Yearbook of Global Climate Action 2020

Marrakech Partnership for Global Climate Action

United Nations
Climate Change Secretariat

Marrakech Partnership

Global Climate Action
United Nations Climate Change

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Yearbook of Global Climate Action 2020

Marrakech Partnership for Global Climate Action

Photo: Eyoel Kahssay.

Foreword

Patricia Espinosa
Executive Secretary of the UNFCCC

Five years after the adoption of the Paris Agreement in 2015, we find the world facing the worst global health crisis we have experienced for at least a century. The COVID-19 pandemic has, in less than a year, infected more than sixty million people, caused the loss of jobs, income and livelihoods at an unprecedented scale across the world, and set back almost all human development indicators by decades.

Yet, this is but a small sample of the damage and human suffering that a full-scale climate emergency will inflict unless we take urgent action to rapidly reduce emissions, increase resilience, and ensure a fair and equitable transition to a climate smart society. Climate change is not pausing because of COVID-19.

The global pandemic and the climate change crisis have exposed humanity's weakest vulnerabilities and magnified its most urgent challenges. But they also offer a slim window of global opportunity to build a better future. Recovery from COVID-19 offers nations a chance to reorient policies and plans that will help build resilience, as well as building cities and communities that are clean, green, healthy and sustainable. In turn, this reorientation of plans and policies can also help address climate change at the speed and scale needed, along with other major challenges reflected in the 2030 Agenda.

Climate action by non-Party stakeholders is more important than ever for the successful implementation of the Paris Agreement. The Agreement is a covenant among nations and their governments, but its implementation requires full support by all parts of society.

Under the leadership of the High-Level Climate Champions, Mr. Gonzalo Muñoz from Chile, and Mr. Nigel Topping from the UK, a groundswell of initiatives and actions, catalyzed by the Marrakech Partnership for Global Climate Action and other initiatives, and amplified by the Race to Zero campaign, has created the knowledge and impetus for ambitious and forward-looking Nationally Determined Contributions, or NDCs.

This 2020 edition of the *Yearbook of Global Climate Action* not only reflects the contribution of non-Party stakeholders over the past five years, but also summarizes thematic Climate Action Pathways, laying out concrete and specific roadmaps for how to reach net-zero emissions by mid-century. The Yearbook also outlines where the work of the Champions, the Marrakech Partnership for Global Climate Action, and the wider community of non-Party stakeholder should go from here.

I thank the High-Level Champions and all partners for contributing to this Yearbook, which offers both hope and optimism. It shows how we can work together, Parties and non-Party stakeholders alike, to create the future we both want and need.

Foreword

Nigel Topping, left, and Gonzalo Muñoz, right.

Gonzalo Muñoz
High-Level Champion (Chile)

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

Making 2021 the Most Impactful Year for Climate Action

Five years ago in Paris, governments of the world did something extraordinary when they agreed on the need to limit the global temperature rise. As the world prepares to celebrate the anniversary of this historic climate agreement, we are reminded once again of the urgent need for all actors to scale-up the ambition of the pledges made in 2015 in order to keep the dream of Paris alive.

The enhanced role taken by entities which usually sat outside the intergovernmental process – such as subnational governments, the private sector and civil society at large – helped make Paris possible and became a core part of its success.

Much has changed since then. During the intervening years, the world has witnessed fundamental step changes in how local communities, cities, CEOs and countries view and respond to the climate challenge.

Perhaps the most visible shift in how actors are meeting this challenge is that the concept of net zero has taken shape as the guiding star that we are all pursuing. The race to zero has well and truly begun.

Alongside countries such as China, Japan and the Republic of Korea signaling net zero, thousands of actors have now joined our Race to Zero campaign.

Even amid the global pandemic, net-zero commitments have doubled in the last 12 months. Companies are now committed to reducing greenhouse gas emissions in line with the Paris Agreement. This is the ambition loop in motion: a positive feedback loop in which bold government action and private sector leadership reinforce each other, and together take climate action to the next level.

