YEARBOOK OF GLOBAL CLIMATE ACTION 2023

MARRAKECH PARTNERSHIP FOR GLOBAL CLIMATE ACTION

United Nations
Climate Change Secretariat

Marrakech Partnership

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CONTENTS

Foreword: Simon Stiell

Executive Secretary of the UNFCCC

Eight years ago, the global community reached a historical agreement in Paris to collectively tackle the climate crisis and strive towards a 1.5 °C resilient world. This year marks the conclusion of the first global stocktake – a report card assessing our implementation of that agreement. It has confirmed we are woefully off-track, and while the world is a better place with the Paris Agreement than without it, our efforts are not going far enough.

The impacts of these shortcomings are visible everywhere. 2023 is on course to be among the hottest – if not the hottest – years on record. The extreme temperatures intensifying droughts, wildfires, heavy rains and flooding are wreaking devastation and misery.

Climate action needs to accelerate everywhere. Systems transformation, from energy and transport to our relationship with nature and our social systems, is essential to rapidly reducing emissions and building resilience. We need to mainstream zero-emission vehicles, promote healthy and sustainable diets, protect coastal ecosystems and increase security through social safety nets and disaster risk management. These are just some examples of systems transformation. They all require an ever-stronger collaboration among all actors: from national to subnational governments, businesses, and investors, to civil society and international organizations.

That is why, when adopting the Paris Agreement, Parties also welcomed the efforts of non-Party stakeholders and appointed two High-Level Champions to scale up initiatives and actions and strengthen collaboration. As a result, the Marrakech Partnership, a flagship collaboration platform, has been convening all stakeholders around climate action pathways.

In addition to providing full support to the High-Level Champions and the Marrakech Partnership, the UNFCCC secretariat has supported global climate action by tracking and recognizing these efforts since 2014, through the Global Climate Action Portal. A central online platform where commitments and actions by all stakeholders around the globe are registered, the Portal has been systematically increasing its range and scope, with more than 32,000 actors currently recognized.

The next step is to move from making pledges to keeping pledge-makers accountable. Promises made must be promises kept. In the Conference of Parties at its twenty-seventh session (COP 27), the UN Secretary-General endorsed the Integrity Matters report and requested the UNFCCC secretariat to develop an implementation plan to enable transparency, verification and accountability. I look forward to receiving and taking the recommendations forward to enable meaningful transparency of the progress made by non-Party stakeholders to meet their pledges and promote greater ambition.

Greater collaboration between Parties and non-Party stakeholders is an opportunity to radically enhance action towards our collective climate goals. This message can be consistently found in the Yearbook of Global Climate Action – an annual overview showcasing the progress, trends and challenges. The 2023 edition of the Yearbook is the seventh since its launch in 2017 and points to key moments in global climate action since COP 27, particularly on ensuring accountability, and key progress and gaps in systems transformation. The myriad actions by non-Party stakeholders highlighted in the Yearbook showcase the broad range of opportunities for collaboration.

This implementation mindset is what we must take into COP 28. The global stocktake shows us where we are at and what we must do. It can be the point at which we start to course-correct. There can only be one response to the stocktake: renewed ambition and accelerated action – climate action that charts a course to 2030 to limit global warming to 1.5 °C and build resilience.

Foreword: Mahmoud Mohieldin,

High-Level Champion (Egypt)

Razan Al Mubarak,

High-Level Champion (United Arab Emirates)

TIME TO RAMP UP

The shift from climate promises to implementation is imperative, and it is driving tangible changes across the real economy and society. Yet, it is still moving too slowly and not at the required scale.

These duelling realities became clear this year in our first global stocktake of progress towards achieving the Paris Agreement's goals. The stocktake process has made clear that filling the gap requires far-sighted and scaled-up collaboration from national and sub-national governments, businesses, investors, youth, Indigenous Peoples, workers and civil society to accelerate action and maximize ambition within the 2020s and beyond. We are working in close collaboration with the Marrakech Partnership for Global Climate Action and its stakeholders to set the foundation for an ambitious response to the stocktake, fostering cooperation and setting best practices. The Climate Action Pathways, the 2030 Breakthroughs, Breakthrough Agenda, and the Sharm el-Sheikh Adaptation Agenda have provided solutions for systems transformation. Moreover, Race to Zero and Race to Resilience have been instrumental in mobilizing businesses, investors, cities, regions and civil society to set credible, science-based commitments to halve emissions, enhance resilience and end nature loss by 2030.

In particular, we are working with partners and campaign members to ramp up action in six cross-cutting areas of climate action.

First, put nature at the heart of climate solutions and empower, amongst others, Indigenous Peoples, women and youth to share their expertise. Nature could contribute up to a third of the emissions cuts needed by 2030 and build adaptation and resilience.

Race to Zero and Race to Resilience members are increasingly adopting nature-based solutions to fulfil their commitments. For example, this year, we, with partners, launched the Oceans Breakthrough, setting out pathways to achieve a healthy and productive ocean. We are also working with financial institutions to implement their commitments to eliminate commodity-driven deforestation from their portfolios, and bring more firms onboard. COP 28 will further elevate the voices of Indigenous Peoples, women and youth like never before.

Second, drive a just energy transition. We must decarbonize the power system and heavy industry, while ensuring a just transition, energy accessibility, energy security and economic growth in all regions. Energy sector partners are taking steps to help achieve a global goal to triple renewable energy capacity and double efficiency by 2030, while heavy industries such as steel and cement are boosting demand for clean materials and goods. Race to Zero is also embedding the principles of fair share, equity and justice in its members' commitments.

Third, mobilize equitable financial flows. We need to reform the global financial architecture so that it is fit for purpose, that includes debt relief and suspension, extending concessional finance, increasing adaptation

finance, particularly grant-based finance, and the use of innovative financial tools and instruments, including carbon markets and debt swaps, to unlock and scale-up investments in emerging markets and developing economies. We have worked to showcase the wealth and breadth of shovel-ready projects around the developing world through the Regional Platform for Climate Projects, and to match project developers with the right public or private investors. Among those, e-mobility venture Ampersand is providing two-wheeled electric vehicles and charging infrastructure in Rwanda and Kenya, while in Nigeria, Phoenix Edison is developing the country's first waste-to-power plant.

Fourth, accelerating action on resilience and adaptation through the Sharm el-Sheikh Adaptation Agenda. This year has witnessed the operationalization of this important Agenda through the creation of the different task forces corresponding to the different impact systems within it and the convening of the first meeting of its Steering Committee.

Fifth, enhance cross-sector, cross-regional collaboration and inclusivity. Climate action cannot be siloed. Race to Zero and Race to Resilience campaigns, as well as initiatives such as the Sharm el-Sheikh Adaptation Agenda, are enabling local and national governments, businesses, public and private financiers, workers, youth, and Indigenous Peoples to share their knowledge and expertise and pursue pathways together.

Sixth, elevate regional perspectives and opportunities for cooperation. As the Regional Climate Weeks demonstrate, countries and communities within a region experience similar impacts and could share solutions to both climate action and sustainable development.

This year, for example, Latin America and the Caribbean Climate Week saw the launch of the Glasgow Financial Alliance for Net Zero's (GFANZ) network of regional financial institutions, and we are calling on them to hone their work on raising finance for mitigation, adaptation and nature-based solutions. Africa Climate Week, alongside the Africa Climate Summit, highlighted climate action as a solution for food security, access to energy and the debt crisis, and we sought to detail the steps that would quickly mobilize climate finance on the continent. GFANZ Africa focuses on overcoming barriers to climate finance including debt reduction, developing project pipelines, de-risking climate investment and carbon markets.

The transition to a climate resilient and low-carbon development pathways must be just and equitable. Non-Party stakeholders' strategies to tackle the growing threat of climate change need to incorporate the full range of environmental, social, economic and governance dimensions and to address transitional challenges encountered by vulnerable communities. We encourage non-Party stakeholders to connect their action on climate change with inclusive development pathways through ensuring linkages with and contribution of climate action of non-Party stakeholders to the 2030 Agenda for Sustainable Development.

Collaborative, concerted efforts in these six areas at COP 28 and in the coming years will be crucial to driving a step-up of climate action within the 2020s in line with the 1.5 °C resilient goal. Effective implementation – in the context of achieving the Sustainable Development Goals – is our common goal that needs to be pursued under the guiding principle of climate justice. The global stocktake is our opportunity to forge ahead, 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, CDP, Net Zero Data Public Utility core team, NewClimate Institute, Science Based Targets initiative, Race to Resilience partners, Race to Zero partners, and the Systems Change Lab team from the World Resource Institute. The High-Level Champions would also like to thank their entire team and the UNFCCC secretariat for their support.

Executive Summary

The year 2023 marks the conclusion of the first-ever global stocktake (GST), a process aimed at assessing the collective progress towards achieving the Paris Agreement goals. Its outcome – the result of a Party-driven process with broad participation by non-Party stakeholders – is intended to inform the next round of climate action plans under the Paris Agreement. Non-Party stakeholders provided inputs and insights throughout the process, offering suggestions, based on their own leadership experience, for how governments can come together at the 28th session of the Conference of the Parties (COP 28) with a strong response to the stocktake. This response needs to set a clear foundation for an all-of-economy, all-of-society ramp-up of action urgently needed this decade to support mitigation and adaptation, in the context of achieving sustainable development, through effective means of implementation.

Climate change is causing planetary tipping points, with Earth hitting temperature records and extreme events affecting communities in every continent, with weather and climate disasters costing billions of dollars as a result. These adverse impacts are expected to worsen in the coming years, and the window of opportunity to ensure a liveable future is closing soon. In order to course-correct, ambition needs to be ramped up, with the GST as a guideline on gaps to bridge, barriers to overcome and opportunities to replicate and scale up. The synthesis report on the technical dialogue of the first GST, published in September 2023, pointed to the need for governments to support systems transformations that mainstream climate resilience and low greenhouse gas (GHG) emissions development and credible, accountable and transparent actions by non-Party stakeholders to strengthen these efforts, as well as more effective international cooperation – also involving non-Party stakeholders – across all systems and sectors.

This Yearbook of Global Climate Action – the seventh of its series – captures the High-Level Champions, Marrakech Partnership and non-Party stakeholders' involvement in the global climate change processes and events that took place since COP 27, presents the state of global climate action in 2023, including the importance of acknowledging the call for accountability for climate commitments and actions, reviews the progress and gaps in systems transformation towards the climate goals across the Marrakech Partnership's thematic and cross-cutting areas, and provides some key messages going forward facing the conclusion of the first GST in COP 28 and beyond.

OVERVIEW OF GLOBAL CLIMATE ACTION IN 2023

The work under the High-Level Champions and the Marrakech Partnership progressed on several fronts since COP 27, in line with their work programme. Some key advances include but not limited to, i) adaptation and resilience, and loss and damage: the establishment of the Task Forces and the Steering Committee under the Sharm el-Sheikh Adaptation Agenda (SAA), the update of the Race to Resilience Data Explorer, and increasing awareness of losses from climate change impacts and support to initiatives such as C40 on its work for cities; ii) mitigation: the launch of the Race to Zero Data Explorer tool, and the publication of the 5th P Handbook which helps non-Party stakeholders to align their advocacy, policy and engagement with net-zero goals, iii) finance: convenings of the Regional Platforms on Climate Projects to advance regionally led investable climate solutions projects, support to the Independent High-Level Expert Group on Climate Finance, the launch of the report *Breaking Barriers for a Just Climate Transition in Africa*, which identifies interventions to unlock climate financing, and mobilization of private finance for adaptation and resilience through SAA; iv) nature: the launch of the Nature Positive Initiative, and the launch of the Ocean Breakthroughs and the Coral Reef Breakthrough; and v) inclusion: mobilization of finance for marginalized groups such as Indigenous Peoples and delivering capacity building. They also supported and engaged in various dialogues and processes such as the GST, and the Sharm el-Sheikh Mitigation Ambition and Implementation Work Programme (MWP). The progress and achievements under the High-Level Champions and the Marrakech Partnership up to June are detailed in their achievements document.

This year, the secretariat opened a call for inputs to non-Party stakeholders to showcase some of the global climate actions they are engaged in that have a positive impact on systems transformation. Cases presented in Appendix 1 show some insights into a

range of initiatives taking place on the ground across several thematic and cross-cutting areas, some of which show progress throughout the year.

Several conferences and meetings held throughout 2023 presented various opportunities for multi-stakeholder cooperation in global climate action. These include the UN Water Conference, the Regional Climate Weeks, the Climate Ambition Summit, and the third edition of the Ocean and Climate Change Dialogue, focusing on the interconnectedness between nature and climate change. These processes engaged a wide range of actors, including non-Party stakeholders.

TRACKING THE STATE OF GLOBAL CLIMATE ACTION

The Global Climate Action Portal (GCAP), first launched in 2014, shows the current range and state of climate-related commitments from actors engaged in global climate action. Today, GCAP has 32,524 actors registered on the platform, an increase of approximately six per cent from what was reported in 2022 and approximately six times the number it presented in 2015. Companies had the highest rate of increase in recent years (12 per cent in 2023 in comparison with 2022), while in terms of United Nations (UN) regional groupings, Asia-Pacific saw the highest increase, with 30 per cent more actors engaged in comparison with 2022.

The secretariat conducted its annual survey of cooperative climate initiatives, and 42 active initiatives provided inputs within the timeline for the analysis in the Yearbook (shown in Appendix 2). The majority of initiatives showed a global scope and a focus primarily on mitigation. Questions around systems show that *Society*, *Livelihood* and *Economy* had the highest engagement, while *Health* had the lowest. In terms of opportunities under systems, mitigation-related opportunities ranked higher than adaptation, and particular underrepresentation was seen in opportunities related to health, migration and food.

An assessment of the progress made by non-Party stakeholders in the past couple of years presents encouraging data but also insights on gaps and challenges holding back further progress. For instance, a Science Based Targets Initiative (SBTi) report shows a higher number of companies setting science-based targets in 2022 alone than in the previous seven years combined. It also showed a steady growth in the number of net-zero targets set by companies, which was similarly noted in the Net Zero Stocktake 2023 report. This report, which provides an assessment of the status and trends of net-zero target setting across countries, subnational governments and companies, finds that the number of actors with net-zero targets has nearly doubled since its first edition three years ago. At the national level, most large economies have already announced some variation of a net-zero target, with the majority of these commitments being formalized through domestic legislation or policy documents.

In terms of credibility, however, the report finds very limited signs of improvement in all of these actors' net-zero targets and strategies, with gaps in threshold criteria, details and transparency, for instance. Similar conclusions were drawn in a report by the Camda community members. The overall finding is that, while climate ambition has increased for subnational and corporate actors in the past few years, the pace and level of ambition are still not aligned with the 1.5 °C goal and need to be accelerated. Similarly, the growing number of net-zero targets is encouraging, but it is necessary for actors to implement interim targets and action plans demonstrating tangible progress in order to enhance accountability and ensure their credibility.

Some initiatives are addressing these challenges, such as Race to Zero, for instance. In order to join this flagship campaign by the High-Level Champions – which has over 12,000 non-Party stakeholder participants as of August 2023 – members are required to pledge alignment with the goals, disclose plans for transition, take action, publicly report progress and align external policy and engagement strategies with their climate goals. The campaign also provides guidance, such as 'Leadership practices', which signal how leading entities can light the way to a net-zero world.

Adaptation action by non-Party stakeholders is also on the rise yet still significantly insufficient and inadequate – there are currently around 12,000 actors registered in GCAP reporting climate action focused on adaptation. CDP's dataset, in turn, shows that 730 cities, states and regions have conducted climate risk and vulnerability assessments, and 739 reported having an adaptation plan. Finally, Race to Resilience campaign now has 33 partner initiatives, collectively representing over 644 organizations across 162 countries, 507 cities, and 234 regions pledging 2.6 billion people to be more resilience by 2030.

As for finance, there are 1,654 investors currently registered in GCAP that are engaged directly and indirectly in climate action through a range of commitments, which include reducing their own emissions, issuing green bonds, and financing or ensuring part of their investment portfolios are made up of climate-friendly technologies or assets, for instance. The Glasgow Financial Alliance for Net Zero (GFANZ), launched in 2021, currently works with eight sector-specific alliances that collectively has over 650 members. The initiative aims at tackling net-zero transition challenges and connecting the financial community to the Race to Zero campaign, climate scientists and experts, and civil society.

Discussions around **the importance to ensure the ambition and credibility of transition plans and emission reduction commitments have been gaining momentum**, especially with the launch of the report *Integrity Matters: Net Zero commitments by Businesses, Financial Institutions, Cities and Regions*, during COP 27. The report presented the findings of the High-Level Expert Group on the Net-Zero Emissions Commitments of Non-State Entities, established by the United Nations Secretary General (UNSG) in March 2022, with the task of developing stronger and clearer standards for net-zero emissions pledges by these actors.

In response to a request by the UNSG's and Parties' invitation for the secretariat to ensure greater accountability of voluntary initiatives through GCAP, the UNFCCC secretariat published the Recognition and Accountability Framework for non-Party stakeholders, and its first draft Implementation Plan under the framework both published in June. The secretariat is also working on upgrading GCAP to ensure that all voluntary climate action commitments are recognized and subject to greater validation and progress reporting.

PROGRESS AND GAPS IN SYSTEMS TRANSFORMATION TOWARDS THE CLIMATE GOALS

The Summary for Policymakers in IPCC's AR6 Synthesis Report explicitly notes the importance of systems-thinking for climate action. The High-Level Champions and the Marrakech Partnership have been focused on bringing non-Party stakeholders' action under a shared vision and providing a roadmap for systems transformation, a work which also entails supporting the assessment of the overall state of systems transformation. They have engaged in the launch of the Breakthrough Agenda Report 2023, the State of Climate Action 2023 report, and the forthcoming first implementation report of SAA.

The Yearbook provides an overview of where we are and where we need to be, offering insights into potential opportunities, synergies and co-benefits, as well as existing gaps and challenges across the seven thematic areas of the Marrakech Partnership.

In **Energy**, for instance, the most viable options for emission reductions include switching to renewables, and investing in electrification, energy efficiency, demand-side management and clean energy storage. The most successful examples in the past few years are in solar and wind power technologies, which had a significant decrease in unit costs. Solutions in energy supply can also contribute to achieving other Sustainable Development Goals (SDGs), such as providing wider energy accessibility, security and affordability. An integrated approach to challenges not only results in a wider range of co-benefits, but also has a better chance of reducing the direct and indirect impacts of climate change, such as the potential socio-economic consequences of phasing out fossil fuels, for instance. In that sense, carefully designed climate action can help minimize the disruptions caused by rapid change, especially through a focus on inclusion and equity.

There have been a number of advances in the **Industry** sector in the past few years, but the 1.7 per cent decline in the sector's emissions in 2022 can be further expanded. There is potential in a range of mitigation options, such as improving demand management, materials efficiency, and production processes, among others, and further advances can be achieved in near-zero emission cement and steel and low-carbon and renewable green-hydrogen production, if demand for this type of product is encouraged, so they can be deployed commercially at scale.

In **Transport**, the highlight is the increase in electric vehicles (EVs) sales, which is a positive advancement, considering road transport is highly emitting. Battery storage technologies have also been progressing, not only with a decrease in the price of conventional lithium-ion batteries but with the development of alternative technologies as well. In addition to the shift towards EVs and increased use of efficient low-carbon collective modes of transportation, investing in the research and development of new technologies and more effective international cooperation can also help accelerate the

pace of solutions to decarbonizing longer-haul transport modes, such as trucking, shipping and aviation.

Reducing emissions in **Human Settlements** is critical, and it entails smart urban planning and measures such as reducing and properly managing waste, facilitating 'greener' transportation methods, and implementing a shift towards more efficient and/or low-carbon built environments at all stages. Adaptation measures are also essential, as cities are highly affected by the adverse impacts of climate-related disasters. In that sense, devising solutions to improving people's lives while climate-proofing built environments is an example of a systems-thinking approach, with inexpensive solutions to more resilient and safer housing reducing potential displacements, for instance. Implementing more sustainable wastewater treatment systems is another example of positive synergies, in that not only will it result in reduced emissions but also potentially improve access to potable water and strengthen waste and sanitation systems, with co-benefits for human health.

Regarding **Land Use**, nature-based climate solutions such as conservation, restoration and improved land management provide the most feasible and cost-effective options to both reduce emissions and enhance carbon sequestration. Halting and reversing deforestation and land degradation is key, as is improving agricultural practices and management at a faster pace. At the same time, it is important to note that climate change also has impacts on agriculture, affecting global food security and the livelihoods of a number of people who depend on it. Several effective adaptation options for the sector are available, such as on-farm water management and storage, agroforestry, and sustainable land management approaches, for instance.

In addition to the need to preserve freshwater ecosystems and improve wastewater treatment, the availability of **Water** is one of the main aspects in which this area is affected. Although water-use efficiency – which is a key solution to address water stress – has improved by nine per cent between 2015 and 2020, water stress and scarcity remain a concern in many parts of the world. Implementing water resources management at all levels, including arrangements for transboundary water cooperation, can help meet several SDG targets and increase the resilience to various types of crises.

Oceans and coastal zones are also affected by climate change in a myriad of ways, such as sea level rise, ocean warming and ocean acidification, with resulting impacts on food production, corals and shoreline defences, habitats and tourism. This thematic area also presented some positive news, with the adoption of the 'high seas treaty', as well as the launch of the Ocean Breakthroughs and the Coral Reef Breakthrough, aimed at boosting the resilience of coastal communities by restoring coral reefs and supporting more than half a billion people globally by 2030, while accelerating broad-based climate action.

LOOKING AHEAD

Seven key messages emerged from the Yearbook which can help inform actors on the conclusion of the GST at COP 28: i) we are still off track, and **climate action needs to align with the goal of keeping 1.5 °C climate-resilient world within reach** to enable climate-resilient sustainable development; ii) the **opportunities to accelerate climate action exist, but need to be scaled up**, and the challenges and barriers to their deployment need to be addressed; iii) **non-Party stakeholders are key partners in ramping up climate action and ambition**, iv) **credibility of action and commitments of non-Party stakeholders need to be systematically ensured** to safeguard their integrity and ambition, as well as to enable progress-tracking; v) **international cooperation across sectors, regions and actors – guided by the principle of climate justice - is instrumental in systems transformation** in order to accelerate innovation, development and transfer of technologies, as well as engagement in knowledge-sharing and capacity-building; vi) **climate action should not be siloed**. Neither mitigation nor adaptation can be tackled in isolation, and the potential impacts, consequences, co-benefits and trade-offs of climate action need to be taken into consideration, within the frame of an equitable, inclusive and just transition to a net zero, climate-resilient world; and vii) **fair finance flows are needed now**. Without sufficient, efficient and fair flows of finance, we will fail to protect people and our planet from climate change, and there will be no just transition.

Looking towards the outputs component of the first GST at COP 28, the High-Level Champions are working with the Marrakech Partnership and the wider community to build forward-looking '2030 Climate Solutions: an implementation roadmap' that streamline targets and actions and provide a comprehensive, holistic, coherent and shared roadmap for climate action by 2030 ahead of COP 28, on the firm belief that an effective response to the GST must set out a transformational roadmap to 2030 and beyond that will give clarity to all actors on the shared direction of travel.

