. The campaign also understands that data gathering is a critical component of measuring risk, and that partners need our support in gathering the relevant data from their activities. While the campaign is undoubtedly gaining momentum, more needs to be done if the resilience of vulnerable communities is to be strengthened and four billion people are to be protected by 2030. Key to this will be moving from ambition to action and working with our partners to achieve adaptation and resilience outcome targets at pace and at scale.

Race to Resilience Metrics Framework: Race to Resilience's goal is to promote actions that will foster an increase in resilience to climate change. To understand how we are progressing towards this goal, identifying what works and what doesn't, and to monitor and evaluate its partners, the Campaign needs a way to measure 'increased resilience'. This is the impact of its partner's action on raising the resilience to climate change of their beneficiaries. The fundamental purpose of this Framework is to provide a methodology to measure and track - increased resilience. Following the IPCC's definition of resilience, the Race to Resilience Metrics Framework - launched last year - aims to track and monitor the resilience-building efforts by non-state actors in the campaign. It provides a comprehensive outlook on the

commitments, plans, progress, and evidence-grounded outcomes of the campaign's partner initiatives across a broad range of sectors, scales, and action types. It aims to provide an aggregate account of how initiatives are advancing towards resilience and to identify opportunities, gaps, and lessons learned to accelerate climate action in the global arena. The fundamental idea is simple: if an action can be demonstrated to: 1) improve the resilience attributes of a beneficiary; and 2) operate in a domain in which a beneficiary is vulnerable to climate change, then it can be concluded that the action is increasing the resilience of the beneficiary to climate change – and consequently, reducing overall risk.

Race to Resilience is now developing specific outcome targets with high-impact solutions across systems (food, water, oceans, human settlements, infrastructure) to further drive action towards adaptation and resilience implementation. In addition, it will be upgraded into a campaign that drives action toward specific targets with high-impact solutions, while implementing the adaptation and resilience outcome targets.

The High-Level Champions are also working to accelerate actions by non-Party stakeholders on loss and damage associated with the adverse effects of climate change with a focus on the most vulnerable urban, rural, and coastal communities in developing countries. They held workshops including during SB 56 and are now undertaking a mapping exercise on the actions non-Party stakeholders are taking to address climate losses and damages. In addition, the Race to Resilience partner, InsuResilience, is supporting the new Global Shield financial protection cooperation.

Why Open Data Matters: Climate Data Steering Committee

To translate commitments into credible and transparent actions, the support of high-quality, widely accessible climate transition-related data is crucial. This is why the Climate Data Steering Committee was created by the French President Emmanuel Macron and Michael Bloomberg, in June 2022. The aim of the Committee is to advise on the setting up of an open-data public platform that will collect, aggregate and standardize net-zero climate transition data based on private sector commitments.

In September, the Committee released a whitepaper outlining its proposed recommendations, including the development of the Net Zero Data Public Utility, which will support the transition of global private finance to net zero. The recommendations highlight why transparent data is important and how an effective climate platform should be developed.

Why is transparent data important?

Data availability and quality remain major challenges for institutions seeking to understand their current GHG emissions, set science-based emissions reduction targets, and develop and implement net-zero transition plans in order to translate their commitments into action. It also presents a challenge for regulators seeking to monitor the progress of private sector actors. A global open data utility would bring transparency to financial markets and consumers, help direct capital to low- or zero-carbon investments, increase confidence in target setting, and hold actors accountable to their net-zero commitments.

While multiple jurisdictions have seen significant progress relating to climate disclosure, internationally consistent mandatory disclosure rules and standards have not been implemented. This results in limited consistency, comprehensibility, and quality across the climate data currently available.

The recommended utility would build on the crucial work of existing providers in the public and private

sectors to complement the current data ecosystem and would be used across both commercial and non-commercial providers to ensure a consistency in data, analytics, and derived content.

What obstacles do companies face when developing net-zero transition plans?

The Committee has identified some of the most pressing gaps that impede actors - especially financial institutions - and regulators when using climate transition-related data, including:

- Lack of consistently available and standardized entity-level emissions data;
- Lack of standardized forward-looking metrics for setting targets and developing transition plans;
- Lack of clear indication of use of estimation methodologies, where emissions data is based on estimates, either company-derived or supplied by data providers, rather than disclosed data;
- Accessibility of climate transition-related data.

The majority of climate and environmental data is only available at scale through third-party data providers. This has led to differentiated collection of reported data, which poses a challenge in the aggregation and accessibility of key climate data. In response to the need for transparent, consistent, accurate, and complete data, several inter-connected collaborative climate data initiatives have been developed.