But the question is: how can we transform systemically to reach our shared destination at the pace required? The answer lies in adopting a breakthrough approach that embraces radical collaboration and champions exponential change. The focus must be on systems change – environmental, economic and social – to collectively strive to create a zero carbon and resilient world.

This is why the Marrakech Partnership for Global Climate Action revamped the Climate Action Pathways last month. Each Pathway sets out the near- and long-term milestones for limiting the global temperature rise to 1.5°C in the areas of energy, cities and other human settlements, industry, land use, oceans and coastal zones, transport, water and resilience. Collectively, they provide a blueprint to coordinate climate ambition among cities, regions, businesses and investors to reach net-zero emissions by mid-century, and limit warming to 1.5°C.

As we look ahead from this anniversary towards COP 26 in Glasgow, it is clear we have a unique opportunity to make 2021 the most impactful year for climate action.

This year's slimmer edition of the Yearbook reflects our work together with Marrakech Partnership stakeholders in 2020 to create Climate Action Pathways, offering a valuable assessment of where we stand with respect to non-Party action, and points to areas where success might be gained.

The climate crisis upon us now requires that both Parties and non-Party stakeholders step up their climate action. We are all part of the solution. We must unite behind the science, working together in the spirit and practice of a new global multilateralism, with an intergovernmental process led by Parties involving all non-Party stakeholders in the quest for solutions to climate change.

We can only win this race to zero together.

Acknowledgements

Photo: David Clode.

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 the Marrakech Partnership stakeholders who provided insights of the sectoral impact of the COVID-19 pandemic. Another special thanks to those who provided help with the data analysis in Chapter 1: Blavatnik School of Government (BSG) at the University of Oxford; Camda; CDP; Data-Driven EnviroLab; German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE); Global Centre for Adaptation; Mission 2020; and NewClimate Institute. The High-Level Champions would also like to thank their entire team and the UNFCCC secretariat for their support.

Photo: Annie Spratt.

Executive Summary

In December 2020 we celebrate the fifth anniversary of a historic moment. The Paris Agreement, reached in December 2015, was unique in that 196 Parties committed to transforming their development trajectories towards a sustainable and resilient world, and limiting warming to 1.5 to 2 degrees C above pre-industrial levels. Five years later, a total of 188 Parties have presented their first Nationally Determined Contributions (NDCs), embodying the efforts each of these countries are making towards reducing national emissions and adapting to the impacts of climate change. However, though 103 of these Parties have stated their intention to enhance ambition by 2020, only 16 countries – representing nearly five per cent of global emissions – have submitted a revised 2020 NDC so far.

The year of 2020 is also an atypical year, in which a worldwide pandemic of massive proportions caused a range of disruptions to people's lives and the world economy, upending all plans and processes. Like many other multi-stakeholder meetings, the twenty-sixth session of the Conference of the Parties (COP 26) to the UNFCCC, which inaugurates a new phase of the Paris Agreement, had to be postponed to 2021.

Climate action has not paused, however. Likewise, the work under the Marrakech Partnership for Global Climate Action – launched four years ago to strengthen collaboration between governments and non-Party stakeholders and scale up the global response to climate change – has not stopped. In 2020, the High-Level Champions, Mr. Gonzalo Muñoz (Chile) and Mr. Nigel Topping (UK), with the support of the UNFCCC secretariat, have focused on enhancing the Climate Action Pathways and mobilizing actors outside national governments to join the Climate Ambition Alliance through the Race to Zero campaign, launched in June. Both the Pathways and the campaign are aimed at encouraging actors to ramp up ambition and effective action on the ground in order to reach a net-zero resilient world by 2050.

This Yearbook – the fourth produced by the High-Level Champions – presents the current range and state of global climate action by non-Party stakeholders (cities, regions, businesses, investors, and civil society), examines the impacts of the COVID-19 pandemic and opportunities for a green resilient recovery. It also explores the key elements of the Pathways, and delivers key messages and reflections from the Champions on the future of the Marrakech Partnership for Global Climate Action.