CHAPTER 1
INTRODUCTION

BACKGROUND

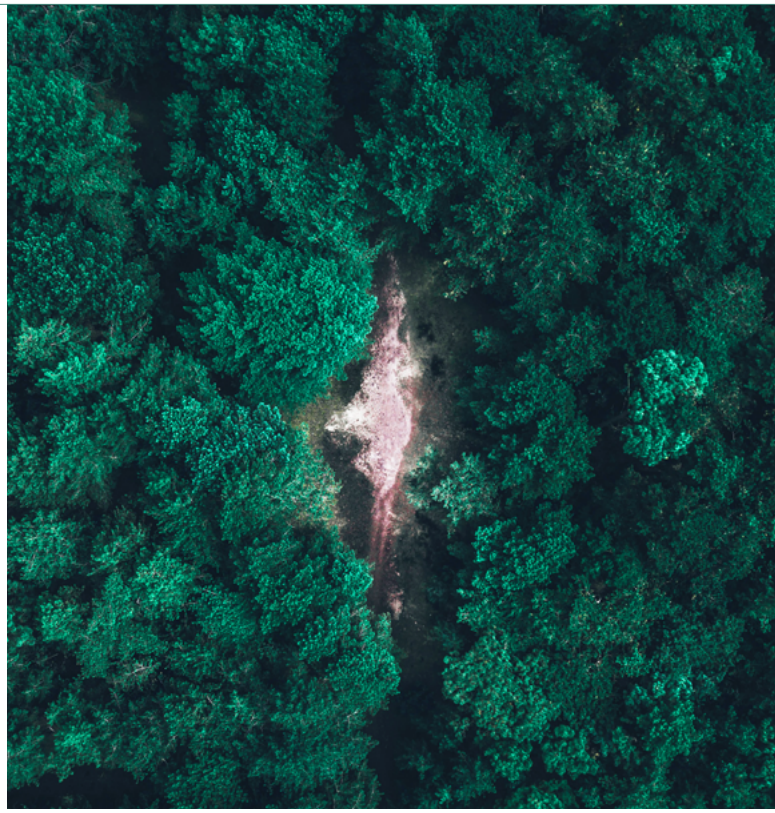
The need for engagement and action by all levels of society in tackling the climate crisis was recognized early in the United Nations Framework Convention on Climate Change (UNFCCC) process, and took a more structured approach in 2014, during the 20th session of the Conference of the Parties (COP 20), with the Lima-Paris Action Agenda. This Agenda involved actors at various levels (national governments and sub-national entities, international organizations, representatives of civil society groups, academic institutions and businesses) acting as individual entities or in partnerships, and aimed at both demonstrating climate commitments by various stakeholders and forging a coalition of actors towards accelerating climate action in support of a new legal agreement.

The following year, at COP 21, the commitments from all actors were recognized, including those launched through the Lima-Paris Action Agenda, as well as the urgent need to scale up the global response to climate change and support greater ambition from governments. In order to ensure a durable connection between the Convention and the many voluntary and collaborative actions that were already taking place, Parties decided to appoint two High-Level Champions, with a new Champion being appointed each year, in order to represent both the current and the incoming COP Presidencies.

During COP 22, the High-Level Champions launched the Marrakech Partnership for Global Climate Action, based on inputs gathered from Parties and non-Party stakeholders. The Partnership aims to strengthen collaboration between governments and key stakeholders to lower emissions, address the adaptation gap and increase resilience against climate impacts, and particularly to help increase the pace and ambition of climate action.

At COP 26, responding to the request from Parties at COP 25, the High-Level Champions launched the five-year plan of the improved Marrakech Partnership for enhancing ambition. The plan outlines the vision, mandate, core functions and tools, and updated structure intended to increase the scale and impact of the Marrakech Partnership work through 2025.

The Yearbook of Global Climate Action is one of the tools of the High-Level Champions and the Marrakech Partnership, with the support of the UNFCCC secretariat, to track progress, impacts and results, and to identify best practices and lessons learned from the climate



action ecosystem. Its main objective is to reflect the range and state of global climate action from non-Party stakeholders and to bring key messages to the international community to encourage a higher level of collaboration and ambition by Parties and non-Party stakeholders alike.

This Yearbook of Global Climate Action – the seventh of its series – reviews the key outcomes and messages from COP 27 and provides an overview of global climate processes and events involving non-Party stakeholders, the work carried out by the High-Level Champions and the Marrakech Partnership, such as the global stocktake (GST) technical dialogue, the Climate Ambition Summit and the Regional Climate Weeks (RCWs). Chapter three presents the state of global climate action in 2023, with an update on the range of individual and cooperative actions registered on the Global Climate Action Portal (GCAP), and a review of other key resources that assess the current state of climate commitments by non-Party stakeholders. It also delves into the importance of a credible and trusted voluntary framework for commitments in order to ensure accountability of climate action. Chapter four addresses the progress and gaps in systems transformation towards the climate goals across the Marrakech Partnership's seven thematic areas (Energy, Industry, Human Settlements, Transport, Land Use, Water, Oceans and Coastal Zones), and two cross-cutting areas (Finance and Resilience). Finally, chapter five summarizes the key messages emerging

from this Yearbook and provides ways forward facing the conclusion of the first GST in COP 28 and beyond.

COP 28, to take place from 30 November until 12 December 2023 in Dubai, United Arab Emirates, marks the conclusion of the first-ever GST. Established under Article 14 of the Paris Agreement, the GST is a process aimed at periodically assessing the collective progress towards achieving the Agreement's purpose and long-term goals.

The first GST process started in 2021, and its outcome is expected not only to provide a comprehensive assessment of progress since the adoption of the Paris Agreement but also a roadmap for climate action, based on which gaps can be bridged and ambition can be ramped up. The stocktake will lay the foundation for countries to update and enhance their national climate action plans, which they are required to do in 2025, but it is also meant as a guiding tool for all stakeholders involved, with specific pathways, milestones and targets, for each workstream, sector, region and actor to pursue.

In order to support the information collection and preparation and technical assessment components of the GST, three meetings of the technical dialogue were undertaken between June 2022 and June 2023, centred not only on taking stock of past actions but also on how to unlock more ambitious climate action and support. In addition to that, countries and stakeholders have been gathering at different moments to help shape the outcome of the stocktake, as a way to ensure everyone's voices are heard and that the outcome reflects the needs and concerns of all involved. The importance of wide participation of all stakeholders in the process is embedded in decision 19/CMA.1, which notes that the GST "will be a Party-driven process conducted in a transparent manner and with the participation of non-Party stakeholders", with inputs from countries, businesses, cities, civil society, and others (UNFCCC, 2019).

CLIMATE CHANGE IS CAUSING PLANETARY TIPPING POINTS

In 2023, the message is not much different from the previous Yearbooks. In September, the World Meteorological Organization (WMO) and the European Centre for Medium-Range Weather Forecasts (ECMWF) announced that Earth just had its hottest three months on record, global sea surface temperatures were at unprecedented highs for the third consecutive month, and Antarctic Sea ice extent remained at a record low for the time of year. WMO's *State of the Global Climate 2022* report, launched in April 2023, states that droughts, floods and heatwaves affected communities on every continent and cost many billions of dollars in the past year (WMO, 2023).

The Summary for Policymakers in the Intergovernmental Panel on Climate Change's (IPCC) AR6 Synthesis Report (AR6 SYR), published in March 2023, states that "climate change has caused widespread adverse impacts and related losses and damages to nature and people that are unequally distributed across systems, regions and sectors. Economic damages from climate change have been detected in climate-exposed sectors, such as agriculture, forestry, fishery, energy, and tourism. Individual livelihoods have been affected through, for example, destruction of homes and infrastructure, and loss of property and income, human health and food security, with adverse effects on gender and social equity". The report also shows that these adverse impacts from human-caused climate change will continue to intensify, and the extent to which current and future generations will experience a hotter and different world depends on choices now and in the near term (IPCC, 2023).

This is where the GST has a vital role to play. A synthesis report on the technical dialogue of the first GST, published in September, already identified key areas for further action to bridge gaps and address challenges and barriers in the implementation of the Agreement. The report listed 17 key technical findings based on the discussions and highlighted existing and emerging opportunities and creative solutions to bridge well-known gaps, as well as good practices and proposals to accelerate implementation, action and support. These key findings include the need for governments to support systems transformations that mainstream climate resilience and low greenhouse gas (GHG) emissions development and credible, accountable and transparent actions by non-Party stakeholders to strengthen these efforts, as well as more effective international cooperation – also involving non-Party stakeholders – across all systems and sectors (UNFCCC, 2023a).

Due to their relevance, both the IPCC report and the synthesis report of the technical dialogue of the first GST provide the backbone for the content and messages coming out of this Yearbook, which is also informed by several relevant reports published in the past couple of years. The opportunities, gaps, and possible options to overcome challenges to global climate action discussed throughout the Yearbook will contribute towards the conclusion of the first GST at COP 28 and beyond, hopefully correcting the course to 2030.

CHAPTER 2

OVERVIEW OF GLOBAL CLIMATE ACTION IN 2023

THE ROAD FROM COP 27

In addition to the GST, some key discussions and decisions from COP 27, presided and hosted by Egypt, helped shape the priorities for 2023 and beyond. With a strong call for global alignment with the goal of keeping 1.5 °C within reach, the Sharm el-Sheikh Mitigation Ambition and Implementation Work Programme (MWP), first mentioned in decision 1/CMA.3, was established in Sharm el-Sheikh. Governments are also expected to once again revisit their Nationally Determined Contributions (NDCs) and strengthen their 2030 targets, as closing the emissions gap is crucial for the Agreement's temperature goal to be met. Additionally, to ensure that the transition to low-emission and climate-resilient development pathway is ambitious, just and equitable, as agreed by Parties, a work programme on 'just transition' was established at COP 27 to build on and complement the work on urgently scaling up mitigation ambition and implementation.

A breakthrough was reached at COP 27 on loss and damage, with an agreement to establish a dedicated fund and funding arrangements. The need for pathways to broader climate finance was also highlighted during the conference, including a call for developed country Parties to provide resources for the second replenishment of the Green Climate Fund. As mentioned in the final decision package, global transformation to a low-carbon economy is expected to require investments of at least USD 4-6 trillion a year. Parties also called multilateral development banks to contribute to significantly increasing climate ambition, and to ensure higher financial efficiency and maximize use of existing concessional and risk capital vehicles (UNFCCC, 2023b).

Along with these negotiation outcomes, the global climate action agenda at COP 27 showed the implementation phase picking up speed. One of the key outcomes was the launch of the Sharm el-Sheikh Adaptation Agenda (SAA), the result of a collaboration between the COP 27 Presidency, the High-Level Champions and the Marrakech Partnership. This Adaptation Agenda introduced a set of 30 global adaptation outcome targets that are required by 2030 across sectors, as well as key enablers of planning and finance, in order to enhance resilience for four billion people living in the most climate-vulnerable communities around the world.

On the subject of finance, one of the main outcomes was the conclusion of the first edition of the five regional forums on initiatives for financing climate action and the Sustainable Development Goals (SDGs), organized by the COP 27 Presidency, the United Nations (UN) Regional Commissions and the High-Level Champions. These forums, carried out throughout 2022, resulted in a report by the Champions and a compendium of climate-related initiatives by the Regional Commissions. The Champions report, *Assets to Flows*, includes headline statistics on projects identified through the forums and practical insights from project proponents and financiers on what is needed to further build project pipelines and attract private finance, while the *Compendium of Climate-Related Initiatives: Opportunities for climate finance and investments on the SDGs* presents a pipeline of high-impact and investment-ready initiatives from across the five regions. An extended compendium containing additional initiatives was released during the conference. The High-Level Champions continued that work in 2023.

In total, the COP 27 Presidency launched 14 new initiatives, focusing on sectors such as agriculture, waste management and energy, among others. GCAP registered a total of 71 announcements made at the conference, ranging from reports and new initiatives or partnerships to progress and funding announcements and calls to applications. In addition to that, a number of events were organized as part of the official High-Level Champions and Marrakech Partnership thematic agenda for COP 27, from traditional action events to implementation labs. The key outcomes of global climate action during COP 27 can be found in the summary document.

Parties welcomed the leaders of the High-Level Champions, emphasized the need for continued acceleration and collaboration, and encouraged Parties and non-Party stakeholders to engage actively in the Marrakech Partnership (UNFCCC, 2023b).

THE YEAR IN GLOBAL CLIMATE ACTION

High-Level Champions and the Marrakech Partnership in 2023

The work under the High-Level Champions and the Marrakech Partnership progressed on a number of fronts, in line with their work programme of the year, which is derived from the five-year plan of the Improved Marrakech Partnership mentioned in chapter one. This

section provides key progress and achievements by the High-Level Champions and the Marrakech Partnership in 2023, while their work is also highlighted throughout the Yearbook. In the mitigation front, Race to Zero launched its Data Explorer tool in March, which was developed by Climate Arc and supported by CDP data. The Explorer tracks the campaign members' progress across four criteria they are required to follow (Pledge, Plan, Proceed, Publish) by means of a publicly accessible data board. The campaign has also been collecting case studies to showcase non-Party stakeholders' leadership in nature-based solutions, in order to reflect the high priority of the High-Level Champions and the Marrakech Partnership to increase synergies with nature in 2023. For example, during the opening of London Climate Action Week, the COP 28 High-Level Champion emphasized the urgency of addressing climate change and nature loss, highlighting the importance of Race to Zero. It is noteworthy that the emphasis on this convergence of climate and nature was reinforced throughout the year, with her participation in the Amazon Cooperation Treaty Organisation Summit in Brazil, for instance – an event which addressed the pressing and interconnected issues of climate change, biodiversity, and Indigenous Peoples.

On adaptation and resilience, and loss and damage, during the Bonn Climate Change Conference in June 2023 – the 58th sessions of the Subsidiary Bodies (SB 58) – the COP 27 Presidency, the High-Level Champions and the Marrakech Partnership also established six Task Forces to implement the SAA. These Task Forces are aimed at bringing together stakeholders across the impact areas of the Agenda, identifying partnerships for delivery, tracking progress and coordinating narratives for consolidated action, a work which will contribute to the delivery of the first SAA report at COP 28. The Steering Committee of the SAA was also established and convened its first meeting in October. In addition to this context, it is noteworthy that the solutions framework of the SAA was updated in 2023 to elevate the need for resilient health systems and to recognize the cross-cutting nature of water and natural systems solutions. As a result, the SAA now has around 40 Adaptation Outcomes, representing simple, measurable, and specific targets that need to be met by 2030 to advance action globally. Race to Resilience campaign has also shown progress: in March, the Race to Resilience Data Explorer – first launch during COP 27 – was updated, enhancing both its interface and contents. In accordance with the Race to Resilience's Metrics Framework, it aims to offer information on the actions implemented along with the impact of the campaign and its partners towards their goal of increasing the resilience of people and nature. The High-Level Champions also have been increasing awareness of losses from climate change impacts and supported initiatives such as C40 on its work for cities.

On finance, the High-Level Champions supported a dialogue with key private and finance sectors to identify opportunities to mobilize finance for adaptation and resilience as per the SAA finance outcomes. That should result in a call to action for enhanced private finance mobilization for adaptation and resilience to be launched at COP 28. An important report was issued in October by the High-Level Champions on *Breaking Financing Barriers for a Just Climate Transition in Africa*. The report identifies five interventions to unlock climate financing: i) debt relief and suspension for low and middle-income countries; ii) extending below-market rate or concessional capital to emerging markets and developing economies; iii) credit enhancement and credit guarantee schemes to incentivize private sector participation; iv) foreign exchange guarantee mechanism; and v) a turbocharger facility for climate action projects and entrepreneurs in Africa. The Champions have also been working with the Independent High-Level Expert Group on Climate Finance, a group that develops and presents policy options and recommendations to enable the public and private investment necessary for the delivery of the ambitions of the Paris Agreement. The Champions engaged in a meeting of the group held in Abu Dhabi in August to drive progress on steps to reform international finance ahead of COP 28. In addition, they have been continuing collaboration with the UN Regional Commissions through the Regional Platforms for Climate Projects initiative. Launched at COP 27, the initiative aims to finance the 2030 Agenda for Sustainable Development and deliver urgent near-term action by catalysing investment in critical mitigation, adaptation and resilience projects by matching these with potential investors and the finance sector (note that these actions will be revisited in chapter four). Moreover, as narrowing the climate and nature funding gap has been one of their focus, in September, they have launched a report with Systemiq and the Center for Global Commons at the University of Tokyo, which contains calls to action for the private sector on how they can co-create the conditions for scaling up private finance for nature-based solutions by focusing on six priorities. These priorities include

de-risking climate and nature projects, suspending and reducing debt burden for low and middle-income countries, and establishing foreign exchange guarantee mechanisms, among others.

On nature, strategies like reforestation, sustainable agriculture and ocean management, can provide up to one-third of the emissions reduction required by 2030 to combat climate change. In this regard, the High-Level Champions, with several partnership organizations, launched the Nature Positive Initiative in September. The initiative aims to drive alignment and synergies across a multitude of actors who will advocate, support and implement actions towards a nature-positive outcome of halting and reversing nature loss by 2030. They have also worked actors including farmers, cities, businesses and financial institutions to develop a Call to Action on Transforming Food Systems for People, Nature, and Climate, which mobilizes collective efforts around a shared vision of food systems that deliver significant, measurable progress for people, nature, and climate by 2030. In addition, they worked with the Marrakech Partnership stakeholders and launched the Ocean Breakthroughs and the Coral Reef Breakthrough (also explained in chapter four).

Inclusion of Indigenous Peoples and local communities, youth, and women has been a key priority for the High-Level Champions in 2023. Their priorities include spearheading joint campaigns with Indigenous Peoples organizations to secure direct access to finance for nature stewardship, ensuring the visibility of Indigenous Peoples in decision making, and contributing to the Local Communities and Indigenous Peoples Platform. Additionally, the High-Level Champions prioritized mobilizing financial commitments to support women in climate action. They have been contributing to the work of the incoming COP 28 Presidency on launching the Gender-Just Transition Partnership, and mainstreaming gender considerations across all areas, including negotiations and finance. Key steps toward ensuring inclusion also include engagement with the Youth Climate Champion, mobilizing youth within the Marrakech Partnership, and showcasing and funding youth-led climate initiatives. They are working to support funding for key initiatives, reflecting their commitment to creating an inclusive, diverse, and impactful approach to addressing climate change.

Detailed progress and achievements up to June are showcased through their achievements document published along SB 58.

Case Studies from non-Party stakeholders

This year, the secretariat opened a call for inputs to non-Party stakeholders to showcase some of the global climate actions they are engaged in that have a positive impact on systems transformation. Appendix 1 presents some of the submitted cases.[1] They provide some insights into a range of initiatives taking place on the ground across a number of thematic and cross-cutting areas, some of which show progress throughout the year. SLOCAT Partnership's NDC-Transport Initiative for Asia project, for example, aims to decarbonize the transport sector in India, China and Vietnam through the development of coherent strategies for policy approaches coordinated between ministries, civil society and the private sector. The Transformative Urban Mobility Initiative is also supporting cities in the developing countries to prepare for the implementation of electric buses. In Wales (United Kingdom), the government started working on the National Peatland Action Programme, a multi-year plan aimed at peatland restoration that prioritises action across the main areas of peatland damage for the combined benefit of biodiversity, decarbonization and other ecosystem services. There are also initiatives focused mainly on adaptation: in June, the Nature Conservancy launched an interactive Foodscapes mapping tool with the aim of building the science, partnerships and investment pathways that catalyse food system change at a global scale. In Brazil, the Paraná state government officially signed a partnership with an Indigenous community to co-manage the Metropolitan Forest, an initiative that combines environmental education, biodiversity conservation, tourism, and appreciation of Indigenous communities and traditional knowledge.

1 Cases were directly submitted by non-Party stakeholders and, therefore, the views expressed do not necessarily reflect the views of the secretariat. As such, the statistical data and estimates presented should not necessarily be considered as reflecting the views or bearing the endorsement of the secretariat.

Launch of the TUMI E-Bus Mission at the International Transport Forum in Leipzig. May, 2022.

Non-Party Stakeholders' Engagements in Climate Action Events Around the World

A number of conferences and meetings held throughout 2023 presented various opportunities for multi-stakeholder cooperation in global climate action within and beyond UNFCCC. The High-Level Champions have actively engaged in these notable moments, in line with one of the core missions of their work and that of the Marrakech Partnership, which is to amplify a common message around the role of global climate action.

The discussions under the UN Water Conference held in March reflected the central role water plays within the SDGs, while highlighting water as a key opportunity to achieve climate change mitigation and adaptation. The High-Level Champions engaged in the conference by helping to consolidate action that sees water and wastewater services fully decarbonized in 20 countries by 2030. During its opening day, over 50 of the world's largest corporations, operating in over 130 countries and employing two million people worldwide, launched the Business Leaders' Open Call for Accelerating Water Action, an unprecedented appeal for private sector action to help solve the global water crisis and advance progress on SDG 6 to ensure access to water and sanitation for all. The President of the UN General Assembly (UNGA) highlighted nine decisive game changers at the closure of the Conference, five of which linked to climate change: i) integrated water and climate policy at national and global levels by 2030; ii) operational Global Water Information System to support water, climate and land management for socioeconomic resilience, economic sustainability and social inclusion by 2030; iii) Early Warning for All to help safeguard lives and property by 2027; iv) overcoming the dependence on ever-rising water consumption for providing nutrition and power as fast as possible; and v) re-defined economic principles to make our economies water-, climate-, land-, and ecosystems- smart and people centric (UN, 2023a).

As highlighted in the 2022 Yearbook, engaging stakeholders from under-represented regions remains one of the key aspects of global climate action. In this regard, the RCWs have been taking place for a number of years now, with the main goal of bringing together diverse stakeholders in the public and private sectors around a common goal of addressing climate change, with events that provide space for a grassroots exchange of knowledge and best practices across the specific regions on a number of subjects, such as the NDCs and National Adaptation Plans (NAPs), SDGs, and global climate action. Currently, they are held across Africa, Asia-Pacific, Latin America and the Caribbean, and Middle East and Northern Africa. In 2023, RCWs were structured around four major systems-based thematic tracks, with a view to providing region-focused contributions to inform the GST: i) energy systems and industry; ii) cities, urban and rural

settlements, infrastructure and transport; iii) land, ocean, food and water; and iv) societies, health, livelihoods, and economies. Regionalization has been one of the priorities of the High-Level Champions and the Marrakech Partnership in 2023, and they have actively engaged in RCWs through organizing events and holding dialogues to identify regional and local opportunities and challenges.

The first to take place, Africa Climate Week (ACW) 2023 was hosted by the government of Kenya and held in Nairobi, from 4 to 8 September. The event was organized in parallel with the Africa Climate Summit, where the High-Level Champions facilitated discussions on climate finance and investment. The summit resulted in the adoption of the African Leaders Nairobi Declaration on Climate Change and Call to Action, which stresses the importance of decarbonizing the global economy for equality and shared prosperity and call for a comprehensive and systemic response to the incipient debt crisis. Meanwhile, ACW brought together more than 10,000 participants, ranging from governments, cities and subnational regions, the private sector, and civil society from across the continent and the world. Discussions held during ACW highlighted the challenges, barriers, solutions and opportunities for climate action and support within the context of Africa, with examples of African cities implementing resilience projects, replacing wood fuels for cooking with liquefied petroleum gas, or increased investment of the private sector in electrification fleets. The event showcased how Africa is not just a continent facing climate impacts, but a continent poised to lead the world in climate solution.

The Middle East and North Africa Climate Week (MENACW) 2023, took place in Riyadh, from 8 to 12 October, hosted by the government of the Kingdom of Saudi Arabia. More than 9,000 participants from 137 countries took part in 245 events, including 21 UNFCCC-mandated events. The events and discussions held throughout the week emphasized the critical need of urgent climate action, as the region is already experiencing rapid temperature rise and shortage of water resources. In this context, the High-Level Champions and regional stakeholders highlighted specific examples of climate action, such as fostering just energy transitions in local communities, socio-economic adaptation and implementing nature-based solutions to build resilience in transport infrastructure sector. Discussions also showed the potential of the region to be the frontrunners in renewable energy and innovative technology, attracting investment and facilitating technology transfer, and leading to green development.

The Latin America and the Caribbean Climate Week (LACCW) 2023, took place in Panama City, between 23 and 27 October, in parallel with the XXIII Meeting of the Forum of Ministers of Environment of Latin America and the Caribbean. Hosted by the government of Panama, LACCW brought together representatives from local and national governments, Indigenous communities, civil society and the private sector. Engaging with stakeholders, the High-Level Champions emphasized the region's unique opportunities, with the region being the home of around 40 per cent of the world's biodiversity, where the discussions concluded with a call for inclusive and nature-centric climate action, addressing socio-environmental challenges and emphasizing the urgent need for collective, collaborative efforts to achieve a sustainable future.