While several providers have emerged through various collaborative initiatives in the open climate data space, emerging providers generally occupy a specific vertical within the space (such as data generation, data aggregation, data mapping, data cataloguing) and have not solved the need to achieve a consistency of core climate data that all providers, actors, and users can build on.

The utility concept the Committee recommends would aim to provide a centralized repository for all stakeholders to easily access and interpret a core set of corporate climate transition-related data. The recommended platform would build on the crucial work of existing providers in the public and private sectors to complement the current data ecosystem and would be used across both commercial and non-commercial providers to ensure a consistency in data, analytics, and derived content.

What happens next?

The committee has called for feedback on its draft recommendations by the end of October. Based on the feedback received, a final version of the recommendations will be published during COP 27.

PART 4

Message for 2023

THE GLOBAL STOCKTAKE AND THE HIGH-LEVEL CHAMPIONS

What is the Global Stocktake?

The GST is a process for taking stock of the implementation of the Paris Agreement with the aim of assessing the world's collective progress towards achieving the Agreement's goals. The GST is designed to raise ambition by helping Parties to: see what they have achieved so far in implementing their national plans such as their NDCs, identify what still needs to be done to achieve their targets and identify the approaches that can be taken to enhance their own efforts, support international cooperation. Essentially, it's a way for everyone to understand what has been achieved, and what needs to be achieved collectively in the future in order to meet the Paris Agreement targets. The first GST started at COP 26 and will conclude at COP 28.

How do the High-Level Champions support the GST?

As part of the mandates from COP 26, Parties encouraged the Champions to support the effective participation of non-Party stakeholders in the Global Stocktake[vi]. The Champions have been working to encourage non-Party stakeholders contribution to the GST in the following ways: 1) encourage stakeholders to collaborate with each other to provide inputs that are concise yet comprehensive around a set of key messages and game-changing solutions; 2) ensure all the GST themes are covered and ensure that developing country perspectives are well-represented; and 3) focus on what is possible going forward in the near-term, highlighting impactful opportunities across different sectors that are actionable by policymakers and can enhance international cooperation and how non-Party stakeholders can help raise ambition with solutions that are inclusive and holistic. The Champions' priority is to deliver on the improved Marrakech Partnership's five-year plan, which was launched last year. By implementing the five-year plan and continuing to drive ambitious, immediate action, the intention is to support Parties in their discussions within the GST as the process progresses towards COP 28. The Marrakech Partnership have ready-made tools (such as the Climate Action Pathways, adaptation and resilience outcome targets, 2030 Breakthroughs and Implementation Labs) that can be used to contribute to a successful GST outcome at COP 28, and that Parties can use to accelerate action and deliver results.

What does this work consist of?

The work under the improved Marrakech Partnership focuses on enhancing immediate and concrete action from non-Party stakeholders that is aligned with science, with a view to halving global emissions by 2030,

vi Decision 1/CMA.3, Paragraph 77.

and reaching a net-zero, climate-resilient world by 2050 at the latest.

While the GST is a Party-driven process, it will be conducted in a transparent manner and with the participation of non-Party stakeholders, and submissions from UNFCCC observer organizations and other non-Party stakeholders will be considered as sources of inputs[vii]. Parties encouraged the High-Level Champions to support non-Party stakeholders' participation in the GST. This was an important recognition of the critical role non-Party stakeholders should play in the GST process, and the role the Champions play to help facilitate, consolidate and produce inputs across the main themes of the GST: mitigation, adaptation and means of implementation. The Champions are facilitating non-Party stakeholders' inputs and engagement in the GST in each of its three components: information collection and preparation; technical assessment; and consideration of outputs.

As part of this process, the Champions submitted the initial inputs in February 2022 to inform the first meeting of the technical dialogue in June 2022. The first submission is a response to the non-Party stakeholders-specific guiding question from the SB Chairs for the Technical Assessment component of the First GST: "In what ways are non-Party stakeholders contributing to the progress made to achieve the purpose and long-term goals of the Paris Agreement?" It also begins to sketch a landscape of opportunities and approaches to accelerate climate action and raise ambition. It highlights progress made in the global campaigns, the Climate Action Pathways, 2030 Breakthroughs, Yearbook of Global Climate Action and the Top of the COP newsletter blogs published by the Champions during COP 26.

Along with this submission, the GCAP Synthesis Report submitted in February presents an overview of the information on the portal to help guide and inform how GCAP can support the GST regarding the state of climate action undertaken by non-Party stakeholders.