Finally, the Asia-Pacific Climate Week (APCW) 2023 took place in Johor Bahru, from 13 to 17 November, hosted by the Johor state government in collaboration with the government of Malaysia. Challenged by increased extreme weather events, from typhoons and hurricanes to droughts and rising sea levels, the region is in critical need of coordinated climate action. The High-Level Champions highlighted both the opportunities and challenges of the region, including its growth in science-based targets setting, as well as its reliance on coal.

With a view to extract key regional messages that can feed into the GST, each RCW in 2023 also included a high-level GST regional dialogue among policymakers and key non-Party stakeholders on regional lessons learned, good practices, and enablers for climate action and support. The dialogue at ACW highlighted how Africa has the potential to lead the green transition with renewable energy, however, capacity building, technological and financial support is critically needed to ensure this transition is just and in support of the achievement of the SDGs. For the MENACW dialogue, emphasis was on how the energy sector and use of all technologies are key for reaching the climate goals, as well as how the region has the potential to become a leader in renewable energy and low-carbon technologies. At the LACCW dialogue, ministers and non-Party stakeholders agreed that the GST needs to send political signals that are balanced, realistic, inclusive, just and applicable, especially on critical priority areas such as just energy transition, loss and damage, climate finance, and ecosystem and biodiversity restoration and protection. The GST event at APCW, which was the last of the series, also provided a unique platform for stakeholders to identify opportunities and challenges in the region, as well as

solutions, en route to COP 28. Throughout all of the regions, the efforts by non-Party stakeholders and their support to national governments in accelerating climate actions towards the final phase of the GST at COP 28 and beyond were both acknowledged and highlighted.

At the same time, global leadership is required to drive ambition and action to scale, and there is no time to waste. With this in mind, the UN Secretary-General (UNSG), António Guterres, convened the 2023 edition of the Climate Ambition Summit at the UN Headquarters in New York. The Summit, which took place on 20 of September amidst the UNGA's High-Level Week, is a critical milestone for demonstrating that there is a collective will to accelerate the pace and scale of the transition to a renewable energy-based, climate-resilient global economy. This year's Summit – containing three thematic sessions (credibility of net zero, delivering climate justice, accelerating decarbonization) and a convening on loss and damage – focused on showcasing 'first mover and doer' leaders from a host of entities – including government, business, finance, local authorities, and civil society – which moved beyond pledges to credible actions, policies and plans in line with the UNSG's Acceleration Agenda. Along with the representative of national governments, stakeholders such as the governor of the state of California (the United States of America) – one of the leaders of Race to Zero – underscored the need to fully phase out oil and coal, by stating that the "climate crisis is a fossil fuel crisis" (UN, 2023b). At the Summit, the High-Level Champions advocated for net-zero policies, urging businesses, investors, and governments to establish fair and inclusive regulations and incentives. They emphasized the urgency of translating climate commitments into action, highlighting the gap between voluntary actions and required emissions reductions. The Champions actively collaborated with stakeholders to promote advocacy aligned with net-zero goals, stressing the importance of collective efforts across sectors for a sustainable future.

In parallel to UNGA and the Climate Ambition Summit, the New York Climate Week – an annual event hosted by the Climate Group and New York City – was held between 17 and 24 of September, with over 600 events taking place across the city. These included a call by over 250 companies and organizations representing a market value of more than USD 12 trillion across all continents for world leaders to commit to tripling renewable energy by 2030 by COP 28, and a new campaign by the We Mean Business Coalition calling on businesses and governments to move decisively to phase out fossil fuels and ramp up clean energy solutions. The Climate Group also launched a report looking at how companies can move from reducing emissions to building a business to thrive in a decarbonizing world.

Non-Party Stakeholders' Engagement in the UNFCCC processes

Though progress has been made on relevant workstreams during COP 27, notably under loss and damage, work still needed to be further advanced and milestones achieved for the implementation phase of the Paris Agreement to come into full force. In 2023, some of the key processes picked up pace, with active participation by non-Party stakeholders. GST served as one of the major arenas for discussions between these actors and Parties aimed at contributing to the UNFCCC process.

The three meetings of the technical dialogue on the GST were held in conjunction with SB 56, SB 57 and SB 58, and a summary report on each meeting was prepared by the co-facilitators of the technical dialogue. The dialogue meetings served to facilitate the expert consideration of inputs through focused exchanges of views, information and ideas at in-session round tables, workshops and other relevant activities. All written inputs in the form of submissions, representing over 170,000 pages, were made fully accessible online to participants, as well as information notes prior to the meetings, including through a searchable interface – an online GST tool. The co-facilitators also held informal consultations and webinars with Parties and non-Party stakeholders and made themselves available to these actors during the sessions of the subsidiary bodies. A total of 252 hours of meetings and discussions were held during the three meetings across all formats (UNFCCC, 2023a).

The High-Level Champions have actively supported non-Party stakeholder engagement to the technical dialogue. In addition to collaborating with the secretariat in the expression of interest process to invite non-Party stakeholders to the three meetings, they have made written submissions ahead of each meeting. The first submission made in February 2022 responded to the guiding questions from the SB Chairs, and provided their progress such as in the area of global campaigns and Climate Action Pathways. The second submission in August presented a snapshot of progress in ambition, implementation regional perspectives and accountability, based on inputs from the Marrakech Partnership stakeholders. Finally, the third submission

BOX 1:
World Café enhanced interactive engagement

The World Café sessions held during the three meetings of the GST technical dialogue allowed for interactive and dynamic engagement of a wide range of stakeholders in an informal setting on a variety of topics. The picture captures a discussion in Table 13 of the World Café during the third meeting of the first technical dialogue. Participants discussed how to better understand the level to which non-Party stakeholders and international cooperative initiatives have contributed to the collective progress of Paris Agreement goals, as well as how to promote the accountability of pledges and ensure rigorous accounting.

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in March 2023 provided key messages that have emerged from non-Party stakeholders in the run up to and throughout COP 27, and their expectation for the GST to be a springboard of action. They stated that the GST "must boost our collective response to the climate emergency, prompting a dramatic course-correction from governments and non-Party stakeholders in order to achieve the goals of the Paris Agreement".

As for participants to the meetings of the technical dialogue, Parties self-selected within their negotiating groups, NGO constituencies submitted nominations within accredited observer organizations, and other non-Party stakeholders applied through an expression of interest process ran by the secretariat in collaboration with the High-Level Champions in support of the co-facilitators. Non-Party stakeholder participants were invited based on similar evaluation criteria as applied to the selection of experts (respecting gender and geographical balance to the extent possible, while ensuring relevant expertise in the related fields). While the events were all held in-person, the plenaries, roundtable discussions and focused exchanges were streamed to an online platform that was accessible to all registered participants (UNFCCC, 2023a).

The outcome of the technical dialogue process was presented in the synthesis report, published by the co-facilitators in September. In addition to the 17 key findings mentioned in chapter one, the report identifies possible paths forward, highlighting that "many actionable solutions and creative suggestions to overcome challenges identified during the input and technical phases of the GST are ready to be implemented". The report highlights the need for an "all of economy, all of society" approach across all systems and sectors with more effective international cooperation involving non-Party stakeholders. It also emphasizes the need for credible, accountable and transparent actions by non-Party stakeholders, in order to strengthen efforts for systems transformations. At the same time, the report also points to the importance of focusing on inclusion and equity as rapid change can be disruptive (UNFCCC, 2023a). The High-Level Champions responded to this report by emphasizing the importance of mobilizing non-Party stakeholders, particularly in the developing countries, on enablers for climate finance, technology transfer and capacity building with a pragmatic, realistic and just solutions-oriented approach. They also pointed out that united and strong responses from governments will give clarity and confidence to non-Party stakeholders to incentivize and spur more action.

In addition to the GST process, the newly established MWP set up a forum that welcomed the engagement of non-Party stakeholders. Parties agreed to hold at least two global dialogues every year, with investment-focused events in parallel. They also agreed these global dialogues should facilitate an active interaction between them and non-Party stakeholders, with the High-Level Champions supporting the effective participation of these actors. Parties also agreed to hold at least two global dialogues every year and investment-focused events at the margins of the dialogues. The topics for each dialogue are decided by the co-chairs of the MWP (appointed every two years by the Chairs of the SBs), based on submissions received in advance. As such, Parties, observers and other non-Party stakeholders are invited to submit their views on opportunities, best practices, actionable solutions, challenges and barriers relevant to the topics of the dialogues via the submission portal four weeks before each dialogue.

The focus of the 2023 dialogues has been on accelerating just energy transition, including by implementing policies and measures with global overview and country-specific experience; addressing financial, technological and capacity-building needs in this area, such as through international cooperation, including with non-Party stakeholders, and provision of support to developing countries; and promoting sustainable development and understanding socioeconomic effects. The First Global Dialogue and Investment Focused Event under the MWP was held in June 2023 in Bonn, and included presentations by non-Party stakeholders. It also received 29 submissions from these actors, including two by the High-Level Champions. Participants discussed opportunities, best practices, and actional solutions, as well as barriers in the areas of just energy transition. Some of the barriers highlighted include, affordable finance (renewable energy); ageing and/or weak infrastructure and geographical challenges (grid and energy storage); high capital costs to capture carbon dioxide (CO_2) and energy intensity of the capturing process (CCU and CCS); high upfront cost of transitioning to a higher rate of energy efficiency (energy efficiency); lack of technical capacity and enforcement mechanisms (policies and measures); lengthy and demanding processes and the eligibility criteria (financing issues); limited land for deploying solar and onshore wind power (technology and capacity challenges); and translating national strategies into implementation at the subnational level owing to lack of coordination (sustainable development and socioeconomic impacts) (UNFCCC, 2023c).

The Second Global Dialogue and Investment Focused Event took place in October in Abu Dhabi. The event included a project pitch hub session where a selection of project owners from different parts of the world were given the opportunity to present their high-impact projects and ideas related to mitigation ambition and implementation to financiers and investors. The co-chairs of the MWP selected the projects in collaboration with the High-Level Champions, the International Renewable Energy Agency (IRENA), and the NDC Partnership. Nine projects from the High-Level Champions' pipeline of projects from the Regional Platforms for Climate Projects were selected, and two project owners engaged in the event, with Parties and interested investors on success stories, opportunities for improvement and how these projects could support the implementation of the NDCs.

The intrinsic interconnectedness between nature and climate change is at the core of the Ocean and Climate Change Dialogue, the result of a request made at COP 25 for the Subsidiary Body for Scientific and Technological Advice (SBSTA) to hold an annual dialogue to strengthen ocean-based climate action. The relevance of such interconnectedness is being increasingly recognized and incorporated into different international pacts, such as the historic agreement under the UN Biodiversity Conference in Montreal and the new agreement on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.

The 2023 edition of the event – the third of its kind – took place in June in Bonn. The topics were chosen based on consultations during an informal exchange of views with both Parties and observers: i) coastal ecosystem restoration including blue carbon; and ii) fisheries and food security. These exchange of views were organized by the co-facilitators using four virtual meetings held in March, in preparation for the Dialogue, in which Parties and non-Party stakeholders were invited to consider the guiding questions, provided in advance, to help facilitate interactive discussions and effective deep-dives into the topics, as well as consideration of what is needed to further centralize the role of oceans in climate change mitigation and adaptation action and through UNFCCC processes. Links to the agenda, presentations and summary report can be found here.

CHAPTER 3

TRACKING THE STATE OF GLOBAL CLIMATE ACTION

As touched upon in the previous chapter, discussions around the importance of a framework to ensure the ambition and credibility of transition plans and emission reduction commitments have been gaining momentum. There are several initiatives currently aimed at addressing net-zero credibility and providing guidance towards best practices, as will be detailed later in this chapter. While there is no single standardized verification framework yet, work is being undertaken in order to provide alignment and convergence among the various existing recommendations, so as to better provide stakeholders with an overview of what constitutes good practice in net-zero target-setting.

It is understood, however, that a key element in ensuring the accountability of any climate strategy is transparency. Proper disclosure around the details of any climate plan, particularly in what concerns emission reductions, is vital to ensure targets are science-based, feasible, comparable and aligned with the 1.5 °C goal. It also allows plans to be assessed and adjusted whenever necessary, challenges to be collectively tackled, and good practices to be recognized, which is why one of the five principles enshrined in the *Integrity Matters* report (to be further explored in this chapter) is radical transparency in sharing relevant, non-competitive, comparable data on plans and progress.

In line with the need for transparency to be the first step towards accountability, this chapter presents an overview of the latest findings from data-tracking initiatives and sources monitoring and assessing existing information on non-Party stakeholder global climate action, particularly in what concerns their progress towards the Paris Agreement goals. As mentioned in chapter one, one of the Yearbook's objectives is to reflect the current range and state of these efforts, and GCAP is the main tool to showcase them.

THE GLOBAL CLIMATE ACTION PORTAL

First launched in 2014 by the UNFCCC secretariat and the governments of Peru and France, GCAP aims at providing an online platform for all actors to display their climate-related commitments, on the recognition that addressing climate change needs ambitious and broad-based action from all segments of society. With its formal inclusion in the Paris Agreement text, Parties welcomed the efforts of all actors to scale-up their climate actions and encouraged them to register these actions via GCAP.

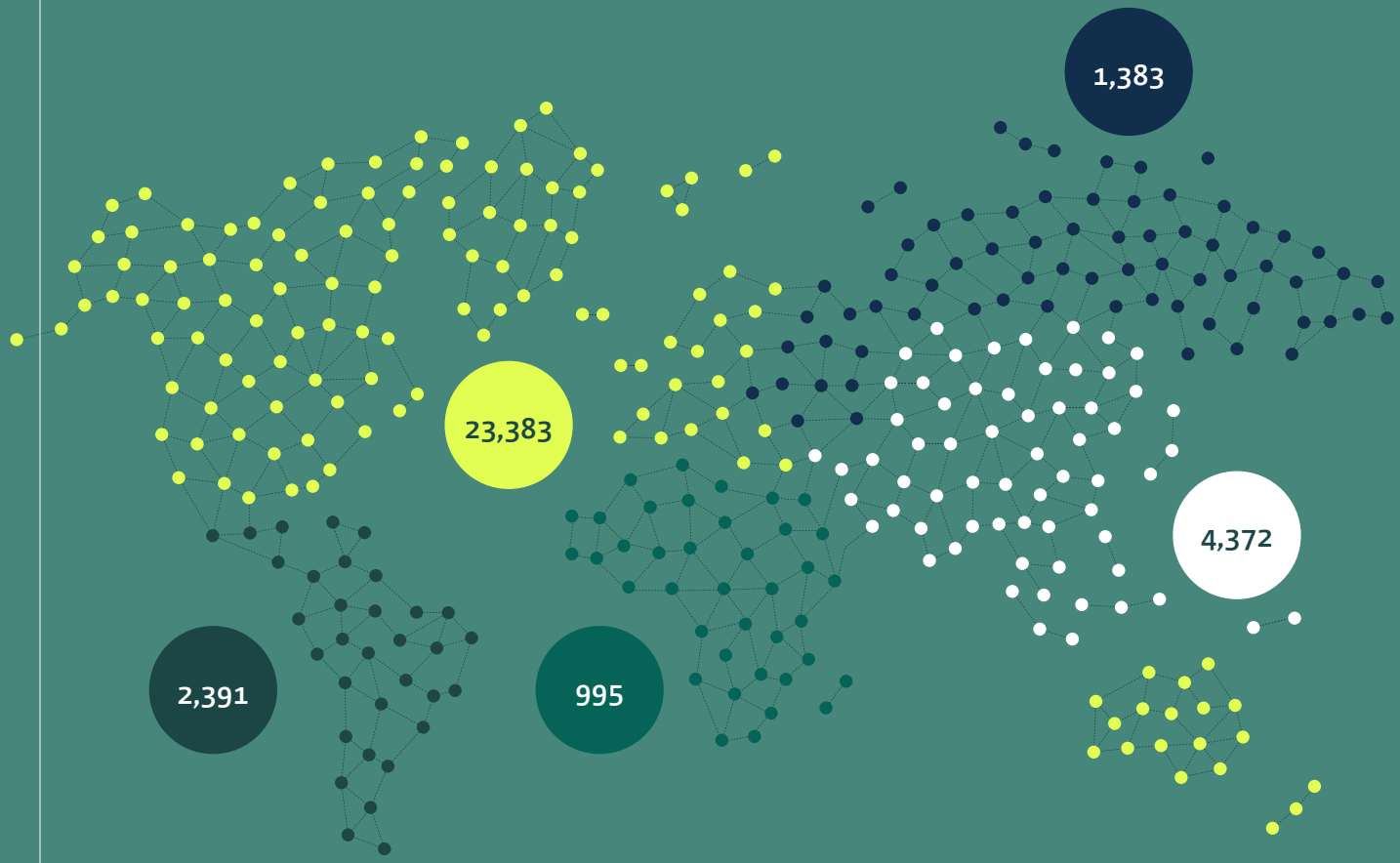
Today, the ever-evolving GCAP compiles actions, initiatives and associated data from a range of partner organizations to present a clear and comprehensive view of global climate action from a wide range of actors. In 2021, GCAP also relaunched the tracking of voluntary climate action, which captures the progress made by individual actors and cooperative initiatives that are registered in the Portal.[2]

As of October 2023, GCAP registered 32,524 actors engaging in climate actions around the world, an increase of approximately six per cent from what was reported in the 2022 Yearbook. Though 2023 presents a more modest increase in comparison with the past few years, it should be noted that the number of actors registered in the portal today is around six times the number in 2015.

In terms of the type of actors registered on the Portal, companies have consistently presented the highest rates of increase in recent years – in 2023, these actors had a 12 per cent growth compared to what that reported in the 2022 Yearbook. While the number of actors has consistently been higher in developed countries, in 2023, Asia-Pacific saw the highest increase, with 30 per cent more actors engaged in comparison with the information reported in 2022. Figure 1 below provides the latest number of actors engaged in climate action across the globe per type and UN region.

2 The outcomes of the progress tracking are available in GCAP Actor tracking page and Cooperative Initiatives tracking page.

FIGURE 1:
Actors Recognized in the Global Climate Action Portal (October 2023).



ASIA-PACIFIC GROUP		EASTERN EUROPEAN GROUP		AFRICAN GROUP		WESTERN EUROPEAN AND OTHERS GROUP		LATIN AMERICAN AND CARIBBEAN GROUP		TOTAL	
Cities	476	Cities	1,067	Cities	234	Cities	8,852	Cities	725	Cities	11,354
Regions	26	Regions	5	Regions	23	Regions	134	Regions	94	Regions	282
Companies	3,076	Companies	200	Companies	330	Companies	10,775	Companies	1,212	Companies	15,593
Organizations	484	Organizations	38	Organizations	308	Organizations	2,349	Organizations	264	Organizations	3,443
Investors	252	Investors	50	Investors	46	Investors	1,244	Investors	62	Investors	1,654
Countries	58	Countries	23	Countries	54	Countries	29	Countries	34	Countries	198
Total	4,372	Total	1,383	Total	995	Total	23,383	Total	2,391	Total	32,524

In addition to individual actors, the Portal also registers cooperative climate initiatives (CCIs). CCI is a coordinated effort involving multiple stakeholders, such as cities, regions, businesses, investors, academic institutions, national governments, non-governmental organizations and research bodies, that aims to achieve a clearly stated climate-related goal. CCIs operate by jointly developing and implementing strategies, policies, and actions aimed at climate mitigation (directly or indirectly reducing greenhouse gases), climate adaptation and resilience (directly or indirectly fostering adaptation to the impacts of climate change) or a mixture of both.

Between September and October 2023, the secretariat conducted its annual survey of CCIs. As well as obtaining up-to-date information from the initiatives registered on the portal, the survey provided the opportunity for other initiatives (including Race to Zero partners not yet registered) to provide the necessary information for inclusion on GCAP. The 42 active initiatives which responded to the survey within the requested timeline are shown in Appendix 2. Whilst the responses are currently being processed (to update GCAP ahead of COP 28), the following figures present an overview of some of the information received.

The graph below shows the geographical scope of the initiatives (Figure 2). While some are national or regional focused, the majority of the initiatives that responded to the survey are global in scope.

FIGURE 2:
GEOGRAPHICAL SCOPE OF INITIATIVES

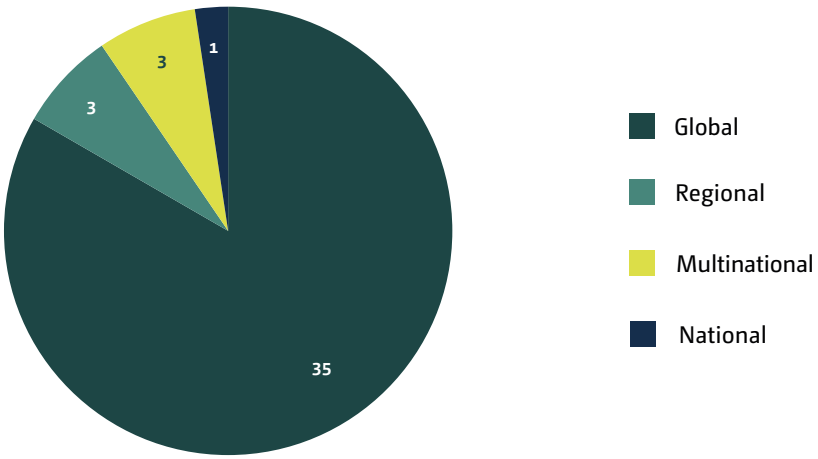
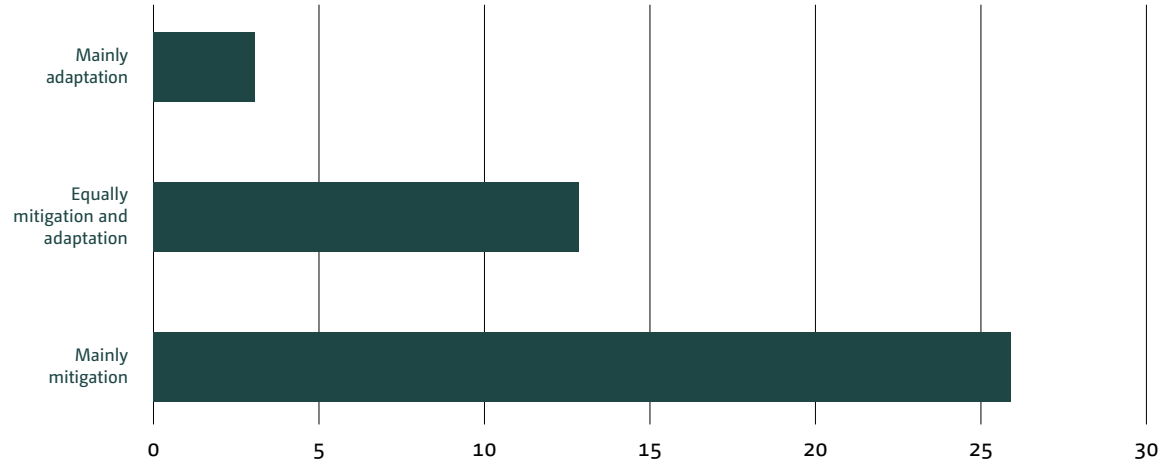


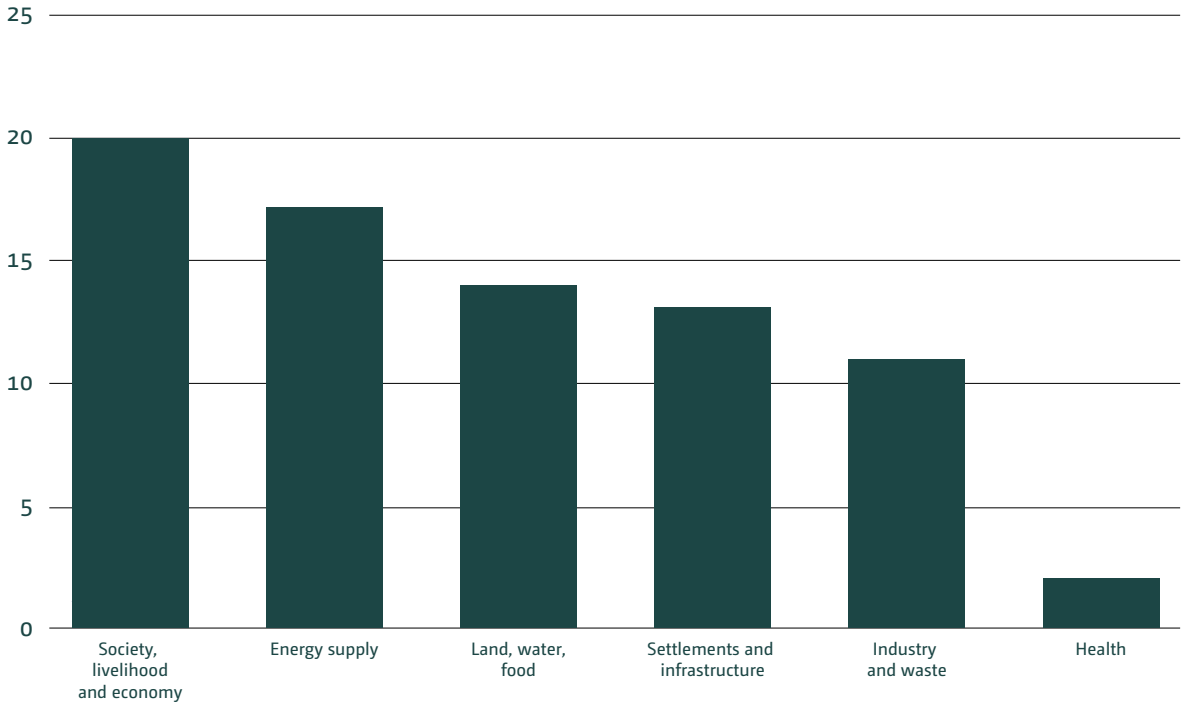
Figure 3 presents the initiatives' main climate focus. It shows that the majority are focused mainly on mitigation action, followed by initiatives equally focused on mitigation and adaptation. On the other hand, initiatives focused mainly on adaptation are less than one-fifth of the number focused mainly on mitigation.