The second submission in August was prepared with input from the Marrakech Partnership stakeholders. It informs Parties on the progress made by non-Party stakeholders during the first half of 2022 in the achievement of the Paris Agreement's long-term goals, and highlights opportunities for enhanced ambition and collaboration between Parties and non-Party stakeholders. It also highlights regional perspectives and accountability and is designed to complement (not replace) individual submissions from the Marrakech Partnership stakeholders and other existing tools such as the Climate Action Pathways, 2030 Breakthroughs, Yearbook of Global Climate Action and GCAP. One of the key takeaways from the submission is the key regional messages highlighting near-term opportunities in the developing region. This includes:

- Africa: A focus to be put on mobilizing finance for climate change adaptation and an increased access to sustainable energy;
- Asia: In Southeast Asia, cooling is already expected to be the fastest growing electricity consumption sector over the next two decades, which will not only raise the overall electricity demand but increase the strain on power grids;
- Latin America and the Caribbean: Often climate-related activities in cities are isolated from economic development outreach, creating communication and information barriers between cities and potential investors;

vii Decision 19/CMA.1 paragraphs 10 and 37(i).

- Middle East and North Africa: Middle East and North African stakeholders are transforming the water sector and strengthening resilience. The number of wastewater treatment plants in Egypt has increased to more than 400, and the total sanitation coverage of the country has doubled over the past decade while with more than 92 per cent of its water reused, mostly in large-scale irrigation projects.

The Champions also organized an event at SB 56 on the GST – Taking Stock of Progress – where the Champions sat down with non-Party stakeholders including businesses, financial institutions, cities, subnational regions and civil society, and government representatives to understand the breadth of work being done, and offer clear solutions that are relevant to challenges that governments are facing.

In support of the co-facilitators of the first GST technical dialogue, the High-Level Champions also collaborated with the UNFCCC secretariat in the Expression of Interest processes for inviting more than 40 non-Party stakeholders from all regions and across various sectors that would bring a valuable contribution to the first and second meetings of the technical dialogue.

Why is regionalization important?

It is important that the GST explores regional approaches and is sensitive to specific regional contexts and the diversity of journeys towards our common goal of limiting global warming to 1.5°C. Special attention needs to be given to how climate action will address questions of equity, social and gender justice, intergenerational justice, the protection and promotion of human rights, just transition, and environmental integrity.

The Champions took part in all three GST events held by the UNFCCC secretariat during the three Regional Climate Weeks in 2022, with Mahmoud Mohieldin taking part in Latin America and the Caribbean Climate Week in the Dominican Republic, and Nigel Topping participating in Middle East and North Africa Climate Week in Dubai as well as Africa Climate Week in Gabon. They expressed their willingness to continue to support the co-facilitators of the first Global Stocktake's technical dialogues and called on regional stakeholders to engage in the process. In addition, a Marrakech Partnership Regionalization Workshop was held at Africa Climate Week with one of the objectives to gather concrete evidence of the progress of system transformation in the region and forward-looking opportunities for enhanced ambition, implementation, and collaboration between Parties and non-Party stakeholders. Throughout the session, several points were raised by the regional stakeholders including the following: 1) The pace of understanding of regulations and policies is different between sectors and stakeholders. It is important to help raise awareness and bring all stakeholders – in particular indigenous leaders – to decision-making tables; 2) The economic and development benefits and business cases for both public investment and private markets for climate action need to be showcased. In this regard, supporting local entrepreneurs is important; 3) To help local communities suffering against climate change, a bottom-up, needs-based approach is essential. Digital solutions have great potential to engage youth and increase the number and diversity of employment opportunities; and 4) To support African stakeholders in implementing ambitions and accelerating the system transformation with concrete evidence and scalable opportunities across sectors such as resilience, transport, water, and land use, the work of the Champions and the Marrakech Partnership needs to adopt an inclusive, holistic, bottom-up, and needs-based approach, including and supporting indigenous people, local entrepreneurs, and women and youth.

Looking towards COP 28

The first GST will conclude at COP 28 in 2023. The Champions will continue their work in driving both climate action and ambition, building on the significant progress already made, and work transparently and collaboratively.

The role of non-Party stakeholders in the GST is vital: they not only identify where more action is needed, but also highlight opportunities and approaches to accelerate climate action. In addition to reducing emissions and accelerating adaptation actions to build resilience, climate solutions can help address pressing development needs including health, energy access and security, food security and biodiversity conservation.

To be effective, the GST must not only be transparent and inclusive of all voices but demonstrate effective on-the-ground actions and the transformations they create in informative and actionable ways. Equally important is that there is an honest analysis of the progress made so far, and what needs to be done to ensure an equitable response to the climate emergency. Therefore, the gaps – particularly with regards to finance and capacity – need to be identified, and solutions to fill them be delivered at pace and scale.

Key to this is a forward-looking, practical approach, where concrete solutions are offered. The Breakthrough Agenda Report is one of the key contributions by the Champions highlighting the opportunity and need to strengthen international collaboration. The Climate Action Pathways, and the Breakthroughs are useful foundational tools for that purpose, detailing roadmaps for sectoral transformations in the short, mid and long terms, establishing clear, ambitious, yet achievable targets and outlining the plan ning, finance and governance needed to achieve them.

OPERATING THE IMPROVED MARRAKECH PARTNERSHIP

The five-year plan of the improved Marrakech Partnership, welcomed at COP 26, envisages a new infrastructure which focuses on implementation and strengthens the synergies among its members. As presented in last year's Yearbook, the strengthened Marrakech Partnership organizes its work across six functions: 1) mobilize and align non-Party stakeholders to maximize ambition; 2) support non-Party stakeholders to drive systems transformations; 3) strengthen collaboration between national governments and non-Party stakeholders; 4) broaden and deepen engagement globally with focus on developing country stakeholders; 5) track progress and enhance transparency and credibility of non-party stakeholders; and 6) build a shared narrative for the decisive decade of climate action.

The Champions and the Marrakech Partnership have been working throughout the year to deliver and strengthen these functions in response to the shift towards wholescale implementation following COP 26. The Champions have sought to deliver a structure that coordinates the activities of the Marrakech Partnership across all members while also allowing for a transparent and clear process of membership engagement. This adjusted structure coordinates the following work programmes to ensure the Marrakech Partnership is a driving force for accelerating implementation across the climate action ecosystem: 1) **campaigns** to mobilize non-Party stakeholders; 2) **sectoral breakthroughs** to accelerate systems transformations; 3) **regional engagement** to ensure activities are inclusive and relevant; 4) **stakeholder-specific engagement** to ensure strong convergence; 5) **tracking and accountability** to deliver integrity; and 6) **strategic communication coordination** to drive a common narrative. These developments will enable the continued transformation of the

Marrakech Partnership so that it is fully aligned with the shift in the COP process towards the implementation and supports Parties and non-Party stakeholders to work together to implement the Paris Agreement and deliver on their commitments.

As listed in the five-year plan, these organizational adjustments are made to ensure that all stakeholders feel that they belong to the Marrakech Partnership community and are empowered to contribute. To that end, a key adjustment is the delivery of a revised and transparent process for joining the Marrakech Partnership. The Marrakech Partnership serves as a platform to facilitate collaboration across all members of society in serving the goals of the Paris Agreement and promoting a new, inclusive multilateralism as advocated by the UN Secretary-General. Maintaining its openness is critical to ensuring a flexible and adaptive approach, particularly when responding to specific issues raised by Parties.

In the past year, the Champions have spoken to Marrakech Partnership members to collaboratively create a more refined structure suited to the new implementation phase. A series of consultations took place across this year's RCWs, updating Partnership members on this work and soliciting inputs for strengthening regional and local action and coordination. The Champions also hosted a workshop during Climate Week NYC with Marrakech Partnership members to discuss the operationalization of the improved Marrakech Partnership. The workshop included a discussion on the organization and delivery of Marrakech Partnership working groups, with feedback received concerning the development of regular annual workplans at the level of thematic working groups, and collaboration that ensures ongoing momentum of ambition and action.

Over the coming months, the Champions will continue to work with the Marrakech Partnership to implement the Partnership's new organization, which allows it to deliver on its potential. They will continue to work with key partners and coalitions to elevate the work of the Marrakech Partnership and strengthen its capacity, in order to ensure that it mobilizes and supports non-Party stakeholder climate action in the most effective manner.

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GLOSSARY

2030 BREAKTHROUGHS

The 2030 Breakthroughs - launched by the High-Level Champions in 2021 - identify specific tipping points in each Climate Action Pathway sector and highlight what key actors must do, and by when, to halve emissions by 2030. They require at least 20 per cent of key players across sectors to join the Race to Zero, thus demonstrating sectoral support for the necessary transformation.

ADAPTATION AND RESILIENCE OUTCOME TARGETS

The 2030 Breakthroughs are focused on mitigation, while adaptation and resilience outcome targets will be introduced at COP 27 with clear and coordinated targets across impact systems like food, oceans, water, human settlements and infrastructure at pace and at scale, towards making four billion vulnerable people more resilient by 2030.