FIGURE 3:
CLIMATE FOCUS OF INITIATIVES



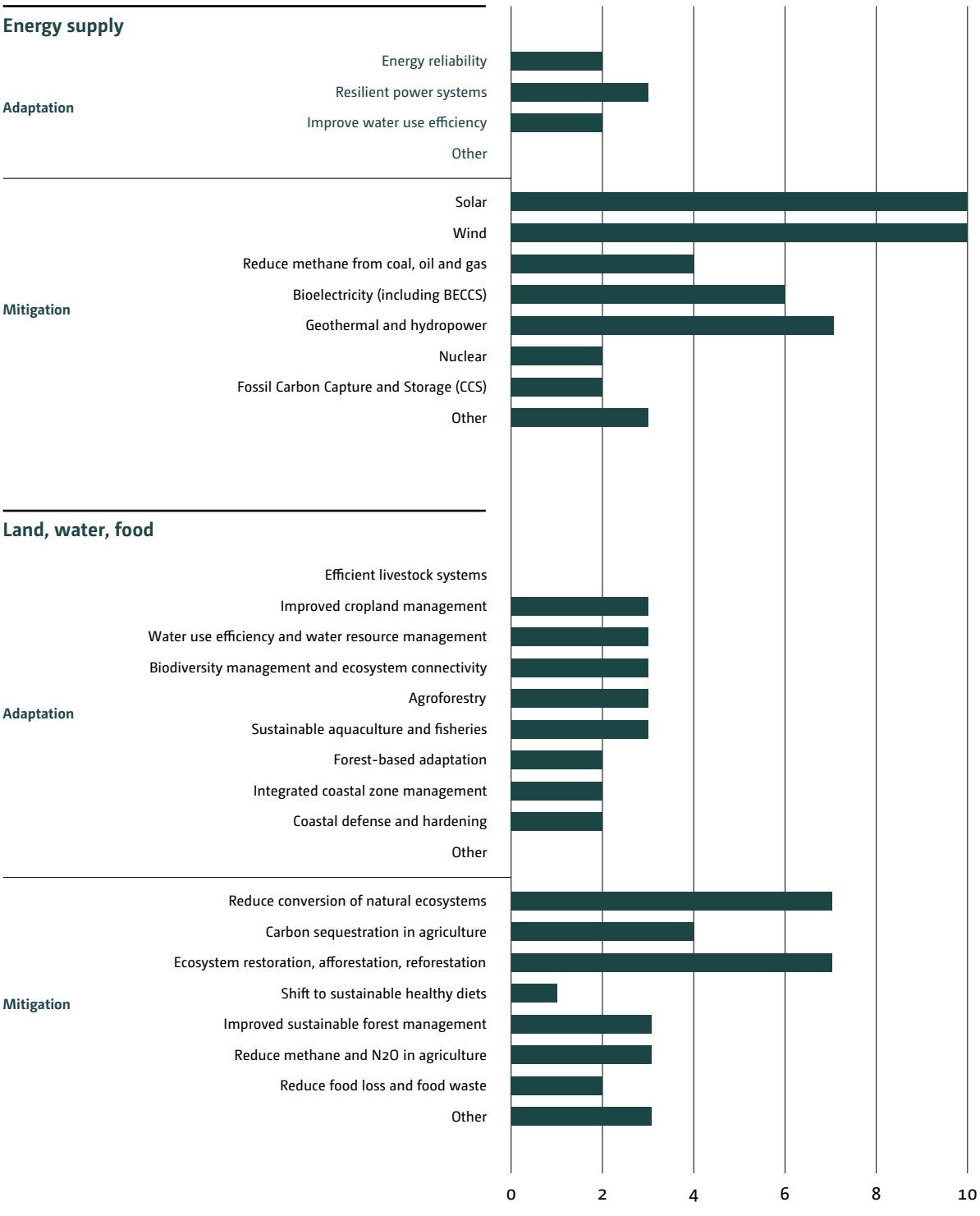
This year, the survey asked initiatives to report their focus on systems and opportunities, based on the taxonomy presented in IPCC's AR6 SYR – the results, illustrated in the graph below (Figure 4), showed a broader distribution. While *Society, livelihood and economy* had the highest engagement followed by energy supply, *Health* shows the lowest.

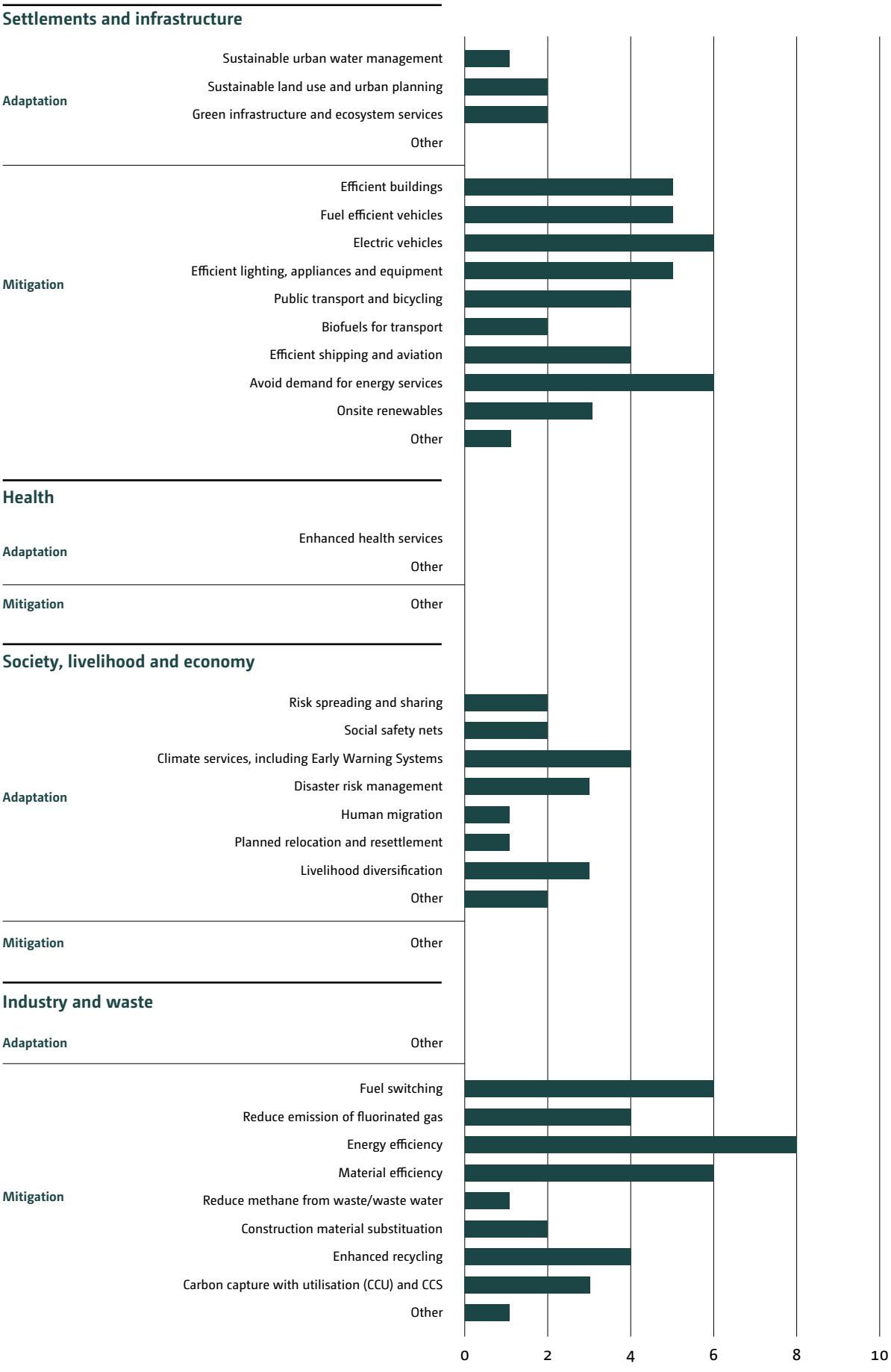
FIGURE 4:
SYSTEMS FOCUS OF INITIATIVES



The following figure (Figure 5) further breaks down the systems-focus into opportunities where the initiatives provided.

FIGURE 5:
CLIMATE ACTION OPPORTUNITIES FOR SYSTEMS TRANSFORMATION PURSUED BY INITIATIVES



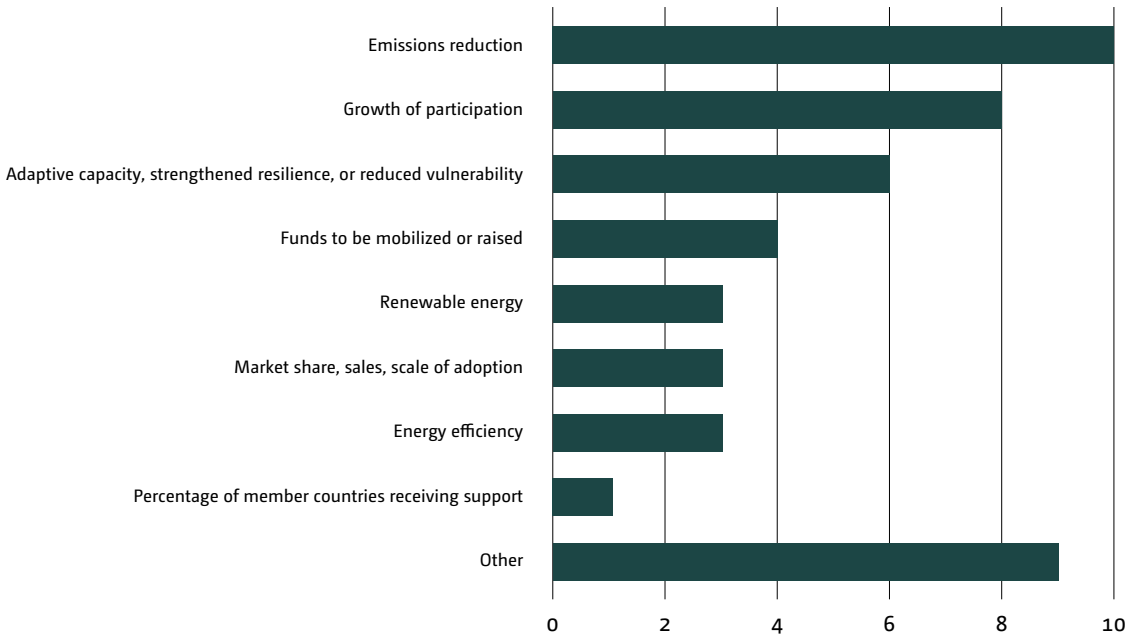

Settlements and infrastructure
Adaptation
Sustainable urban water management
Sustainable land use and urban planning
Green infrastructure and ecosystem services
Other
Mitigation
Efficient buildings
Fuel efficient vehicles
Electric vehicles
Efficient lighting, appliances and equipment
Public transport and bicycling
Biofuels for transport
Efficient shipping and aviation
Avoid demand for energy services
Onsite renewables
Other
Health
Adaptation
Enhanced health services
Other
Mitigation
Other
Society, livelihood and economy
Adaptation
Risk spreading and sharing
Social safety nets
Climate services, including Early Warning Systems
Disaster risk management
Human migration
Planned relocation and resettlement
Livelihood diversification
Other
Mitigation
Other
Industry and waste
Adaptation
Other
Mitigation
Fuel switching
Reduce emission of fluorinated gas
Energy efficiency
Material efficiency
Reduce methane from waste/waste water
Construction material substitution
Enhanced recycling
Carbon capture with utilisation (CCU) and CCS
Other
0
2
4
6
8
10

The majority of opportunities that initiatives focus on under *Energy supply* are related to renewables. Under *Land, water, food*, 'ecosystems restoration, afforestation and reforestation' and 'reduce conversion of natural ecosystems' recorded the largest shares among the choices. On the other hand, 'shift to sustainable healthy diets' or 'efficient livestock systems' were the lowest opportunities with no initiatives reporting on the latter. On *Settlements and infrastructure*, adaptation opportunities ('green infrastructure and ecosystem services', 'sustainable land and urban planning', 'sustainable urban water management') are relatively underrepresented compared to mitigation opportunities. While adaptation opportunities were reported under *Society, livelihood and economy*, there were few opportunities identified on 'human migration' and 'planned relocation and resettlement'. Finally, for *Industry and waste*, the share of 'energy efficiency' was significant, followed by 'material efficiency' and 'fuel switching' while 'reduce methane from waste/wastewater' was the least represented.

In sum, the results indicate gaps in the level of focus on systems and opportunities by climate initiatives. Overall, mitigation-related opportunities ranked higher than adaptation, and particular underrepresentation was seen in opportunities related to health, migration and food.

The survey also asked initiatives about their targets. This information contributes to an understanding of both how initiatives are working to achieve their goals and the progress they are making. Figure 6 below presents the different types of targets that initiatives have set as part of their goals, with emissions reduction and growing the number of their participation being the most frequently reported.

FIGURE 6:
INITIATIVES BY TARGET TYPE



The Portal's progress framework mentioned above allows users to apply different filters to explore the various cooperative initiatives and individual actors and the details of their engagements in climate action. While browsing cooperative initiatives, for instance, it is possible to set filters to check which ones provide progress information on goals and targets, as well as budget allocated and challenges and opportunities. Information on initiative participants and focus, thematic areas and climate focus are also provided. On individual actors, progress can be checked against commitments, actions undertaken and impacts. In addition to progress, actors can be selected per engagement type, climate focus and theme.

CURRENT STATE OF GLOBAL CLIMATE ACTION AND COMMITMENTS BY NON-PARTY STAKEHOLDERS

The moment now is to progress from making pledges to actually delivering on them. In that sense, a slow-down in the number of pledges being announced is not necessarily worrisome, and attention should also be directed at the potential obstacles to realizing these pledges, that is, on how to translate plans into action. Though accelerating the pace in setting ambitious emission reduction targets remains crucial to meet the goal of keeping 1.5 °C climate-resilient world within reach, enhancing adaptative capacity and resilience and the financial means to implement climate action is also extremely relevant for the Paris Agreement goals to be met. In that sense, the section below provides an overview of the progress made by non-Party stakeholders in the past couple of years across all three dimensions, as well as some insights on what is holding back further progress.

Mitigation – Reducing Emissions in Line With the 1.5°C Goal

The Science Based Targets initiative's (SBTi – see more on the initiative in the next section) *SBTi Monitoring Report 2022*, published in August 2023, examined the global progress in science-based targets set by companies and financial institutions, outlining the key trends in 2022. Though the report only referred to targets set, and commitments made by 31 December 2022, information published after this date was also used for completeness purposes.

The report presents some encouraging data. For instance, the number of companies setting science-based targets in 2022 alone was higher than in the previous seven years combined. With 1,097 companies publishing validated targets in 2022, the cumulative number of companies with science-based targets validated by the SBTi amounted to 2,079 by the end of that year. In addition to that, the number of companies committing to these targets is also on the rise, with a total of 2,151 companies having committed to setting a science-based target within a 24 month-period by the end of 2022. These companies combined – that is, those that have set and those that have committed to setting science-based targets – represented 34 per cent of the global economy by market capitalization at the time, compared with 28 per cent by the end of the previous year.

Asia had the greatest proportional growth in the actual number of science-based targets in 2022, with the addition of 317 new companies, representing a 127 per cent increase in comparison with 2021. By the end of 2022, 24 per cent of all companies with science-based targets and commitments were from Asia, while

Europe accounted for 54 per cent of all companies, and North America, 15 per cent. While the percentage of companies headquartered in Latin America and Africa is still modest, the number of companies with science-based targets in these two continents more than doubled in 2022 in comparison with the previous year, showing encouraging signs from the private sector in a number of developing countries. The report also notes that, for the first time, all six continents showed growth in numbers.

The report also showed a steady growth in the number of net-zero targets. SBTi introduced its Corporate Net-Zero Standard in October 2021, and 2022 was the first year in which companies could have their targets validated against it in full. In 2022, a total of 130 organizations set net-zero targets, corresponding to 12 per cent of all science-based targets validated. In addition to that, a further 889 companies committed to submitting net-zero targets. SBTi has also determined it would only accept new target submissions aligned with the 1.5 °C goal after July 2022 and, as a result, by the end of that year, the proportion of all companies with 1.5 °C aligned targets had reached 79 per cent, compared to 68 per cent at the end of 2021 (SBTi, 2023).

The continued growth in net-zero pledges by companies was also mentioned in the *Net Zero Stocktake 2023* report, the third of its kind. The result of a joint work between NewClimate Institute, Oxford Net Zero, Energy & Climate Intelligence Unit and Data-Driven EnviroLab, the report provides an assessment of the status and trends of net-zero target setting across countries, subnational governments and companies. While noting that the number of net-zero pledges by companies continues at speed, the authors also pointed out that they could not identify emission reduction targets from four UNFCCC member states, 439 states and regions in the top 25 emitting countries, 766 major cities, and 734 of the world's largest publicly listed companies.

On the positive side, the report finds that the number of actors with net-zero targets nearly doubled since its first edition three years ago – at least 1,475 out of over 4,000 entities they currently track have announced such targets against 769 in December 2020. This number includes 397 subnational actors (up from 188), and 929 publicly-listed companies from the Forbes Global 2000 (up from 417). These companies account for 65 per cent of the total annual revenue of the 1,986 corporate actors in the authors' database (about USD 26.4 trillion today).

As for national-level commitments, most large economies have already announced some variation of a net-zero target, covering 88 per cent of global GHG emissions and 89 per cent of the global population. More importantly, these net-zero commitments are being formalized, with more than 70 national governments having enshrined them in domestic legislation or policy documents. This means about 75 per cent of total GHG emissions are now covered by national net-zero targets (in comparison with seven per cent in December 2020).

In terms of credibility, however, the report finds that there are very limited signs of improvement in all of these actors' net-zero targets and strategies. For instance, fewer than five per cent of net-zero targets set by the subnational governments and companies analysed met the minimum threshold set by Race to Zero's Starting Line criteria. In order to improve the robustness of net-zero targets, the report finds, it is necessary for transition plans and interim targets to be provided in greater detail, for instance. Progress needs to be reported frequently and transparently, emission scopes need to be thoroughly covered, and strategies such as offsets and carbon removal cannot be used to substitute for or delay decarbonization (Net Zero Tracker, 2023).

Similar conclusions were drawn in a report by the Camda community[3] members – the *Global Climate Action 2023* report, the fifth edition of its *Global Climate Action of Cities, Regions and Companies* series. The report sought to examine the state of some subnational and private sector climate pledges and their ambition in helping to achieve global emissions reductions in line with the 1.5 °C temperature goal. For that, the report analysed a subset of non-Party stakeholders with quantifiable emission pledges registered in GCAP from the G20 countries, including Argentina, Australia, Brazil, Canada, China, the European Union (EU), India, Indonesia, South Korea, Japan, Mexico, Russia, Saudi Arabia, South Africa, Türkiye, the United Kingdom, and the United States, between 2018 and 2022.

3 Camda community is a community of data and analytical experts, formed to assess and communicate the impact of climate action and to record and track ambition and progress made by regions, cities, businesses, investors and civil society in the context of the Paris Agreement.

The 3,008 cities and 175 regions analysed cover 26.5 per cent of the total global population, with the largest number of actors with quantifiable targets located in the EU. A total of 572 of these subnational actors are aiming for 100 per cent emission reductions, carbon neutrality or net-zero, with over 35 per cent of the net-zero targets in this subset coming from Europe, 26 per cent from North America and another 26 per cent from East Asia and the Pacific. However, the report finds that only about half of these actors have reported quantifiable interim targets, a key indicator of a net-zero target's credibility and robustness.

As for the 2,839 companies analysed, there is a rising trend of emission reduction target adoption across various sectors, with manufacturing and services in the lead. Companies representing a combined revenue of over USD 15 trillion reported setting between 1,667 and 4,909 quantifiable absolute emissions reduction targets in their disclosure questionnaires to CDP, most spanning all company branches. As for net-zero targets, there has been a significant increase between 2021 and 2022 in CDP reporting, but the study did not assess if those targets referred to CO_2 emissions alone or encompassed all GHG emissions. Though the combined emission reduction plans of corporate actors have been increasing in ambition, the limited number of targets beyond 2030 disclosed in CDP questionnaires indicate that these combined company pathways will not reach net zero by 2050.

The overall finding of the report is that, while climate ambition has increased for subnational and corporate actors in the past few years, the pace and level of ambition are still not aligned with the 1.5 °C goal and need to be accelerated. Similarly, the growing number of net-zero targets is encouraging, but it is necessary for actors to implement interim targets and action plans demonstrating tangible progress in order to enhance accountability and ensure their credibility. Finally, greater alignment with national governments to collaboratively address more immediate action is vital, especially by integrating climate action at all levels into broader national policies and frameworks, as near-term global emissions continue to increase (Utrecht University, Data-Driven EnviroLab and CDP, 2023).

Race to Zero, the flagship global campaign by the High-Level Champions, has been taking an active role to address these challenges by mobilizing and guiding non-party stakeholders towards setting robust and credible emissions-reduction targets. This includes supporting members of the campaign commit to halving emissions by 2030 and reaching net-zero GHG emissions by no later than 2050. The campaign, launched in 2019, currently (as of August 2023) has 12,562 non-Party stakeholder participants, representing a growth of 11 per cent since 2022. Members include 9,387 companies (of which 6,624 are small-medium enterprises), 49 states and regions, 1,147 cities, 662 financial institutions, 1,165 educational institutions and 81 healthcare institutions. As already mentioned, all members are required to pledge alignment with the campaign goals, disclose plans for transition, take action, publicly report progress and align external policy and engagement. The campaign's criteria, aimed at ensuring integrity and accelerating meaningful progress towards halving global emissions by 2030, are reviewed annually to continue being clarified and strengthened. In addition, to the 'Starting line' criteria, Race to Zero also provides 'Leadership practices', which signal how leading entities can light the way to a net-zero world.

Members of the campaign, with support of Race to Zero Partners, are driving change across the real economy, shaping a supportive ecosystem that enables greater action. Currently, 20 per cent of major supply side actors by revenue in the majority of sectors of the economy have joined the campaign. However, this broad sectoral participation is not matched with geographical diversity, where 78 per cent of members in the campaign come from Western Europe and Others group, followed by Asia-Pacific with only 11 per cent, Latin America and the Caribbean (7 per cent), Africa (2 per cent), and Eastern Europe (1 per cent).

Enhancing Adaptation and Resilience

While the Paris Agreement requires all Parties, as appropriate, to **engage in adaptation planning and implementation**, non-Party stakeholders are essential partners in supporting and implementing those measures. Subnational actors are, after all, too often the first line of defence in fronting the adverse impacts of climate change. A number of business sectors are also quite vulnerable to these impacts and need to build internal adaptation and resilience strategies to address the risks they are subject to.

In contrast to mitigation, where emission reductions can be objectively measured, there is no commonly agreed unified set of metrics and/or indicators to assess the progress of the adaptation goal under the

Paris Agreement. Adaptation plans need to be adjusted to the specific vulnerabilities and circumstances of each actor, anyway, so monitoring and evaluation systems will measure different outputs accordingly. This challenge is being addressed under the Glasgow-Sharm el-Sheikh work programme on the global goal on adaptation, created at COP 26. The aim of the work programme is to better understand, conceptualize and ultimately achieve the global goal to **enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change**, with a view to contributing to sustainable development and ensuring an adequate adaptation response, as stated in the Agreement.

While work is being carried out under the intergovernmental process to address these challenges, non-Party stakeholders are also engaging in noteworthy action towards achieving the adaptation goal. There are currently around 12,000 actors registered in GCAP reporting climate action focused on adaptation. Within this subset, 370 actors report tracking progress on commitments under the Portal, for example, through climate risk and vulnerability assessments, integrated climate plans and participation in dedicated initiatives.

CDP also collects data specifically on subnational governments taking adaptation and resilience action. Their 2022 dataset shows that 730 cities, states and regions have conducted climate risk and vulnerability assessments, and 739 reported having an adaptation plan. This shows an increase from the 2021 dataset, which identified 692 and 590 subnational entities with this respective engagement.

The Race to Resilience campaign, a sibling to the Race to Zero, sets a human-centred metric with a goal to increase the resilience of four billion people living in vulnerable communities. The campaign now has 33 partner initiatives, pledging to increase resilience of 2.6 billion people, collectively representing 644 organizations across 162 countries, 507 cities, and 234 regions as part of Cities Race to Resilience. Its Metrics Framework enables non-Party stakeholders to report climate resilience actions and to quantify and validate their impact under a common framework, providing a solid toolkit for their monitoring and evaluation component. Throughout 2023, the initiative focused on enhancing the framework to embed the SAA outcome targets, and their progress is expected to be reported at COP 28.

Finance

Non-Party stakeholders are also critical actors in helping mobilize the means to implement the Paris Agreement. As highlighted in the Sharm el-Sheikh Implementation Plan, investment of trillions of dollars will be required to implement the necessary global transformation to a low-carbon and climate-resilient economy. As such, the decision also calls on multilateral development banks and international financial institutions to reform practices and priorities,

align and scale up funding, ensure simplified access and mobilize climate finance from various sources, and contribute to significantly increasing climate ambition using the breadth of their policy and financial instruments for greater results, including on private capital mobilization (UNFCCC, 2023b).

Financial actors have also been fundamental in driving the private sector towards better practices in climate risk assessments, planning and disclosure, such as through the work carried out under the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). As a result of following the TCFD recommendations, companies are able not only to improve their climate-related financial disclosures through existing reporting processes but also to make more informed, efficient capital allocation decisions. In that sense, investors' engagement is crucial to help align financial flows with low GHG emissions pathways. Also, the launch of the Taskforce on Nature-related Financial Disclosures marks a remarkable milestone in the incorporation of nature into financial institutions' good practice.

There are 1,654 investors currently registered in GCAP that are engaged directly and indirectly in climate action through a range of commitments, which include reducing their own emissions, issuing green bonds, and financing or ensuring part of their investment portfolios are made up of climate-friendly technologies or assets, for instance.

According to the NewClimate Institute's report on *Investigating Financial institutions Net-zero portfolio commitments*, by July 2023, 37 of the world's largest 50 asset managers, 24 of the largest 50 asset owners, and 33 of the largest 50 banks had committed to net-zero portfolio targets. The report sought to assess if these targets are actually driving financial institutions' climate action, and their real-world impact value. Although the report concludes that most of the analysed commitments are unlikely to achieve what they intend to at the moment (net-zero real-world global emissions by mid-century), they recommend that "financial institutions focus on supporting the transition of economies and economic actors by identifying, engaging, building coalitions to advocate for, and systematically supporting actors transitioning to more sustainable business models" (Lütkehermöller, Marquardt and Kachi, 2023).

One such coalition is the Glasgow Financial Alliance for Net Zero (GFANZ), launched in 2021 by the High-Level Champions, UN Special Envoy on Climate Action and Finance Mark Carney and the COP 26 Presidency. With over 650 members across eight sector-specific Alliances and over 50 countries, GFANZ aims to tackle net-zero transition challenges and connect the financial community, climate scientists and experts, and civil society. GFANZ has established regional networks for financial institutions in Asia-Pacific, Africa and Latin America and the Caribbean region. Among other initiatives, GFANZ – together with the COP 28 Presidency and the Voluntary Carbon Markets Integrity Initiative (VCMI) – recently convened a high-level roundtable of businesses, financial institutions, and standard setters with the goal of building up high-integrity demand in voluntary carbon markets. In September, it launched a consultation on its work to further refine the definitions of its transition finance strategies and support financial institutions to forecast the impact of these strategies on reducing emissions.

CREATING A CREDIBLE AND TRUSTED VOLUNTARY FRAMEWORK FOR COMMITMENTS

A key pillar of the Paris Agreement is the actual delivery of the commitments encompassed in ambitious pledges. As the former UNFCCC Executive Secretary, Patricia Espinosa said after COP 26, "promises pledged [need to be] promises kept". This applies to both Parties and non-Party stakeholders. Some climate pledges, however, have reportedly been falling short of their promises. In scrutinizing the net-zero strategies of 24 major companies with a combined emission footprint equivalent to roughly four per cent of global GHG emissions in 2019, for instance, the NewClimate Institute found the climate strategies of 15 of these companies to be of low or very low integrity, despite their ambitious pledges (NewClimate Institute, 2023). Though replicable good practice could be identified from a minority of companies in the study, findings such as these raise the need to further examine regarding the credibility of net-zero pledges in general.

In this sense, COP 27 also provided centre stage to a renewed focus on transparency and accountability in commitments made by non-Party stakeholders in this new phase of implementation of the Paris Agreement. The report *Integrity Matters: Net Zero commitments by Businesses, Financial Institutions, Cities and Regions*, launched during the conference, presented the findings

of the High-Level Expert Group on the Net-Zero Emissions Commitments of Non-State Entities (UN HLEG), established by the UNSG in March 2022. UN HLEG was tasked with developing stronger and clearer standards for net-zero emissions pledges by these actors, and built on existing credibility and standard setting frameworks for net-zero pledges to formulate its findings and recommendations (UN, 2022).

In his speech at the launch of the report, UNSG reinforced the importance of matching the much-welcomed ever-rising numbers of net-zero pledges with rigorous and robust criteria and benchmarks to assess progress, in order for these commitments to translate into concrete results. Announcing net-zero commitments, after all, is just the beginning of the journey towards effective climate action that can indeed put the world on the right track for the 1.5 °C limit.

UNSG also stressed that full transparency is critical to ensure accountability, and referred to GCAP as a global and public platform already in use for stakeholders to register pledges, publish transition plans, and track annual reporting on implementation, calling "on all net-zero voluntary initiatives to accelerate efforts to standardize progress reports, in an open format and via public platforms that feed into the UNFCCC Portal", as specified in recommendation eight of the report. He then closed his remarks with a number of specific asks for stakeholders to implement the UN HLEG's recommendations, such as non-Party stakeholders putting forth credible and transparent transition plans by the end of 2023.

In response to the UNSG's request and the Parties' invitation for the secretariat to ensure greater accountability of voluntary initiatives through GCAP, the UNFCCC secretariat published both the Recognition and Accountability Framework for non-Party stakeholders, and the first draft Implementation Plan under the framework in June.

The Recognition and Accountability Framework aims at boosting the recognition and transparency of voluntary climate action initiatives and pledges, by setting the necessary principles of engagement, governance, and data management, with individual implementation plans addressing how to proceed with the recognition and accountability of individual members. These implementation plans are to set out specific objectives, deliverables and timelines in accordance with the principles of the framework to ensure, among other things, the integrity, credibility and transparency of voluntary commitments, and the identification of systemic barriers faced by non-Party stakeholders in undertaking climate action.

In order to encourage wide stakeholder engagement in the framework and its draft Implementation Plan, the Executive Secretary invited two co-chairs to run a consultation process to identify opportunities and barriers which businesses, cities and regions face in setting ambitious targets and assessing progress, better understand how to refine approaches to transparency to promote greater ambition, and improve consolidation, standardization and comparability across commitments. The process is open to all interested in participating, with the aim of taking stock of different perspectives, and with the expectation of resulting in a set of recommendations for the framework to be delivered at or around COP 28.

The UNFCCC secretariat will deliver this work as part of a broader exercise of upgrading GCAP and ensuring that all voluntary climate action commitments and CCIs by non-Party stakeholders are recognized on the Portal and are subject to greater validation and progress reporting. As such, the first implementation plan establishes that GCAP will be technically upgraded to allow individual entities who are members of coalitions/initiatives to register net-zero pledges and transition plans to GCAP and for initiatives and coalitions to submit annual collective progress reports. The other expected deliverables are guidance and standardized reporting templates for the submission of net-zero pledges and transition plans; guidance on how non-Party stakeholders who are not members of registered coalitions or initiatives can register their pledges and plans; and partnerships with reporting platforms to ensure that progress data is aggregated and made publicly available through GCAP.

For that purpose, the secretariat is working with the Climate Data Steering Committee (CDSC) and its Net-Zero Data Public Utility (NZDPU) in order to deliver a unified global open climate data utility to ensure comparable and verifiable data on the progress of implementation of non-Party stakeholders. CDSC was established in June 2022 by French President, Emmanuel Macron and UN Special Envoy on Climate Ambition and Solutions Michael R. Bloomberg with the goal of accelerating and helping build a broadly accessible foundation of high-quality climate data, considering the challenges tied to the global

availability, comparability, and transparency of climate transition-related data, and NZDPU is the outcome of this endeavour. A pilot version of the utility is expected to be delivered by COP 28, and it will ultimately be integrated with GCAP.

In September, NZDPU announced a collaboration with CDP (formerly the Carbon Disclosure Project) in order to accelerate access to core climate data. CDP, a key UNFCCC partner, will provide NZDPU with access to data from about 400 high-impact companies that disclose publicly through its platform for the launch of the NZDPU proof of concept at COP 28. The proof of concept is intended to demonstrate the technical feasibility of delivering the CDSC's recommended repository. It showcases the NZDPU core data model, which is the foundation on which the Utility is built, and will allow users to experience the initial set of features and functionality, which will help to inform future updates and releases. Public consultation alongside the NZDPU proof of concept at COP 28 will provide an opportunity for all stakeholders to provide feedback that will inform future releases.

CDP has been collaborating with UNFCCC since the initial release of GCAP in 2014 as one of its main data partners. One of the longest-running global disclosure platforms for investors, companies, cities, states and regions to manage their environmental impacts, CDP holds the largest environmental database in the world – with more than 23,000 organizations disclosing in 2023, representing an increase of more than 300 per cent since the adoption of the Paris Agreement. In addition to that, CDP scores are widely used to drive investment and procurement decisions towards a zero-carbon, sustainable and resilient economy. By means of tools, insights and technical guidance, CDP helps stakeholders disclose information in a transparent manner, signalling which actions in particular constitute accountability. The organization has also been building upon the UN HLEG's recommendations to encourage non-Party stakeholders' design and implementation of science-based transition plans (CDP, 2023a), and advocating to policymakers to apply 10 key principles in mandatory disclosure regulation. Guidance in this sense is important – CDP recently noted that only 4,100 out of the nearly 20,000 disclosing organizations reported having developed a climate transition plan that is 1.5 °C-aligned (CDP, 2023b).

Some sectoral initiatives, however, are starting to respond to the requirement of ensuring transparency and accountability. The Fashion Industry Charter for Climate Action, for example, used CDP's key performance indicators to report its annual progress in 2023. This industry-led initiative under the global climate action agenda is aimed at connecting the diverse stakeholders in the fashion industry, including raw material and textile producers, apparel manufacturers and brands, to identify new areas for action and to scale up existing initiatives that connect the value chain. The primary mission of the Charter – which currently has 100 signatories across 23 countries and nine industry sectors – is to drive the fashion industry to net-zero GHG emissions by no later than 2050. In addition, signatories commit to key principles on climate action that go beyond industry-wide commitments.

The Charter's 2023 key findings show that its disclosing signatories have systematically demonstrated improved carbon accounting practices, with 99 per cent of them calculating and reporting their operational emissions (Scope 1 and Scope 2), and increasingly calculating and reporting their Scope 3 emissions (UNFCCC, 2023d). Disclosing and tackling emissions across the value chain is critical for mitigating GHG emissions not only in the fashion sector, but for all industries and actors, as stressed in the *Integrity Matters* report.

As part of its work to align existing initiatives under the UNFCCC umbrella with the *Integrity Matters* report recommendations, the Recognition and Accountability Framework and its implementation plans, the secretariat decided to phase-down the Climate Neutral Now initiative, launched in 2015. While the initiative's aim is to encourage and support organizations to act now in order to achieve a climate neutral world by 2050, it is not entirely aligned with the updated recommendations on net-zero. Therefore, the 2023 calendar year will be the last to monitor pledges under the initiative, and existing participants are encouraged to join other initiatives, such as the Fashion Charter, Sports for Climate Action and the initiatives under the Race to Zero campaign.

Meanwhile, Race to Zero will focus on working with non-Party stakeholders, network partners and other relevant actors to support the implementation of net-zero commitments of its members by identifying and addressing barriers and opportunities for mobilizing additional net-zero pledges and actions. Two of the campaign products are already useful tools to help non-Party stakeholders navigate the net-zero 'world' in a rigorous and transparent manner – the Race to

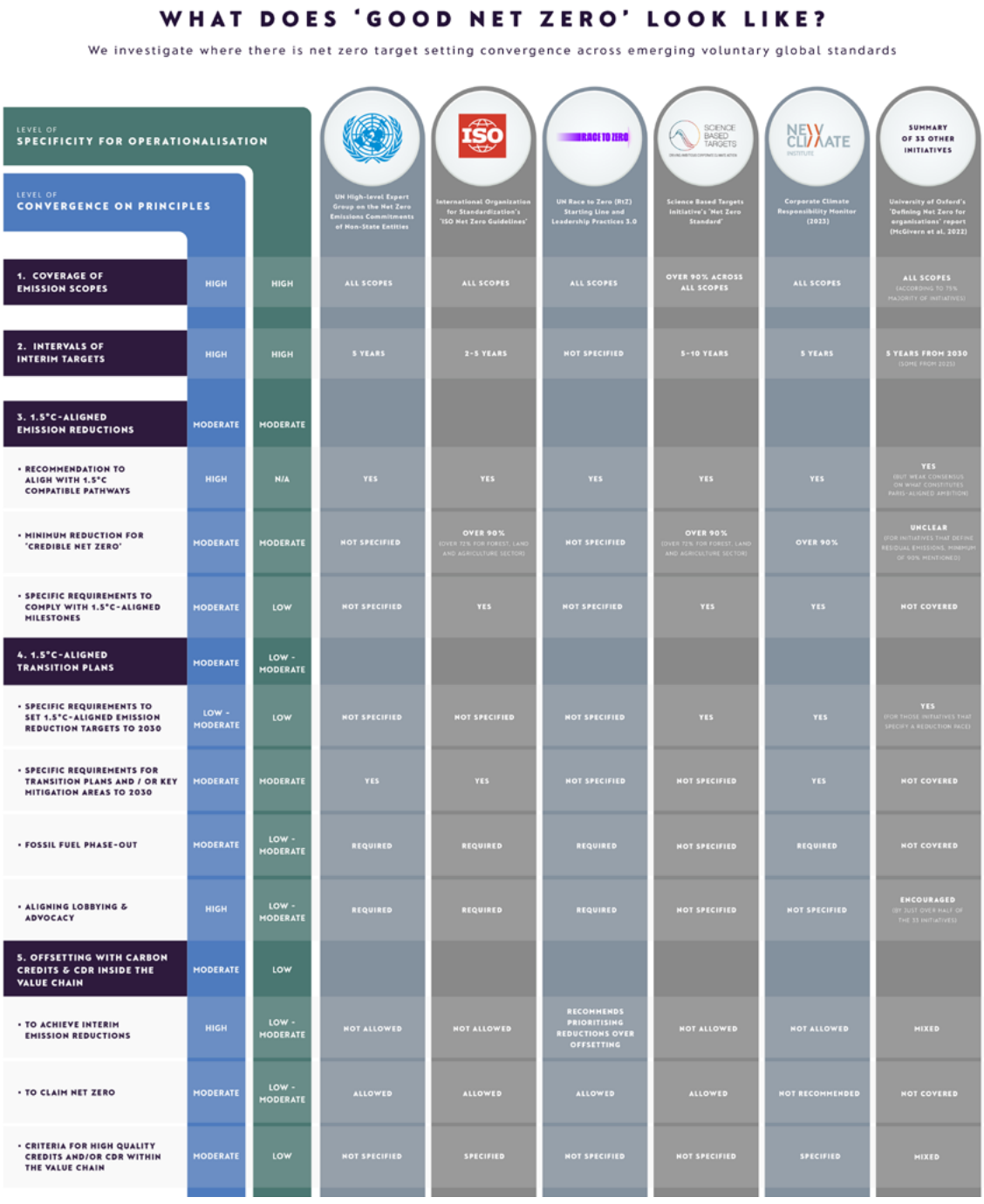
Zero data explorer mentioned in chapter two, and the 5th P (Persuade) Handbook, which helps non-Party stakeholders to align their advocacy, policy and engagement with net-zero goals, by introducing a fifth criterion, 'Persuade'.

Finally, along with the UN HLEG's report, the UNFCCC work will also take into account existing coalitions and alliances and their members which helped establish important science-based norms for target-setting and progress reporting. SBTi, for instance, has been providing guidance to the private sector in science-based target setting for a number of years now. Created as a partnership between CDP, the UN Global Compact, World Resources Institute (WRI), the World Wide Fund for Nature (WWF) and We Mean Business, and recognized in the *Integrity Matters* report, SBTi announced in September that it has incorporated as an independent legal entity and further separating its target validation service from its standard setting service in order to safeguard impartiality in its work. SBTi also announced plans to increase their validation capacity in order to meet the growing international demand for science-based targets.

Building on previous exercises, these norms and standards are constantly being updated and refined, so as to better provide stakeholders with useful tools to improve their mid- to long-term plans and disclosure mechanisms. An example is the work of the International Sustainability Standards Board (ISSB), established by the IFRS Foundation during COP 26 with the aim of setting standards on sustainability disclosure for private sector. In June, ISSB published their inaugural standards – IFRS S1 and IFRS S2. The former provides a set of disclosure requirements to help companies report their sustainability-related risks and opportunities, whereas the latter is specific to climate-related disclosures, to be used in conjunction with IFRS S1. These standards built upon the recommendations of the TCFD, with the Financial Stability Board having asked the IFRS Foundation to take over the monitoring of the progress on companies' climate-related disclosures from TCFD.

In order to provide some light on the many initiatives and standards addressing net-zero credibility, the Net Zero Stocktake 2023 report mentioned above, provides a comparative analysis between some key documents, including the UN HLEG's recommendations. A summary is provided in the figure taken from the report (Figure 7), assessing their level of convergence in order to trace common and emerging good practice.

FIGURE 7:
COMPARISON OF NET-ZERO CRITERIA BY INITIATIVES AND ORGANIZATIONS (NET ZERO TRACKER, 2023)



CHAPTER 4

PROGRESS AND GAPS IN SYSTEMS TRANSFORMATION TOWARDS THE CLIMATE GOALS

SYSTEMS TRANSFORMATION

IPCC's AR6 SYR, already mentioned in chapter one, explicitly notes the importance of systems-thinking for climate action, stressing that "rapid and far-reaching transitions across all sectors and systems are necessary to achieve deep and sustained emissions reductions and secure a liveable and sustainable future for all" (IPCC, 2023). A whole-of-society approach informed by local context can not only help accelerate mitigation action towards the 1.5 °C goal, but also generate significant co-benefits in helping build resilience and achieve other SDGs.

The synthesis report of the technical dialogue of the first GST, summarizing the outcomes of the three meetings held in the biennium, also stresses the need for systems transformations that mainstream climate resilience and low GHG emissions development across all sectors and contexts, on the understanding that a holistic approach is required to achieve the necessary changes for a sustainable future, including in what concerns climate change. It also recognizes the importance of non-Party stakeholder participation in delivering these systems transformations through credible, accountable and transparent actions (UNFCCC, 2023a).

As mentioned in chapter one, the High-Level Champions and the Marrakech Partnership have been focused on bringing non-Party stakeholders' action under a shared vision and providing a roadmap for systems transformation in the past couple of years through a number of tools and initiatives, such as the Climate Action Pathways, the 2030 Breakthroughs, the Breakthrough Agenda and the SAA. This work also entails supporting the assessment of the overall state of systems transformation, which is essential to track progress and identify opportunities and gaps in action. They have engaged in the launch of the *Breakthrough Agenda Report 2023*, the *State of Climate Action 2023* (SoCA 2023) report, and the forthcoming first implementation report of SAA.

This section provides an overview of where we are and where we need to be in terms of systems transformation, offering insights into potential opportunities as well as existing gaps and challenges in how to get there. The seven thematic areas of the Marrakech Partnership – Energy, Industry, Transport, Human Settlements, Land Use, Water, and Oceans and Coastal Zones – provide the framework for the analysis, while the two-cross-cutting areas – Finance and Resilience – are referenced throughout them so as to highlight the transversal nature of these topics. It also introduces some key progress made by the High-Level Champions that contributes to overcome challenges.

Similarly, the interconnectedness of issues across sectors and systems is mentioned and referenced throughout the thematic areas in order to convey the importance of a systems-thinking approach. Not only does it allow for a holistic view of the challenges and potential synergies, co-benefits and trade-offs of climate action, but it can better inform decision-making processes so that benefits are maximized and 'side effects' can be minimized. In that sense, Box 2 seeks to illustrate some of these positive and negative interactions, as well as caveats that need to be taken into account, while Box 3 and Box 4 provide some additional considerations on the progress of resilience and finance, pointing to challenges that still need to be addressed.

Finally, while implementing the necessary systems transformation towards a low-carbon, climate-resilient economy, it is extremely important to ensure the wide participation of all relevant actors in decision-making processes and solutions. Inclusive stakeholder engagement, especially of those who are most affected by the impacts of climate change, is key to successful outcomes. As stated in the *Breakthrough Agenda Report 2023*, "the acceleration in the global low-carbon transition must be connected with inclusive development pathways through ensuring linkages with and contribution to the 2030 Agenda for Sustainable Development" (IEA, IRENA and HLCs, 2023).