BREAKTHROUGH AGENDA

The Breakthrough Agenda was launched by 45 world leaders at COP26 and is a commitment to work together this decade to accelerate innovation and deployment of clean technologies, making them accessible and affordable for all. To kick start this Agenda, countries endorsed the goals of making clean technologies and sustainable practices more affordable, accessible and attractive compared to their alternatives by 2030 in the power, road transport, steel, hydrogen and agriculture sectors.

CLIMATE ACTION PATHWAYS

Launched at COP 25 and updated in 2021, the Climate Action Pathways are a vital part of the Marrakech Partnership tools to enhance climate action and ambition towards fully implementing the Paris Agreement. The Pathways set out sectoral visions for striving for a 1.5°C resilient world by 2050. They aim to provide a roadmap to help countries and non-Party stakeholders alike to identify actions and options needed by 2021, 2025, 2030 and 2040 as steps to achieve these visions across Energy, Human Settlements, Industry, Land Use, Oceans and Coastal Zones, Transport, Water, Resilience, and Finance.

HIGH-LEVEL CHAMPIONS

The High-Level Champions act as a bridge between Parties (national governments) and non-Party stakeholders, such as businesses, investors, cities and other sub national governments, as well as civil society. Since COP 21, the Presidencies of the current and incoming UNFCCC COP have been appointing the Champions. The current High-Level Champions are Nigel Topping from the UK and Egypt's Mahmoud Mohieldin. They aim to enhance ambition and strengthen the engagement of non-state actors in supporting Parties, working with the Marrakech Partnership, in order to deliver the goals of the Paris Agreement.

GFANZ

The Glasgow Financial Alliance for Net Zero (GFANZ) is a global coalition of leading financial institutions committed to accelerating the decarbonization of the economy. Launched in April 2021 GFANZ aims to unite net-zero financial sector-specific alliances from across the globe into one industry-wide strategic alliance.

GLOBAL CLIMATE ACTION PORTAL

The Global Climate Action Portal (GCAP), originally known as the Non-state Actor Zone for Climate Action (NAZCA), is a web portal launched in 2014. With the aim to present a clear, comprehensive view of Global Climate Action, recognizing actors and inspiring still greater ambition, the portal showcases the climate commitments and progress that are taking place around the world and across all sectors of society. By highlighting progress in climate action, it encourages more ambition and engagement from a wide range of actors across the world.

GLOBAL STOCKTAKE

The Global Stocktake (GST) is a process for taking stock of the implementation of the Paris Agreement with the aim of assessing the world's collective progress towards achieving the purpose of the agreement and its long-term goals. The first GST started at COP 26 in Glasgow and will conclude at COP 28 in 2023. Each GST is a two-year process that takes place every five years.

MARRAKECH PARTNERSHIP FOR GLOBAL CLIMATE ACTION

The Marrakech Partnership for Global Climate Action was Launched in November 2016 at COP22 by the High-Level Champions. The mission is to strengthen collaboration between governments and non-Party stakeholders to lower emissions and increase resilience against climate impacts. At COP 26, the Partnership showcased its vision and its work through 2025.

NON-PARTY STAKEHOLDERS

While Parties are the national governments that are members of the Convention, the Kyoto Protocol and the Paris Agreement, non-Party stakeholders are all other actors engaging in the process. They include businesses, cities, subnational regions, investors, and civil society.

RACE TO RESILIENCE

Launched in December 2020, Race to Resilience is a global campaign led by the High-Level Champions that aims to raise global ambition and accelerate non-Party stakeholders' action for climate resilience, helping communities, businesses and economies better prepare for, recover from, and thrive in spite of the impacts of climate change. Through a partnership of initiatives, the campaign focuses on helping the most vulnerable, frontline communities to build resilience of four billion people by 2030 and adapt to the physical impacts of climate change, such as extreme heat, drought, flooding and sea-level rise in urban, rural and coastal areas.

RACE TO ZERO

Race to Zero is a global campaign led by the High-Level Champions rallying non-Party stakeholders to take immediate action to halve global emissions by 2030 and achieve net zero emissions by 2050 in order to deliver a healthier, fairer zero-carbon world.

REGIONAL CLIMATE WEEKS

Regional Climate Weeks inspire individuals and organizations to become part of the momentum created by the Paris Agreement. They are collaborative opportunities where governments and stakeholders gather to address a range of relevant climate issues under one umbrella. Regional Climate Weeks are held in the following areas: Africa, Latin-America and Caribbean, Middle East and North Africa and Asia-Pacific.

United Nations
Climate Change Secretariat

Marrakech
Partnership