While this chapter is mostly based on the findings encompassed in the GST and IPCC synthesis reports, it is also informed by other relevant documents which sought to assess the progress of climate action in the past few years with both qualitative and quantitative indicators.

ENERGY

Energy production and supply is a key input to a wide range of sectors, providing the means for a range of activities to take place. As the primary source of emissions, it is also a main component in systems transformation. Decarbonization of the energy sector – which accounts for a major proportion of GHG emissions – will also contribute to reducing emissions significantly across industry, transport and human settlements, for instance, while providing the opportunity to increase energy access and decrease energy insecurity. Similarly,

building the resilience of these sectors – all of which are highly vulnerable to the impacts of climate change – can provide a range of benefits both in the short and long-term. As noted by AR6 SYR, "delayed mitigation and adaptation action would lock in high-emissions infrastructure, raise risks of stranded assets and cost-escalation, reduce feasibility, and increase losses and damages" (IPCC, 2023).

For systems transformation in the energy sector to happen, though, it is imperative to transition away from fossil fuels to very low or zero-carbon energy sources, and the most viable options include switching to renewables, and investing in electrification, energy efficiency, demand-side management and clean energy storage (UNFCCC, 2023a). Transitioning to low-emission energy systems is, in some sectors and regions, less expensive today than implementing or maintaining higher-intensive systems. On that subject, IRENA reported that in 2022, "the renewable power deployed globally since 2000 saved an estimated USD 521 billion in fuel costs in the electricity sector" (IRENA, 2022).

The most successful examples of progress in the competitiveness of renewable energy technologies are solar and wind power. Solar photovoltaics, for instance, cost on average 29 per cent less than the cheapest fossil fuel-fired solution in 2022 (in 2010, it cost 710 per cent more). The average cost of electricity from solar, wind, bioenergy and geothermal all fell in 2022, despite rising materials and equipment costs (IRENA, 2022). Not surprisingly, the significant decrease in the unit cost for these technologies in the past decade resulted in a considerable increase in their deployment – solar and wind global power capacity has been doubling every 3.5 years, and if they continue at this pace, can reach around eight terawatt (TW) annual installed capacity by 2030 (IEA, IRENA and HLCs, 2023). However, solar and wind energy use is estimated to still need to increase to 24 per cent/year, up from 14 per cent in recent years, in order for the world to stay on a 1.5 ^{o}C pathway by 2030 (Boehm et al., 2023). The share of renewables in the energy mix as a whole needs to grow substantially – net-zero scenarios estimate that a total 11 TW renewable energy capacity is needed by that timeframe (IEA, IRENA and HLCs, 2023).

Scaling up renewable energy – which is technically feasible and economically viable – as well as energy efficiency solutions are not only well placed to meet climate commitments, but to contribute to global energy security and affordability as well (IRENA, 2023). Access to energy is still a problem globally – 675 million people are yet to be connected to the grids, and about 660 million people will still lack access to electricity by 2030 if the current pace continues – and increasing investments in renewable energy and energy efficiency can additionally help the goal of ensuring energy access for all by 2030 (UN, 2023c). In addition to that, technological and geographical diversification in energy supply can help "improve climate resilience by reducing dependence on vulnerable sources" (e.g. hydropower) and raw materials (e.g., critical minerals, essential for clean energy transitions) (IEA, 2022).

As mentioned above, integrated mitigation and adaptation options that take a holistic approach have a better chance of reducing the direct and indirect impacts of climate change, while accruing a wider range of co-benefits. An integrated approach is also necessary to address the potential socio-economic consequences of systems transformations, such as those deriving from phasing out fossil fuels, whose industries employ a vast amount of individuals around the world, and in regards to which some regions are heavily dependent upon, both as producers and/or users. As mentioned in the *SoCA 2023* report, while the share of coal in electricity generation needs to be phased out seven times faster than what is happening today, retiring coal-fired power plants "risks displacing workers, disrupting local economies, and reconfiguring the social fabric of communities" (Boehm et al., 2023). The risk applies to other fossil fuel industries as well. As highlighted in the synthesis report of the technical dialogue of the first GST, carefully designed climate action can help minimize the disruptions caused by rapid change, especially through a focus on inclusion and equity (UNFCCC, 2023a).

In that sense, the report also notes that socially inclusive phase-out plans should be developed as part of just transitions, and that the timing of phase-outs will differ for different contexts and fuels, as some fuels will remain important for some sectors and regions and will take a bit longer to be fully phased-out. The report also highlights promising examples of international cooperation initiatives supporting national efforts, with several developing countries having recently pursued just energy transition partnerships. Finally, it identifies economic diversification as a key strategy to address such impacts and promote positive synergies, and notes that low-emission development can create opportunities for just transitions that enhance skills and create more durable jobs in other industries, and that global job creation resulting from just energy

transitions could be 3.5 times greater than job losses by 2030 (UNFCCC, 2023a). Worldwide employment in renewable energy, for instance, reached 13.7 million in 2022, an increase of one million since 2021 and up from a total of 7.3 million in 2012 (IRENA and ILO, 2023).

The High-Level Champions supported the incoming COP 28 Presidency on their introduction of the Energy Transition Changemakers initiative, which aims to harness private sector collaboration to roll out impactful decarbonization projects worldwide, spotlighting pragmatic solutions that spur the energy transition. It invited submission of projects across the fours sectors: i) renewables, renewable integration and clean power; ii) energy efficiency; iii) low-carbon hydrogen; and iv) heavy emitting sectors – steel, cement, and aluminium. Selected projects will have the opportunity to present in their event during COP 28.

INDUSTRY

As highlighted in the *SoCA 2023* report, the industry sector represents the fastest growing source of GHG emissions since 2000, when accounting for both direct emissions from fuel combustion and industrial processes, as well as indirect emissions from power and heat generation (Boehm et al., 2023). There has been a number of advances in the sector in the past few years, which include, efforts directed at improving and enforcing corporate climate risk disclosures; emission reduction standard-setting in sectors such as steel and hydrogen; increased investment in and supportive policies to industrial decarbonization (e.g. those that facilitate switching to new, zero-carbon fuels, increasing electrification of industrial processes, and mitigating emissions from chemical reactions); and enhanced financial and technical assistance to developing countries in some sectors (IEA, IRENA and HLCs, 2023; Boehm et al., 2023). Though the sector did show some mitigation progress – emissions from industry declined by 1.7 per cent in 2022 (IEA, 2023a) – there is potential for more ambitious reductions.

In order to decarbonize production in the industrial sector, a range of mitigation options can be deployed, including introducing circular material flows, improving demand management, materials efficiency, and production processes – and they need to cover the entire value chain. Two major industrial processes that warrant attention are cement and steel production. According to the *Breakthrough Agenda Report 2023*, there have been

advances in near-zero emission steel definitions and announcements, but the emission reductions anticipated in this subsector still fall short of what is necessary. Similarly, total emissions from the cement sector have been on the rise, despite recent large-scale near-zero emission cement projects being announced. Demand for this type of product – near-zero emission cement and steel – needs to be created and encouraged to boost collaboration on research and development of key technologies so they can be deployed commercially at scale.

Another key technology that needs to be further advanced refers to low-carbon and renewable green-hydrogen production. With promising potential in sectors such as long-haul transport, iron and steel, production of this type of hydrogen is still limited (0.7 million tonnes (Mt) in 2022, compared with 70-125 Mt/year required by 2030). Not only that, but the total emissions from conventional hydrogen production need to fall by nearly 50 per cent by 2030. There is, however, an opportunity to rapidly create large-scale demand for renewable and low-carbon hydrogen in sectors where hydrogen is already used, such as fertilizers and refining (IEA, IRENA and HLCs, 2023).

Some other opportunities that can be further explored include emission reductions in sectors such as chemicals and plastics, and the use of CCU and CCS, to be deployed in addition to emission reduction strategies. Enhanced public-private collaboration on research and innovation across several sectors, as well as targeted collaboration on trade, can help accelerate these opportunities.

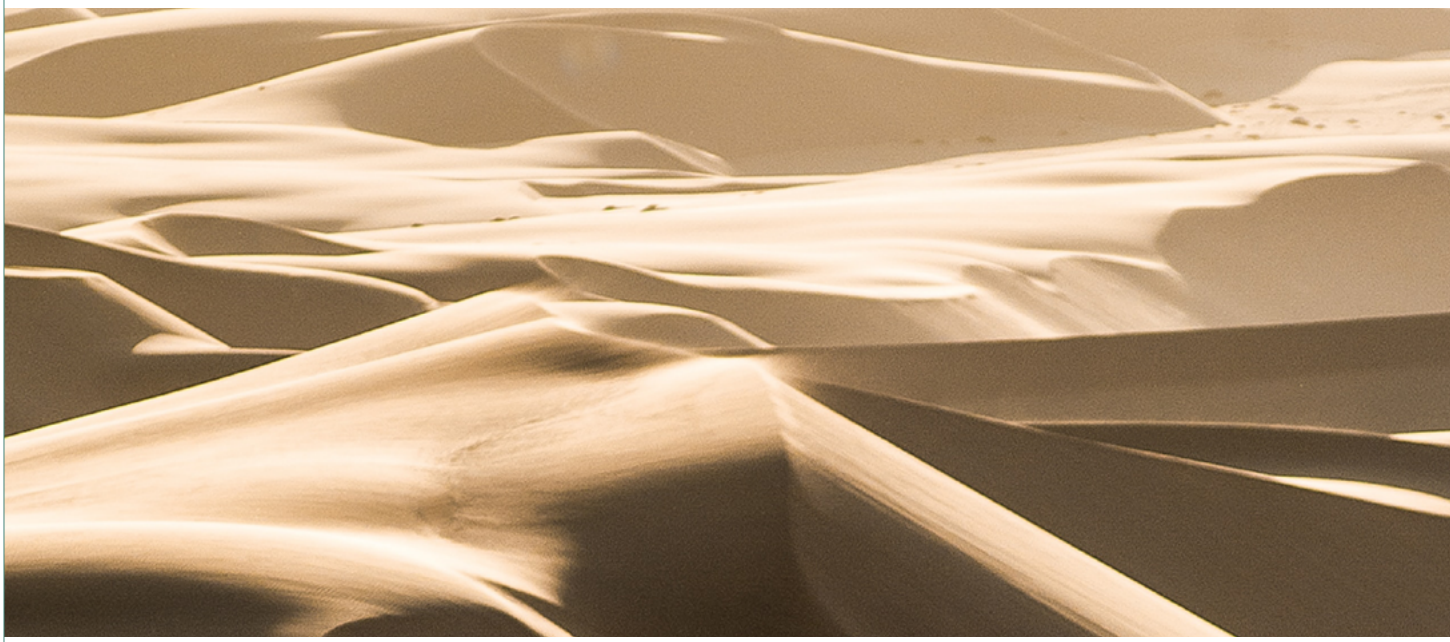
The High-Level Champions are mobilizing the global cement industry to reduce carbon intensity of cement by 25 per cent compared to 2020 throughout this decade. In addition, they have been giving particular focus on the Information and Communication Technology (ICT) and mobile industry, and the pharmaceuticals industry. They aim to have 80 per cent of ICT and 70 per cent of the mobile sector electricity use to be decarbonized by 2030, and to have 95 per cent of labs across major pharmaceuticals and medical technology companies are certified by My Green Lab at the highest level by 2030.

TRANSPORT

Transport is not only responsible for a considerable share of, but it is also a fast-growing source of global emissions (Boehm et al., 2023). According to the *Breakthrough Agenda Report 2023*, emissions from road transport need to fall by nearly one-third by 2030 to get on track for net zero, though the report also notes some progress reached in reducing the number of polluting used vehicles in international trade in addition to an increase in electric vehicles (EVs) sales (IEA, IRENA and HLCs, 2023).

The share of EVs in passenger car sales is the only indicator on track to reach its 2030 target under the *SoCA 2023* report – which is a positive advancement, considering they are much less emitting than the alternative, and could help decarbonize road transport, which currently accounts for 11 per cent of global GHG emissions (Boehm et al., 2023). At the beginning of 2023, the number of EVs in operation had registered an increase of 93 per cent across the world in comparison with the previous year, and almost 41 per cent of the global passenger vehicle market was then covered by traditional internal combustion engine phase-out dates or major national zero-emission vehicles both in the developed and developing world (Climate Group, 2023). The *SoCA 2023* report additionally notes that the coverage of rapid transit needs to increase sixfold, with investments in about 1,300 kilometres (km) of metro rails, light-rail train tracks, and/or bus lanes per year throughout this decade across the top 50 highest-emitting cities, for the 1.5 oC goal to be met (Boehm et al., 2023).

One of the key technologies that support the feasibility of EVs is battery storage, whose price significantly decreased in the past decade (Boehm et al., 2023). Advanced batteries will contribute to longer durability, which can further enhance the market competitiveness against conventional vehicles. There has been some progress in that area. In addition to increased demand for the conventional lithium-ion battery, there has been a rise in alternative technologies, such as lithium-iron-phosphate and the establishment of sodium-ion battery supply chains (IEA, 2023b), which is important to avoid dependence on a single component. Other challenges



include the potential impacts of batteries across their life cycle, from component mining to sustainable disposal. It is crucial for the supply chains to be sustainable, accessible and just, from mining to end-of-life management and their carbon footprint, which can be achieved through consistent and converging regulatory standards and international cooperation (IEA, IRENA and HLCs, 2023).

In addition to the shift towards EVs and increased use of efficient low-carbon collective modes of transportation, investing in the research and development of new technologies and more effective international cooperation may also help accelerate the pace of solutions to decarbonizing longer-haul transport modes, such as trucking, shipping and aviation. In that sense, the synthesis report of the technical dialogue of the first GST highlights the net-zero goals set by both the International Maritime Organization and the International Civil Aviation Organization to reduce the emissions from international transport, with the caveat that rigorous accounting is needed to avoid potential overlaps across and within initiatives, which should be additional to action within NDCs (UNFCCC, 2023a).

The High-Level Champions, at COP 27, facilitated the Joint Statement on Green Hydrogen and Green Shipping, which was signed by leading organizations and initiatives across the shipping value chain, joined by the largest producers of green hydrogen. The statement commits to rapid and ambitious production and use of low-carbon fuels based on green hydrogen to accelerate decarbonization of global shipping.

HUMAN SETTLEMENTS

Cities are also significant drivers of climate change primarily due to energy use, buildings, and urban transport systems. Reducing emissions in urban systems is therefore critical, and it entails smart urban planning and measures such as reducing and properly managing waste, facilitating 'greener' transportation methods, reducing the need for motorized travel (e.g. encouraging proximity between people, jobs, goods and services) and implementing a shift towards more efficient and/or low-carbon built environments at all stages (i.e. design, construction, use and retrofits).

According to the *Breakthrough Agenda Report 2023*, operational emissions in the building sector need to fall by about 50 per cent from their 2022 level by 2030, to get on track with net zero (IEA, IRENA and HLCs, 2023). On the other hand, the number of green building certifications increased by 19 per cent across the world from 2020 to 2021, though mandatory building energy codes around the world still need to increase and align with net-zero emission goals (UNEP, 2022). Though actions are not yet on track to deliver the necessary changes, there is some modest progress on that front, with advances in building regulations and an increase in sales of heat pumps (a technology that enables the decarbonization of heating in buildings), especially in the EU (Boehm et al., 2023).

Devising solutions to improving people's lives while climate-proofing built environments is an example of a systems-thinking approach. Considering it is estimated that about 40 per cent of the world's population will be living without adequate housing, and that this further increases people's vulnerability to the impacts of climate-related disasters (e.g. flooding, windstorms), investments in better, safer housing need to be prioritized. There are inexpensive solutions to make existing homes more resilient and safer, instead of building new ones – not only is it less costly, but upgrading existing housing also enables people to remain in the homes and communities they already live in, reducing potential displacements

(Build Change, 2022). Investing in green areas in urban centres, on the other hand, can also contribute towards improving inhabitants' health, while decreasing the need for cooling systems such as air conditioning – in 2021, only 27 per cent of 1,038 global urban centres analysed by a study were classified as moderately green or more (Romanello et al., 2022).

At the downstream of most processes, waste is also a relevant source of emissions for which systems-thinking solutions can result in additional gains for society. Implementing more sustainable wastewater treatment systems, for example, can help improve access to potable water and strengthen waste and sanitation systems, with co-benefits for human health. Wastewater statistics are lacking in many countries and reporting is low, but data from 140 countries and territories reveal that only about 58 per cent of household wastewater was safely treated in 2022 (UN 2023c).

Attention should also be directed at plastic waste, which more than doubled since 2000 (OECD 2022). The production, conversion and waste management of plastics – 93 per cent of which are currently produced with fossil fuels – generate about four per cent of GHG emissions, with those from incineration accounting for 70 per cent of total end-of-life emissions (OECD, 2023). After taking into account losses during recycling, in 2019 only nine per cent of plastic waste was ultimately recycled, while 22 per cent was mismanaged, namely disposed of in uncontrolled dumpsites, burned in open pits or leaked into the environment, making the current plastics lifecycle far from circular (OECD, 2022). Policies aimed at addressing the plastics problem can result in multi-layered solutions if all of its socio-environmental dimensions are considered.

Similarly, while developing climate approaches and solutions to reduce emissions and improve quality of live in human settlements, it is also crucial to also address climate impacts to health, society and livelihood as a whole. The impacts of climate change on human health, for instance, are predicted to worsen in the coming years. An increase in heat-related human mortality and morbidity, food-borne, water-borne, and vector-borne diseases, and mental health challenges are hazards and associated risks expected in the near term, according to AR6 SYR. It is worth noting that climate change impacts regions and human groups differently, and the most vulnerable – historically the least to contribute to the problem – are disproportionately affected (IPCC, 2023).

Heat-related deaths have already risen in recent years – it increased by 68 per cent between 2000-04 and 2017-21, though the death toll was significantly exacerbated by the confluence of the COVID-19 pandemic. The spread of infectious diseases is also higher – in addition to an increase in the number of months suitable for malaria transmission in some regions of Africa and the Americas from 1951-60 to 2012-21, the likelihood of dengue transmission also rose by 12 per cent in the same period. Health impacts in turn can exacerbate the economic losses associated with climate change, by increasing potential income losses, for instance – in 2021, 470 billion potential labour hours were lost globally due to heat exposure (Romanello et al., 2022).

There are positive news, however. About 86 per cent of updated or new NDCs made reference to health in 2022, and subnational authorities at the city level have been progressively identifying climate change-derived risks on the health of their populations, which can help develop tailored responses and strengthen local health systems. The health sector – responsible for 5.2 per cent of global emissions – is also showing leadership, with 60 countries having committed to transitioning to climate-resilient and/or low-carbon or net-zero carbon health systems as part of the COP 26 Health Programme in 2022 (Romanello et al., 2022).

Under a holistic approach, it is also important to develop integrated mitigation and adaptation options that mainstream health into food, infrastructure, social protection, and water policies. Effective adaptation options with positive impacts on human health, for instance, include "strengthening public health programs related to climate-sensitive diseases, increasing health systems resilience, improving ecosystem health, improving access to potable water, reducing exposure of water and sanitation systems to flooding" and improving surveillance and early warning systems, among other actions (IPCC, 2023).

Some of these health-related responses can also partly address other risks posed by climate change, by helping build the resilience of affected communities, such as those impacted by sea level rise, for instance. Around 900 million people – or one in 10 people around the world – live in coastal zones at low elevations, and sea level rise, compounded by other impacts, is already forcing relocations in some of these places, such as in small island developing States (UN, 2023c). Quantifying environmental migration is challenging,

and there are data gaps – especially for migration due to slow-onset environmental processes – but some quantitative data exist on population displacement within a country, and to a lesser degree across borders, due to natural hazards (Migration Data Portal, 2023).

According to the Internal Displacement Monitoring Centre, a total of 32.6 million people were internally displaced in 2022 as a result of disasters. Of these displaced individuals, 98 per cent were triggered by weather-related hazards such as floods, storms and droughts – the highest figure in a decade. Displacements are compounded by growing food insecurity worldwide, which calls for efforts to tackle common drivers and impacts, since these crises reinforce each other to create lasting vulnerabilities and numerous challenges. In that sense, creating partnerships and collaboration will be key, as well as initiatives that support people's resilience to shocks via anticipatory action and risk reduction measures. "Doing so through a development lens would help to tackle the underlying drivers of displacement including poverty, inequality and climate change" (IDMC, 2023).

In June, the High-Level Champions announced that 20 per cent of major actors within the built environment sector have pledged commitment to Race to Zero, reaching the key milestone of the 'Breakthrough Ambition' – a point where an emerging alignment is gathered among a critical mass of key actors, enabling them to deviate from the business-as-usual trajectory and collectively deliver breakthrough outcomes swiftly.

LAND USE

As is the case with other thematic areas, land use happens in the context of interconnected systems. Land, freshwater and ocean ecosystems provide not only the basic staples for human life – for example, food, water and energy – but also for the livelihood of a large portion of the world's population. They also play a significant role in regulating the climate through natural carbon sinks, and are highly vulnerable to the effects of climate change, with cascading impacts on all of the systems. In this regard, AR6 SYR notes that maintaining the resilience of ecosystem services depends on the effective and equitable conservation of up to half of the world's land, freshwater and ocean areas, and stresses that the proper conservation, protection and restoration of these ecosystems can reduce their vulnerability to climate change, in addition to contributing to carbon uptake and storage (IPCC, 2023).

Some activities that take place within these natural systems are highly emitting. Land use and land use change, such as deforestation and large-scale agriculture, are significant sources of GHG emissions. Thus, natural climate solutions such as conservation, restoration and improved land management provide the most feasible and cost-effective options to both reduce emissions and enhance carbon sequestration. According to AR6 SYR, mitigation action in the land-use change and forestry sector – along with energy supply – can reach net-zero CO_2 emissions earlier than in sectors such as industry and transport in most global modelled pathways (IPCC, 2023).

Deforestation, which takes place mostly in tropical regions and is largely driven by the global consumption of commodities, still happens at consistently high rates. Halting and reversing deforestation and land degradation, for example, through zero deforestation targets and dedicated conservation and protection policies, is required not only to drastically reduce emissions from ecosystems, but also to achieve large-scale CO_2 sequestration and storage. According to the *SoCA 2023* report, deforestation rates must decline four times faster than currently happening to keep on track with the 1.5 °C goal, and significant efforts need to be directed towards large-scale reforestation and restoration activities, particularly of forests, mangroves and peatlands. Prioritizing the protection of these ecosystems is critical to ensuring environmental and climate balance – not only is restoration more costly, but it takes longer for them to return to their natural state and functions, which means that ecosystems could not fully recover lost carbon stocks on timescales relevant to reaching the Paris Agreement goals (Boehm et al., 2023). Reforestation and restoration activities also provide important adaptation solutions. Restoration of wetlands and upstream forest ecosystems, for example, have been proven to be effective in reducing flood risks (IPCC, 2023). In that sense, incentive systems for forest conservation and restoration (e.g. REDD+,[4] payment for ecosystem services) provide additional solutions that can help address both mitigation and adaptation issues.

4 REDD+ is defined in Decision 1/CP.16 as reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks.

Improving agricultural practices and management at a faster pace is also vital to meeting the Paris Agreement goals. The *Breakthrough Agenda Report 2023* notes that, in order to get on track for the net-zero goals, emissions in this sector need to fall to 5.7 gigatonnes of carbon dioxide ($GtCO_2$) from the 7.3 $GtCO_2$ reported in 2022, and agricultural expansion – a key driver for deforestation – needs to halt completely. Some of the suggested solutions with proven effectiveness include "low emission fertilisers, alternative proteins, crop and livestock breeding, measures to reduce livestock methane emissions, reductions in food loss and waste, and digital agriculture and climate services for farmers", for example. These solutions require "increased development assistance, sustained and substantial policy exchanges, and cooperation on standards and trade" (IEA, IRENA and HLCs, 2023).

The *SoCA 2023* report also advises that, in addition to halving global food loss and waste by 2030, the world should also shift towards more sustainable diets, with lower ruminant meat consumption per capita, particularly in high-consuming regions – with the caveat that this does not apply to low-consuming populations, especially those in low-income countries. The authors further stress that the overall progress in global efforts to mitigate emissions from food production and consumption has largely slowed, and that increasing and ensuring sustainable food production on existing agricultural land – without expanding to other high-carbon ecosystems – will require the research, development and deployment of new technologies, among other actions (Boehm et al., 2023).

At the same time, it is important to note that climate change also has impacts on agriculture, affecting global food security and the livelihoods of a number of people who depend on it. AR6 SYR suggests a number of effective adaptation options for the sector, such as "cultivar improvements, on-farm water management and storage, soil moisture conservation, irrigation, agroforestry, community-based adaptation, farm and landscape level diversification in agriculture, sustainable land management approaches, use of agroecological principles and practices and other approaches that work with natural processes" (IPCC, 2023).

Though progress in general remains far too slow, the *SoCA 2023* report notes some positive developments at the international cooperation level concerning land use, such as the pledges made under the Glasgow Leaders' Declaration on Forests and Land Use, the Global Methane Pledge, the adoption of the Kunming-Montreal Biodiversity Framework, the commitments under the Agriculture Innovation Mission for Climate and the C40 Cities' Good Food Cities Accelerator. It also stresses the need for these pledges, goals and targets to be followed by concrete action, including the provision of resources and enabling conditions, for these commitments to be adequately met (Boehm et al., 2023).

As noted in chapter two, in September, the High-Level Champions launched two reports that specify recommendations to break financing barriers for just climate transition and restore nature in the developing countries. They are designed to help to secure the USD one trillion in annual finance that developing countries need by 2030 to take effective climate action and restore nature, as shown in the SAA and the 2030 Breakthroughs.

WATER

In addition to concerns mentioned above related to the need to preserve freshwater ecosystems and improve wastewater treatment, the availability of water is one of the main aspects in which this thematic area is affected. Increased weather and climate extreme events have exposed millions of people to reduced water security, as "roughly half of the world's population currently experience severe water scarcity for at least part of the year due to a combination of climatic and non-climatic drivers" (IPCC, 2023). Although water-use efficiency – which is a key solution to address water stress – has improved by nine per cent between 2015 and 2020, water stress and water scarcity remain a concern in many parts of the world, with an estimated 2.4 billion people living in water-stressed countries in 2020. Implementing water resources management at all levels, including arrangements for transboundary water cooperation, can help meet a number of SDG targets and increase the resilience to crises, including those related to climate, health and poverty (UN, 2023c).

The UN World Water Development Report 2023 alerts that, although water is recognized as an essential resource with cross-sectoral links, there is often a lack of integration among the many policies and plans addressing water-related issues and water governance. The report also provides examples of approaches in which climate action can strengthen collaborations and partnerships between water resource managers and water/sanitation service providers, namely, i) bottom-up water resilience approaches, using stakeholder engagements to identify multidisciplinary challenges and adaptation actions that provide co-benefits for other sectors; ii) water safety planning for climate resilience, a risk management-based approach for managing both water availability and water quality risks to safe drinking water services; and iii) City Water Resilience Approach, which helps cities build the capacity of urban water systems to endure, adapt and transform, and which can inform how water programmes and projects are planned, designed, delivered and operated so as to improve outcomes. The report also stresses the opportunities to reduce emissions in the sector, seeing that wastewater treatment and discharge directly account for 11.8 per cent and 4.2 per cent of global methane (CH_4) and nitrous oxide (N_2O) emissions, respectively, and that drinking water and wastewater management are also responsible for indirect carbon emissions, accounting for a percentage of global electricity consumption (approximately four per cent in 2014) (UN, 2023d).

The High-Level Champions supported the launch of the African Cities Water Adaptation Fund – a new initiative by WRI and partner organizations which aims to support the development and implementation of more than 200 projects in 100 African cities by 2032, by using an integrated approach to finance innovative urban water resilience solutions at scale.

OCEANS AND COASTAL ZONES

Oceans and coastal zones are affected by climate change in a myriad of ways (see sea level rise impacts above). Ocean warming and ocean acidification, for instance, have been taking place for several years now, with resulting impacts on food production from fisheries and shellfish aquaculture (IPCC, 2023). Ocean acidification – a consequence of excess CO_2 absorption, resulting in oceans today being 30 per cent more acidic than pre-industrial levels – also negatively impacts corals and shoreline defences, degrades habitats and endangers fisheries, aquaculture and tourism and, ironically, also reduces the ocean's ability to absorb CO_2 and to mitigate climate change (UN, 2023c).

The key messages from the Ocean and Climate Change Dialogue mentioned in chapter two highlight the need to integrate mitigation and adaptation action for coastal ecosystems into policies and management practices at all levels, and to sustainably manage these ecosystems, recognizing their direct benefits beyond mitigation, as well as to strengthen blue carbon accounting methodologies and tools. As for fisheries, in addition to decarbonizing the entire value chain of aquatic food production, it is vital to use an ecosystem approach to managing fish, and to integrate aquatic food climate solutions within national processes. Finally, ocean-based systematic observation, research and data management must be strengthened, partnerships must be fostered, regulatory frameworks strengthened, and a whole of society approach must be adopted including various stakeholders to give climate policies social buy-in and stability in their implementation. Indigenous Peoples and coastal communities, in particular, must be engaged from project inception to build trust, integrate local and traditional knowledge, and to respect their rights and take into account the principle of free and prior informed consent (UNFCCC, 2023e).

As mentioned in Chapter two, in June, the UN's 193 Member States adopted the 'high seas' treaty, a landmark legally binding agreement on oceans. The treaty covers two thirds of the planet's oceans (high seas beyond national boundaries) and is aimed at taking stewardship of the ocean on behalf of present and future generations.

In September, in partnership with the High-Level Champions and the Global Fund for Coral Reefs, the International Coral Reef Initiative launched the Coral Reef Breakthrough. The Coral Reef Breakthrough aims to secure the future of at least 125,000 square km of shallow-water tropical coral reefs with investments of at least USD 12 billion to support the resilience of more than half a billion people globally by 2030. Also, in October, the Champions supported the launch of the Ocean Breakthroughs – a transformative pathways covering five key ocean sectors, with the aim of accelerating action and investments to help unlock the potential of the ocean as a source of solutions to the pressing challenges posed by climate change and biodiversity loss (also mentioned in Appendix 1).

BOX 2:
Co-benefits, synergies, trade-offs and additional considerations

Climate action across the thematic areas have a host of co-benefits, such as improved air quality and a general shift to more sustainable and healthier habits (e.g. cycling). Mitigation and adaptation actions also offer multiple synergies with the SDGs, by supporting food security, enhancing biodiversity and ecosystem functions, helping reduce poverty and improving livelihoods. Energy source diversification, for instance, also delivers better energy security and reliability, whereas inclusive long-term sustainable planning can improve the resilience and well-being of low-income and other vulnerable communities. In addition to that, green and blue infrastructure can support carbon uptake and storage, contribute towards less energy use, and reduce climate change risks, such as heatwaves, flooding, heavy precipitation and droughts, while generating co-benefits for health, well-being and livelihoods (IPCC, 2023).

While decarbonizing energy sources is crucial, it is also important to ensure energy access gaps are addressed, grid capacity is expanded, energy storage and flexibility are prioritized, and consideration is given to the workforce in fossil fuel industries, to ensure a just transition (as explored under *Energy*) (Boehm et al, 2023). Ecosystem restoration, reforestation, and afforestation can also have adverse socio-economic and environmental impacts as a result of potential competing demands on land, requiring integrated approaches to address potential problems. In that sense, it is also necessary to avoid potential maladaptation responses in the longer term by focusing on sectors and risks in isolation or on short-term gains, which can create lock-ins of vulnerability, exposure and risks and worsen existing inequities (IPCC, 2023).

Another relevant caveat is that, as observed in the *Breakthrough Agenda Report 2023*, "investment in clean energy technologies and low-emission products and materials tends to be concentrated in advanced economies, and not in the countries undergoing the most rapid development and economic growth", which poses significant obstacles for scaling up the necessary solutions to reducing emissions at a pace consonant to the 1.5 °C goal (IEA, IRENA and HLCs, 2023).

BOX 3:
Building resilience and avoiding maladaptation

The synthesis report of the technical dialogue of the first GST mentions the importance of just resilience, which entails "avoiding actions that simply shift risks to other actors or reinforce existing vulnerabilities" (UNFCCC, 2023a). In that sense, AR6 SYR highlights the need for flexible, multi-sectoral and inclusive approaches to adaptation planning, to avoid short-term actions that can have negative impacts in the long run, especially for more vulnerable groups. The implementation of seawalls, for instance, "reduce impacts to people and assets in the short term but can also result in lock-ins and increase exposure to climate risks in the long term unless they are integrated into a long-term adaptive plan". Durable and transformational adaptation can be reached through facilitation "by governments at all levels working with communities, civil society, educational bodies, scientific and other institutions, media, investors and businesses" (IPCC, 2023).

However, global financial flows to adaptation remain insufficient, and far behind the flows directed at mitigation. Progress in adaptation planning and implementation is taking place across all sectors and regions, but there are gaps, especially among lower-income groups, and most adaptation responses are fragmented and unequally distributed across regions. Key barriers include "limited resources, lack of private sector and citizen engagement [and] insufficient mobilization of finance (including for research)" (IPCC, 2023).

In that sense, in 2023, SAA has identified priority actions from governments, public and private financial institutions to mobilize finance for adaptation and resilience. The initiative took stock of global progress across systems and outcomes, leveraging the SAA progress assessment framework The results will be presented their forthcoming first Implementation report, which includes the following findings:

i) Health: While there is a growing recognition of the health-climate nexus, finance remains a major gap preventing implementation.

ii) Human settlements: Cities are prioritizing adaptation because they are at the frontlines of the climate crisis. Some progress has been made in planning and policy, and more cities have detailed, science-based climate adaptation plans or strategies in place. However, the gap in planning and implementation is still significant. Urban planning at a subnational level cannot happen in isolation and needs to further align with national government plans, strategies, and policies through multi-level governance.

iii) Ocean and coastal: There is greater recognition of the importance and potential of coastal and marine nature-based solutions. Funding is starting to flow on mangrove protection and restoration projects, but overall investments still fall short of needs, despite a strong economic case for coastal and marine nature-based solutions. And, in the absence of a global coastal resilience finance tracking mechanism, the total amount committed to coastal and ocean solutions is unclear.

iv) Food and agriculture: While agri-food systems are featured in countries' climate plans, implementation and integration with other (sectoral and local) planning and investment need to accelerate. A systems-based shift is required that engages all actors along the food life cycle.

v) Water and nature: A key gap is the lack of integrated planning efforts that streamline water and nature into planning and policy-making at the national, sectoral, and especially local levels. Planning to date has remained quite siloed, also driven by a lack of technical capacity and knowledge, as well as a lack of data and information, on the status and value of water and natural resources.

vi) Infrastructure: Transportation and energy systems are both insufficiently represented in countries' adaptation and resilience planning, nor is adaptation well considered in national energy plans, or national development strategies. Further, there is no common taxonomy for resilient infrastructure, and a lack of standards and guidelines to support the industry in its transition.

vii) Adaptation finance: Finance from all sources, especially the private sector, must increase to meet the amount needed annually for adaptation in developing countries. Public financiers play a critical role in not only increasing allocation of climate finance for adaptation and resilience (to ensure a balanced allocation of funding between mitigation and adaptation and doubling of adaptation financing is delivered), but also providing the enabling environment for private capital to flow, including by increasing concessional finance, supporting credit enhancement, and de-risking adaptation projects.

viii) Planning: To build resilience for vulnerable people globally, adaptation and resilience planning is needed at the national, state, region, and city levels, as well as for the private sector where the flow of critical goods and services could be disrupted by climate shocks and stresses.

BOX 4:

Overall state of climate finance

Climate finance flows in general, are still below what is necessary for systemic transformation. AR6 SYR states that, though the "magnitude of climate finance flows has increased over the last decade and financing channels have broadened", "public and private finance flows for fossil fuels are still greater than those for climate adaptation and mitigation", and falls short of the levels needed across all sectors and regions, including climate finance flows from developed to developing countries (IPCC, 2023). The *SoCA 2023* report notes that increases in global public climate finance, for instance, need to occur roughly eight times faster than has been happening (requiring an average growth of USD 162 billion per year between 2020 and 2030) (Boehm et al., 2023).

On the other hand, the GST synthesis report stresses that mobilization of private capital is relevant to achieving scale, and that while public finance will continue to have a key role to play in financing adaptation, increased private sector engagement is needed to make financial flows consistent with climate-resilient development, noting that it could include the provision of products and services aimed at building resilience, or enhancing the resilience of their own operations and supply chains, for instance (UNFCCC, 2023a).

In this regard, it is noteworthy that the COP 27 Presidency and the incoming COP 28 Presidency have endorsed the continuation of the mandate of the Independent High-Level Expert Group on Climate Finance. The report published by the group before COP 27, points out key requirements to realize necessary investments and securing finance by i) accelerating investment; ii) mobilizing private finance at scale; iii) revamping the role of multilateral development banks; iv) delivering on and expanding the scope of concessional finance; and v) tackling indebtedness. Building on the outcomes of COP 27 and this report, the group has been working with the aim to advance a holistic financial framework for resource mobilization to deliver an equitable and efficient climate finance system. They will launch a final report at COP 28 and will establish an engagement plan of actions with stakeholders. Also, the Regional Platforms for Climate Projects initiative have identified over 400 projects in developing countries. As referred by the COP 27 High-Level Champion, the economic opportunity to invest in these projects can help break the climate finance deadlock.

CHAPTER 5
LOOKING AHEAD

WHAT IS NEEDED TO SCALE UP GLOBAL CLIMATE ACTION – KEY MESSAGES

Chapter four provided an overview of findings related to the progress achieved in the past couple of years towards the Paris Agreement goals within the frame of systems transformation, mapping out the opportunities and gaps in global climate action. Seven key messages emerge from this overview and from this Yearbook as a whole that can help inform actors on the conclusion of the first GST process, to take place during COP 28. As mentioned in chapter one, the outcome of the GST will provide the basis for Parties to review, update and enhance their NDCs, and for all stakeholders involved to bridge gaps and ramp up action, in order to get ambition on track to meet the 2030 targets under the Paris Agreement.

i) Climate action needs to align with the goal of keeping 1.5 °C climate-resilient world within reach

- The underlying message about progress across all systems and sectors is that the world is still off track to meeting the 2030 targets in time to keep up with the goal of keeping 1.5 °C climate-resilient world within reach, and we need to course-correct fast. Though the updates and enhancements to NDCs are quite welcome, they still fall short of the necessary ambition to close the emissions gap in time. Likewise, an ever-increasing number of climate-related announcements and actors engaged in climate action paint an encouraging picture, but commitments need to both align with the goals and pathways, and be translated into concrete and trackable action as soon as possible. As AR6 SYR alerts, there is a rapidly closing window of opportunity to enable climate resilient development, which is crucial to advance sustainable development for all, and it is also crucial to enhance collaborative initiatives, planning processes and financial mechanism to ensure swift and robust progress in building resilience.

ii) The opportunities to accelerate climate action exist, but need to be scaled up

There are multiple existing opportunities under all systems that are technically viable and often cost-effective with enormous potential to bridge the emissions gap, as well as to address adaptation and resilience-building needs. It is, however, necessary to identify and find solutions to the challenges and barriers to their deployment, including access to and availability of support, so they can increase in pace and scale. Stakeholders at all levels can play a major role in upscaling the enabling conditions for a faster and more robust systemic transition to a low-carbon climate resilient world. The choices that are made now will significantly impact both the near and more distant future.

iii) Non-Party stakeholders are key partners in ramping up climate action and ambition

As highlighted in chapters two and three, non-Party stakeholders have been crucial in ramping up ambition. Net-zero initiatives and commitments skyrocketed in the past few years, adaptation measures are being mainstreamed, and these actors have contributed to it in a myriad of ways, from climate awareness-raising to implementing mitigation and adaptation action on the ground, mobilizing finance, and promoting knowledge-sharing, innovation and capacity-building.

iv) Credibility of action and commitments of non-Party stakeholders need to be systematically ensured

On the other hand, it is time for actors to step up the game and ensure accountability of climate action and strategies, so as to safeguard their integrity and ambition, as well as to enable progress-tracking.

v) International cooperation across sectors, regions and actors – guided by the principle of climate justice - is instrumental in systems transformation

A key opportunity to scale up climate action and enable rapid systems transformation relies on enhancing international cooperation across sectors, regions and actors to accelerate innovation, development and transfer of technologies, as well as engagement in knowledge-sharing and capacity-building. While scaling up ongoing systems-based collaboration is supportive, it is also crucial for actors to identify and enhance collaboration on marginalized areas. As noted in the *Breakthrough Agenda Report 2023*, well-targeted international collaboration is a critical enabler at each stage of the transition, and can deliver important benefits, such as decreasing difficulties and amplifying individual actions, helping to ensure a faster transition and making clean technologies and sustainable solutions more accessible and affordable to all (IEA, IRENA and HLCs, 2023).

vi) Climate action should not be siloed

However crucial it is to rapidly and significantly reduce emissions, mitigation cannot be tackled in isolation. Neither can adaptation. Potential impacts, consequences, co-benefits and trade-offs of climate action need to be taken into consideration, within the frame of an equitable, inclusive and just transition to a net zero, climate-resilient world. A whole-of-society approach informed by local context allows for transition disruptions to be minimized and benefits to be maximized, ensures all of the relevant stakeholders are properly engaged and heard, and enables greater ambition and better outcomes.

vii) Fair finance flows are needed now

Without sufficient, efficient and fair flows of finance, we will fail to protect people and our planet from climate change, and there will be no just transition. Focus should be on increasing the share of grants and concessional climate finance to developing countries, as well as focus on mobilising further finance and investments in adaptation and mitigation. This is crucial to avoid increase in the indebtedness of developing countries and to avoid compromising their already vulnerable long-term fiscal and macroeconomic sustainability. Mainstreaming innovative finance mechanisms (e.g. debt-for-climate swaps and carbon markets) is of significant importance. Multilateral development banks need to implement credit-enhancement and credit-guarantee schemes to incentivise private-sector participation. The rapid operationalization and resourcing of the Loss and Damage Fund will play a crucial role in addressing the growing observed and experienced impacts of climate change. In addition to that, the wide range of actions non-Party stakeholders are taking to address all forms of climate losses and damages need to be further scaled up and enhanced.

TOWARDS COP 28 AND BEYOND

Looking towards the outputs component of the first GST at COP 28, the High-Level Champions made their latest submission in September, listing elements for consideration and key messages across mitigation, adaptation, finance flows, means of implementation and support and cross-cutting areas. These elements represent the expertise, knowledge, and leading work of the many partner initiatives within the Marrakech Partnership for Global Climate Action, the Race to Zero and the Race to Resilience campaigns, and information related to the 2030 Breakthroughs, the Breakthrough Agenda, and the SAA. This final section presents some of the thoughts of the High-Level Champions towards the conclusion of the first GST at COP 28 and beyond, building on the findings of this Yearbook.

2030 Climate Solutions: an implementation roadmap: the High-Level Champions are working with the Marrakech Partnership and the wider community to bring together a set of forward-looking '2030 Climate Solutions: an implementation roadmap' that streamline targets and actions and provide a comprehensive, holistic, coherent and shared roadmap for climate action by 2030 ahead of COP 28 that provide various options and approaches that can be tailored by all actors according to their needs and contexts.

Credible and transparent actions: the outcome of the GST is an opportunity to recognize the partnership and initiatives promoting credible and transparent actions by non-Party stakeholders, which can strengthen efforts for systems transformation.

Nature and climate: the interlinkages between the climate and biodiversity crises must be strongly reinforced and the pathways for the protection, restoration and sustainable management of the world's ecosystems need to be clearly recognized, supported and provided, bearing in mind that these nature-based solutions provide immediate and cost-effective benefits for both mitigation and adaptation simultaneously, while also supporting biodiversity conservation and the SDGs.

Assets to flows: a significant push is required to meaningfully improve the scale, access, affordability, quality and pace of investment and finance for projects supporting the climate change and sustainable development agenda, especially in developing countries. Increasing adaptation and resilience finance flows, improving accessibility and providing appropriate instruments are essential to accelerating near-term adaptation solutions.

Public-private collaboration on adaptation: stronger collaboration between national and sub-national governments, the private sector and civil society can deliver systems transformations to support adaptation and resilient development.

Regionalizing climate action: applying approaches that are sensitive to specific regional and local contexts and the diversity of journeys is critical. Special attention needs to be given to how climate action will address questions of inclusivity, equity, social and gender justice, intergenerational justice, the protection and promotion of human rights, just transition, and environmental integrity.

As highlighted in their submission, the High-Level Champions firmly believe that an effective response to the GST must set out a transformational roadmap to 2030 and beyond that will give clarity to all actors on the shared direction of travel.

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CHAPTER 5

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APPENDIX 1

Case Studies from non-Party stakeholders

FOCUS: Adapt to Climate Change and Build Resilience

FOODSCAPES: ACCELERATING A GLOBAL FOOD SYSTEM TRANSITION

Submitted by: The Nature Conservancy

In June 2023, The Nature Conservancy (TNC) launched an interactive Foodscapes mapping tool that allows users to explore the global data and analysis represented in the Foodscapes: Toward Food System Transition report (October 2021), developed in partnership with SYSTEMIQ and the International Institute for Applied Systems Analysis (IIASA).

TNC wants to build the science, partnerships and investment pathways that catalyse food system change at a global scale. They are working to influence success by building coalitions and continuously learning, adapting and replicating what works while balancing pace and scale with equity and inclusion of local communities. One way TNC is achieving this is through mapping foodscapes, which helps realize the potential for nature-based solutions sensitive to local conditions, while also understanding how economic, political and community systems intersect when producing food.

In Northwest India, TNC is working across the Punjab and Haryana states to accelerate the transition to regenerative food production by enabling 250,000 farmers to adopt better ways to manage the crop residue, preferably using no-till and no-burn practices. Given that two million farmers burn 12 million of paddy residue annually to quickly clear their fields during the rice-wheat crop rotation, this work is projected to reduce carbon dioxide emissions by six million metric tons and save 500 billion litres of water.

A number of technological and non-technical solutions are available to farmers as they transition to a no-burn cropping system. These includes the Happy Seeder, the Super Seeder and the Smart Seeder – all of which support the direct seeding of wheat into the paddy stubble. Many small and marginalized farmers are also deploying non-technical solutions including hand broadcasting seeds among the stubble and seeing benefits. TNC is coordinating an effort to demonstrate the Happy Seeder to farmers and help agricultural entrepreneurs launch local businesses to support farmers with rentals of the residue management machine and complementary products and services such as custom hiring, soil testing, efficient dairy farming, financial, and market linkages, and support for crop diversification. TNC's efforts resulted in the government offering a subsidy to accelerate the manufacture and purchase of Happy Seeder and other equipment to eliminate residue burning.

PARTNERING WITH INDIGENOUS PEOPLES TO CO-MANAGE THE METROPOLITAN FOREST IN PARANÁ, BRAZIL

Submitted by: Regions4 – On behalf of Paraná State

In the state of Paraná, in the south of Brazil, an initiative to restore the Metropolitan State Forest, a protected area, effectively combines environmental education, biodiversity conservation, tourism, and appreciation of Indigenous communities and traditional knowledge. The project receives 2,000 visitors a year.

The Paraná state government signed a Management Cooperation Term on April 19, 2023, during the celebrations of Brazil's National Day of Indigenous Peoples. The partnership between Instituto Água e Terra (IAT) and the Instituto e Centro de Formação Etno Bio Diverso Ângelo Kretã, representing the Indigenous and Traditional Community, is unprecedented in the country.

The initiative is home to 50 Indigenous Peoples who live in the Metropolitan Forest and developed a program of public use and tourism in the protected area. Among the activities carried out, the Indigenous community presents traditional indigenous methods to the visitors, such as underground houses, songs and ancestry. The environmental restoration led by the Indigenous peoples (4.4 thousand hectares of protected land so far), also includes the suppression of invasive exotic species, such as pine, which is processed and used for the construction of homes for the families within the Metropolitan Forest.

The partnership also enables the protection of the space against intense actions of environmental crimes and other activities causing environmental degradation. These activities were drastically reduced with the presence of the Indigenous community, who carry out periodic rounds to inspect the protected area.

Additionally to improving the quality of life of the indigenous community, the partnership contributes to the development of a secondary source of income with the installation of hives of native stingless bees. This action contributes to the maintenance of biodiversity by promoting species of native stingless bees, and also provides a sustainable source of income, in which the community can benefit from products such as honey and others from the hives.

TRANSFORMING THE FOOD SERVICE SECTOR TO COMBAT CLIMATE CHANGE

Submitted by: WWF Germany

Following a systems-based framework, the project took a three-pronged strategy, tackling several leverage points at once: working with businesses to adopt sustainable practices and business models; raising awareness and mobilizing the public; and supporting government with developing transformative policies. The project convened a wide range of stakeholders along the agri-food value chain for the challenging goal of transforming practices that cause environmental and socio-economic impacts – and to transition to more sustainable production and consumption.

Two pilot farming areas were selected at the beginning of the project that proved suitable for the conversion of monoculture maize farming to a diversified system of perennial trees, fruits and vegetables, using agroecological principles. Through an agreement with an agricultural lending bank, several farmers were able to restructure debt repayments. A financial mechanism, FLR349, was created in 2018 with partners, aimed at supporting farmers transitions for six years. Key project partners provided training on agroecological approaches, and with the verification of production methods through the Participatory Guarantee Systems (PGS) for organic certification, which poses less barriers to small farmers. A major Thai retailer partnered with the project to support farmers accessing the market.

A total of 600 hectares of maize plantation were converted away from monoculture, of which 118 hectares were dedicated to forest restoration. A policy briefing platform was organized to inform the government and other stakeholders about mitigation opportunities through actions in the food system. In the collaboration with one of the largest retail conglomerates in the region, Central Group, the project promoted sustainable supply chains, raised consumer awareness through information tools, supported landscape restoration through a traceability platform, and supported farmers' markets across many provinces as key transformation catalysers. Various activities such as workshops, farm trips, and farm-to-table dining events were developed, aimed at building an organic food network by connecting producers and consumers. Until September 2020, 40 workshops with more than 200 participants took place.

FINANCING AND INCUBATION OF WATER AND CLIMATE PROJECTS: AN INNOVATIVE TOOL TO ACCELERATE ADAPTATION

Submitted by: International Network of Basin Organizations (INBO)

The water and climate projects incubation platform is managed by the International Network of Basin Organizations (INBO). The objective is to support the incubation of water and climate projects around the world.

A modest budget (EUR 60,000 on average) is mobilized for each incubated project. The funding is used by an operator to provide technical assistance for the production of project proposals, from a project idea to a concept note that is mature enough to be submitted to donors of the climate finance for financing of the projects implementation (with a leverage effect from one to 100).

Projects targeted involve actors and users of water resources in the basins of lakes, rivers and aquifers (including cities, companies and, where applicable, desalination actors) and mobilize efficient adaptation solutions, not only grey infrastructures, but also soft and green infrastructures linked to water resources management. Projects must focus on the following three types of actions:

1. Knowledge for adaptation (monitoring networks, data, water information systems, hydro-climatic modelling, early-warning systems);

2. Nature-based solutions for adaptation in action plans and basin management (ecosystem services, aquatic environment and wetland restoration);

3. Governance and sustainable financial mechanisms for adaptation (institutional capacity building, training of the staff, consistency of sectoral policies, impact studies, vulnerability studies, flood and drought prevention action plans, adaptation strategy).

Fifty projects were already supported since 2017, focusing mainly on the adaptation of hydrographic basins of 39 African countries (South Africa, Angola, Benign, Burkina Faso, Burundi, Cameroon, Comoros, Congo Brazzaville, Ivory Coast, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Guinea Conakry, Kenya, Libya, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Niger, Nigeria, Uganda, Central African Republic, Democratic Republic of Congo, Republic of Congo, Rwanda, Senegal, Seychelles, Sudan, South Sudan, Tanzania, Chad, Togo, and Tunisia).

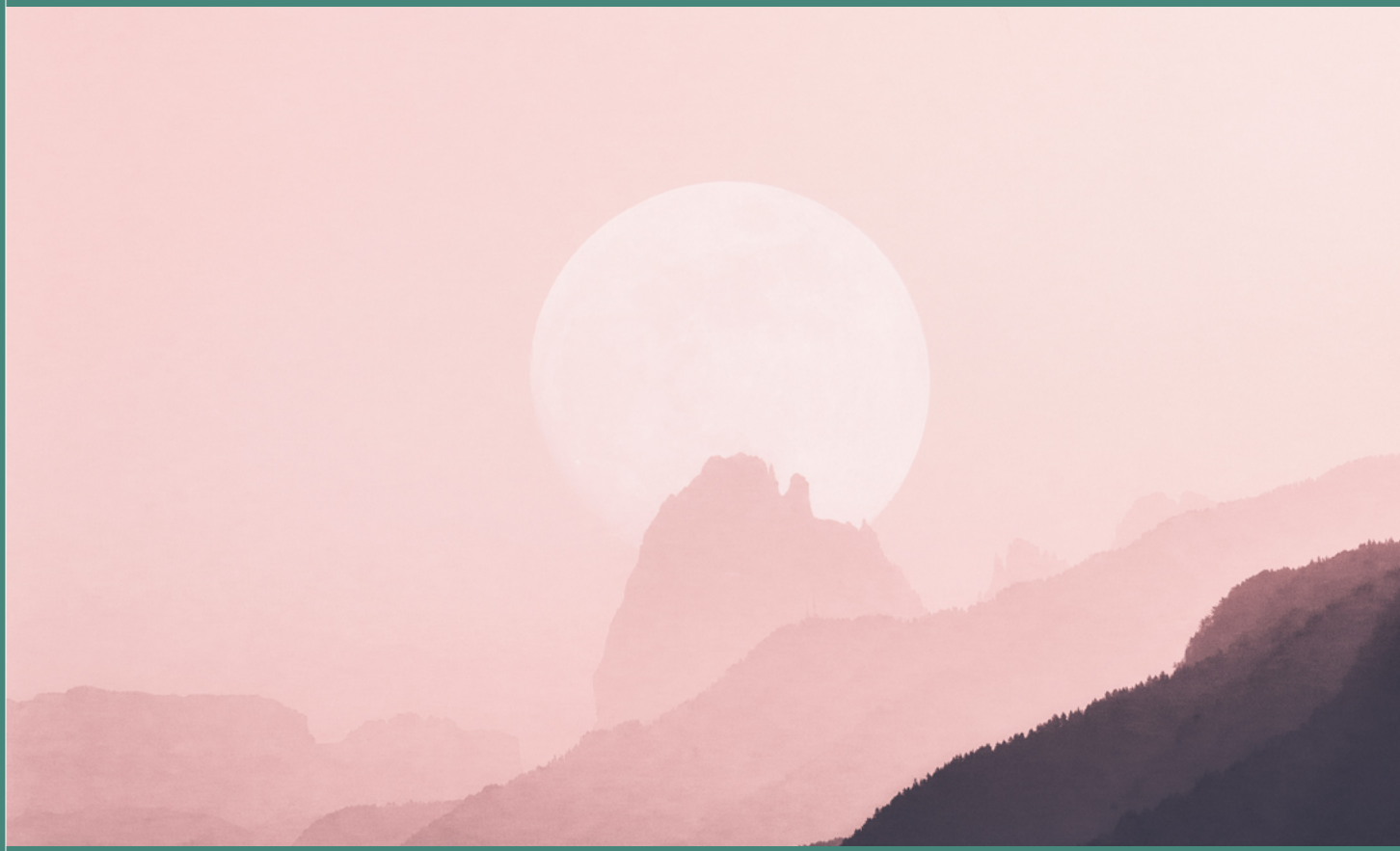
BUILDING UP FINANCIAL RESILIENCE THROUGH THE GLOBAL SHIELD AGAINST CLIMATE RISKS

Submitted by: Global Shield against Climate Risks

The Global Shield against Climate Risks has already started the In-Country Process (ICP) in Ghana. The ICP includes a wide range of relevant stakeholders to ensure an inclusive and participatory process. The main outputs of the ICP are the Stocktake, the Gap Analysis, and the Request for climate and disaster risk finance and insurance (CDRFI) Support. To ensure the country government's ownership throughout the process, the lead ministry endorses the main ICP outputs, building on consultations amongst all relevant government entities.

The needs and perspectives of the most vulnerable people in the country aim to be captured and integrated into the country's understanding of protection gaps and the resulting request for CDRFI support. Additionally, to ensure transparency and cultivate meaningful multi-stakeholder engagement in this process, all outputs aim to be shared with ICP participants for review. The ICP builds on and integrates existing CDRFI-related consultations, analyses and projects to benefit from their lessons learned and best practices.

The Request for CDRFI Support will be submitted to the Global Shield via the Global Shield Secretariat in the coming months. With support of the Coordination Hub, available support by bilateral/multilateral donors, implementing programmes and further partner will be identified to respond to the Request. The Global Shield Financing Structure provides support for those financial protection needs stated in the Request for CDRFI Support which cannot be funded or addressed through efforts by other institutions. The Global Shield Secretariat, building on consultations within the Coordination Hub and the Financing Structure, will revert to the country with a proposal outlining how the country's Request can be approached most effectively. Building on the country's final decision, the Financing Structure and/or other implementing institutions will develop a tailored CDRFI package and mobilize financial and technical resources to deliver and implement the needed support.



RUNNING RIVERS FOR THRIVING AND RESILIENT COMMUNITIES IN KWAZULU-NATAL, SOUTH AFRICA

Submitted by: Regions4 – on behalf of KwaZulu-Natal

The second most populated province in South Africa, KwaZulu-Natal, faces challenges such as water scarcity, inadequate river catchment management, and pollution from informal settlements along river systems. Compounded by high unemployment rates, the region faces heightened vulnerability to natural disasters like floods and droughts, given limited resources for post-shock recovery.

Playing a central role in climate adaptation and resilience, regional governments are key for innovative riverine governance, unlocking vital responses and aligning with citizens' welfare. In 2021, the KwaZulu-Natal Department of Economic Development, Tourism, and Environmental Affairs (EDTEA) launched the first phase of the Transformative Riverine Management Programme (TRMP). This initiative focuses on sustainably rehabilitating and managing riverine corridors, collaborating closely with all affected stakeholders. By adopting a community-based strategy, TRMP addresses socio-economic challenges, generating employment, providing training, and fostering skills development for locals. This empowers them to access competitive job markets and creates new economic prospects for economically-disadvantaged communities.

The first phase of the project, which was implemented in Endumeni, KwaDukuza and Ugu District municipalities in 2022-2023, has been a successful demonstration of transformative riverine management for restoring the natural resources, protecting infrastructure, creating job opportunities, improving resilience to climate-related risks, with:

- 1186 people directly employed in the projects
- 109 tonnes of waste collected
- 98 hectares of land cleared off invasive alien flora species

Key lessons from the first phase of the program include: the potential for significant impact despite limited investment; the need to upscale projects across municipalities and river catchments for increased impact; the necessity of integrating riverine management into municipal budgets for sustainability and expansion; the need for follow-up treatments and ample resources to remove invasive plants effectively; the realization that longer project periods and sufficient funding are vital for lasting participant livelihood improvement; the central role of education and awareness for climate-adaptive river and environmental management; the importance of allocating resources for training to enable local participants' integration into the local economy; and the opportunities offered by establishing localized recycling centres to divert waste from landfills.

FOCUS: Mitigate GHG Emissions

NDC-TRANSPORT INITIATIVE FOR ASIA

Submitted by: SLOCAT Partnership

The NDC-Transport Initiative for Asia project aims to facilitate a paradigm shift to zero emission transport across Asia. In partner countries India, China, and Vietnam, the project has a joint project of seven implementing organizations, including SLOCAT Partnership.

The NDC-TIA Forum for Decarbonising Transport, an initiative of NITI Aayog and WRI India, has brought together climate modelers, transport policymakers, researchers and practitioners to deliberate on different models for carbon-neutral transport systems in the country. GIZ India is also modelling different pathways to achieve net-zero targets in the transport sector.

In Vietnam, following the approval of its National Climate Change Strategy, the government announced an Action Programme on Green Energy Transformation which details steps to reduce carbon and methane emissions from transport. However, significant policy design and implementation across key sectors is still required, as well as alignment with its NDC. To aid this process, the NDC-TIA is supporting the government in developing transport emission models, electric mobility roadmaps and new financing mechanisms.

Further, SLOCAT is a member of the Leadership Group for Clean Transport in Asia (LG-CTA) initiative, along with the Global Climate Action Partnership (GCAP). At the G20 Clean Energy Ministerial in India in July, SLOCAT presented on the LG-CTA initiative in the event "Accelerating the Energy Transition in Asia's Transport through Sustainable and Equitable E-Mobility".

TUMI E-BUS MISSION

Submitted by: Transformative Urban Mobility Initiative (TUMI)

Funded by the German Ministry for Economic Cooperation and Development (BMZ), a core group of organizations such as C40 Cities, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), The International Council on Clean Transportation (ICCT), The Institute for Transportation and Development Policy (ITDP), ICLEI – Local Governments for Sustainability, The International Association of Public Transport (UITP) and World Resources Institute (WRI) work together to accelerate the transition to electric buses in developing countries.

Since 2021, the TUMI E-Bus Mission is leading the charge towards a sustainable urban transport future by fostering global and city-specific coalition-building. With a focus on 20 deep dive cities and inspiring 100 more, the mission is providing roadmaps and technical assistance to support their transition to e-bus fleets. By bringing together private and public sector partners, a global community is being established to drive this important transformation towards cleaner, greener, and more liveable cities.

The cities of Curitiba, Campinas, Rio de Janeiro, Salvador, São Paulo (Brazil), Barranquilla, Bogotá, Valledupar (Columbia), Guadalajara, Mexico City, Monterrey (Mexico), Ahmedabad, Bengaluru, Chennai, Delhi, Mumbai

(India), Jakarta (Indonesia), Ho Chi Minh City (Vietnam), Nairobi (Kenya), Kampala (Uganda), Durban (South Africa) have committed to implement at least 22,469 e-buses until 2030 and 57,518 e-buses until 2050. This will result in a reduction of 15 Megatonnes CO_2 emissions.

The TUMI E-Bus Mission is also working on increasing the circularity of e-buses and increasing female workforce participation in the sector as integral part of a Just Mobility Transition.

WALES' NATIONAL PEATLAND ACTION PROGRAMME: REVIVING PEATLANDS FOR CLIMATE GOALS

Submitted by: Regions4 – on behalf of Wales

Worldwide, peatlands contain up to one-third of the world's soil carbon, which is twice the amount of carbon found in the world's forests. However, about 12 per cent of current peatlands have been drained and degraded, contributing to four per cent of annual global human-induced emissions. In Wales (United Kingdom), where four per cent of land coverage is peatland locking in 30 per cent of the country's land-based carbon, 90 per cent of the peatland is in a degraded condition. To address this challenge, Wales started working on the National Peatland Action Programme (NPAP), which is an initial five-year plan of peatland restoration in Wales that prioritises action across the main areas of peatland damage for the combined benefit of biodiversity, decarbonization and other ecosystem services.

The Programme targets peatland bodies most in need of restoration as well as safeguarding those in good condition and recovering. The aim is to deliver 600-800 hectares of restoration per year and activity is delivered across a range of land uses on both private and public land by Natural Resources Wales (NRW) and partner organisations. The key actions areas are peat erosion; peat drainage; sustainable management of degraded upland peatlands; sustainable management of degraded lowland peatlands; afforested peatland, and hyper-modified peatlands. Initial estimates for year three (2022-2023) provide a conservative figure of 630 hectares under restoration activity, and this this figure builds upon the success of year two (2021-2022) delivering 1,000 hectares, and year one (2020/21), delivering 650 hectares of restoration activities which were delivered across over 20 sites spanning the full ecological range of semi-natural peatland habitats in Wales.

Apart from conservation and restoration actions, the Programme also includes the development of a monitoring programme through condition mapping of NPAP sites, as well as the development of an overall monitoring strategy for the hydrological monitoring needs, and continued surveying of afforested peat on the Welsh Government Woodland Estate (WGWE) to inform the upcoming Forest Resource planning process. Additionally, it involves the creation of a tool called The Welsh Peatland Data Portal. This is designed as an interactive web-based mapping tool that brings together maps and associated datasets to facilitate engagement with partners undertaking or planning peatland restoration and to support NPAP's action planning and reporting requirements. The peat portal hosts all of the openly available peat data in a publicly accessible format for the first time. Work has also been underway to develop standardised peatland restoration activity reporting formats, across NPAP and partners, to streamline reporting. Finally, the Programme also focuses on promoting public and cross-sectoral understanding of the benefits peatlands provide.

ACCELERATING CLEAN ENERGY TRANSITION IN DAIRY COLD CHAIN IN INDIA

Submitted by: WWF India

WWF-India as part of HSBC funded 'Climate Solutions Partnership' (CSP) has been working with local Dairy farmers and Dairy Micro, Small, and Medium Enterprises (MSMEs) since 2021 to accelerate clean energy transition in Dairy cold chain to help in Greenhouse Gas (GHG) emissions reduction and also enhance dairy farmer's socio-economic status.

The project works with multi stakeholders including government and with collaboration in year 2022-23, 38 Solar based Renewable Energy based milk chillers of total 175 kilowatt installed and processing 26000 liters milk per day in two largest milk producing states (UP & Rajasthan) of India.

Deployment of Solar based milk chillers result in reduction of diesel generator usage, savings in electricity bills and avoidance of milk wastage. Through this project initiatives, with 25 Dairy based Micro, Small, and Medium Enterprises (MSMEs) and more than 5000 Dairy farmers including women are receiving benefits, while also mitigating 210 tonnes of GHG emissions annually.

Around 70 million rural households are engaged in milk production, most of them being landless or small and marginal farmers depending on for one-third of their annual income. Therefore, the sector has transformational potential for wider uptake of clean energy and WWF-India is working with multi-stakeholders including government to expand the learnings and bring positive impact in the lives of dairy farmers with GHG mitigation as co benefit.

2030 OCEAN BREAKTHROUGHS TO DELIVER SUSTAINABLE, EQUITABLE AND EFFECTIVE SOLUTIONS FOR A RESILIENT AND REGENERATED OCEAN

Submitted by: Ocean & Climate Platform

Under the Marrakech Partnership and the leadership of the High-level Climate Champions, the Ocean and Coastal Zones groups is working on delivering an overarching 'Ocean Breakthroughs' focusing on five key sectors: marine conservation, ocean-based transport, ocean renewable energy, aquatic food, and sustainable coastal tourism. These sectors reflect the portfolio of ocean-based climate solutions that have been discussed under the UNFCCC to build on and amplify existing work (e.g., the Mangrove Breakthrough or the Shipping Breakthrough which set very good examples).

The Ocean Breakthroughs can be understood as sectoral objectives to guide the delivery of nature-positive and net-zero actions, and in turn raise the ambition of governments. It aims at defining a set of ocean pathways to drive the transition towards a net-zero world - inspiring ocean-climate action for the coming years - and position the ocean in critical climate negotiations, such as the Ocean and Climate Change Dialogue and the global stocktake.

CONTRIBUTION OF THE AMAZON PROTECTED AREAS PROGRAM TO AVOID DEFORESTATION AND EMISSIONS

Submitted by: WWF-Brasil

Brazil established in 2002 the Amazon Protected Areas Program (ARPA) to support the consolidation of a total of 60 million hectares of protected areas in the Amazon, creating the world's largest initiative for conservation of tropical forests. Coordinated by the Brazilian Ministry of the Environment (MMA) and managed by the Brazilian Fund for Biodiversity (FUNBIO), ARPA is a public-private partnership that since 2014 is based on an approach called Project Finance for Permanence (PFP), which helps establish public policies and secure necessary funding to meet specific goals within a defined, long-term period.

The Program supported the establishment of over 27 million hectares of new protected areas (PAs) in the Amazon and currently supports 120 federal and state strictly protected and sustainable use areas, covering the equivalent of 20 per cent of the remaining Amazon Forest in Brazil. As the program celebrated its 20th anniversary in 2022, Britaldo et al (2023) evaluated its effect on reducing deforestation and associated CO_2 emissions in the Amazon between 2008 and 2020. Results of the study indicated that both groups of PAs (strictly protected and sustainable use) with ARPA support have lower deforestation rates than those of control groups and that ARPA investments played a role in causing this difference. The share of reduced deforestation by PAs with ARPA support totaled 264 ± 25 thousand hectares, the equivalent of 104 ± 10 million tonnes of reduced CO_2 emissions, roughly equivalent to Belgium's total emissions in 2021.

More and more governments around the world recognize that the climate and nature loss agendas are inextricably intertwined. ARPA results suggest that supporting large network of PAs plays a pivotal role in conserving forests, along with their invaluable ecosystem services. The PFP model has already been applied to conservation initiatives in Bhutan, Brazil, Canada, Colombia, Costa Rica and Peru. Together, these projects have financed the protection of over 120 million hectares – all to the benefit of local communities, biodiversity and the climate.

APPENDIX 2

List of Cooperative Climate Initiatives Supported the Survey Analysis

4 PER 1000
SOILS FOR FOOD SECURITY AND CLIMATE

ACT ASSESSING LOW CARBON TRANSITION

CITIES CLIMATE FINANCE LEADERSHIP ALLIANCE

Climate Action 100+
Global Investors Driving Business Transition

RACE TO ZERO

CLIMATE CHANGE IMPACTS ON CULTURAL & NATURAL HERITAGE
FLEXIBLE MECHANISM Coordination Unit
Academy of Athens
Research Center of Atmospheric Physics and Climatology
Solonos Str. 84, Athens
e-mail: fm.coordunit@gsco.gov.gr
tel: (0030)210 8832048

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FASHION INDUSTRY CHARTER FOR CLIMATE ACTION

GETTING TO ZERO COALITION

Glasgow Declaration
Climate Action in Tourism

SUSTAINABLE ENERGY FOR ALL

Global Shield
against Climate Risks

GCF
task force

HIGH AMBITION COALITION
FOR NATURE AND PEOPLE

INTELLIGENT CLIMATE & ECO-CIVILIZATION INITIATIVE

INTERNATIONAL WINERIES FOR CLIMATE ACTION

ZEV ALLIANCE

JAPAN CLIMATE INITIATIVE

LDC CLIMATE CHANGE

LEADERSHIP FOR URBAN CLIMATE INVESTMENT (LUCI)

Leadit LEADERSHIP GROUP FOR INDUSTRY TRANSITION

Mainstreaming Climate in Financial Institutions

Mission Efficiency

MISSION INNOVATION

Mobilise Your City

NET ZERO BANKING ALLIANCE (NZBA)

NET ZERO INVESTMENT CONSULTANTS INITIATIVE (NZICI)

NO NEW COAL ENERGY COMPACT

orraa Ocean Risk and Resilience Action Alliance

op2b one planet business for biodiversity

RACE TO Zero UNIVERSITIES & COLLEGES

RACE TO ZERO

eauc UN Second Nature

REGIONSADAPT

RELAC

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

SIDS LIGHTHOUSES

SPORTS FOR CLIMATE ACTION

CLIMATE FRIENDLY SUN TRAVEL

U4E United for Efficiency

PRI Principles for Responsible Investment

WWF together possible

United Nations
Climate Change Secretariat

Marrakech
Partnership

Global Climate Action
United Nations Climate Change