State of Global Climate Action 2020

The Global Climate Action Portal, launched in 2014, provides an online platform where governmental and non-governmental actors from around the globe can display their commitments to act on climate change. As of November 2020, the Portal registered 27,174 climate actions from 18,279 actors all around the world, representing a significant increase in actions and actors being recognized compared to COP 21 in 2015.

There was also a significant increase in subnational and corporate net-zero targets in the past year, nearly doubling from late 2019 to late 2020 with 826 cities and 103 regions (representing about 11 per cent of the global population) and 1,565 companies making commitments despite the COVID-19 pandemic and the economic downturn that it brought about.

A large part of the actors pledging net-zero emissions examined by the report are already taking part in the Race to Zero campaign, which at the moment encompasses 23 regions, 524 cities, 1,397 businesses, 569 universities and 74 of the biggest investors aiming for zero emissions.

Impacts of COVID-19

The COVID-19 pandemic that hit the world in the first months of 2020 rapidly evolved from a global health crisis to a socioeconomic one of massive proportions. The pandemic, which today impacts all countries, all peoples, and all parts of the economy, shares similarities with the climate change crisis that has been looming over the past decades. Both have been foreseen, their impending occurrence has been underestimated, and their impacts are wide-ranging.

The socioeconomic fallout of COVID-19 is projected to last for months or years to come, affecting societies in a number of ways from here on out. Seeing that the planet's unfolding environmental crisis also poses a deep emergency, the recovery process needs to be turned into an opportunity to tackle both challenges in tandem, and build a better future.

A range of actors are calling for a green resilient recovery, and various analyses show how recovery plans focusing on low-carbon sustainable measures can also create better socioeconomic outcomes and a healthier environment for all. A number of tools

Photo: Muhammadtaha Ibrahim Ma Aji.

and inputs are being made available to help governments and other stakeholders in shaping sustainable recovery plans. Non-Party stakeholders have also been instrumental in responding to the crisis, and in providing studies, tools and resources to help decision-makers shape a recovery that addresses challenges beyond those that are in their field of vision at the moment.

Three vital recommendations enshrined in the Paris Agreement and the 2030 Agenda for Sustainable Development can help provide guidance on how to address the compounding crises and reach the goals both frameworks seek to achieve: (i) enhance cooperation; (ii) seek balance; and (iii) build resilience. This will ultimately be the key for our transition into a more equitable, resilient and sustainable world.

Looking Forward

First launched in 2019, the Climate Action Pathways set out sectoral visions for achieving a 1.5°C resilient world in 2050. The 2020 Pathways incorporate insights about the exponential nature of the necessary systemic and technological change within sectors, but also focus on the synergies and interlinkages across the thematic and cross-cutting areas in order to assist all actors to take an integrated approach.

The key aim of the 2020 Pathways is to be ambitious, resilient, adaptable, science-based, experimental and equitable. The Champions hope that climate trailblazers will be inspired by these Pathways to take bold steps towards achieving the various milestones.

In 2020, the High-Level Champions also started work in response to a request by COP 25 to improve work under the Marrakech Partnership to enhance ambition. In order to do so, the Champions are working with a diverse range of actors to clarify and align around a shared vision to achieve net zero, fostering collaboration to trigger the rapid systemic change needed to achieve the Paris Agreement goals, and amplifying the progress and evidence of this exponential transformation already underway.

With this work, the Champions' aim is to transform the Marrakech Partnership into an even stronger engine of collaboration and alignment, setting up for significant breakthroughs in 2021. The vision of an improved, evolved and updated Marrakech Partnership is to enable step change on the road to COP 26 carrying us to rapid and decisive implementation. Seeing that the decade ahead will be crucial in setting up the necessary pace and ambition to achieve a net-zero climate resilient world, the Champions see their role and that of the Marrakech Partnership as a core and go-to space in which leadership can converge, collaborate and execute together. The High-Level Champions look forward to continuing to work closely with Parties and non-Party stakeholders to refine this vision and develop a concrete plan in the early part of 2021.

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Photo: Sheng Li.

Chapter 1

Pre-2020 Analysis

Introduction

The Paris Agreement, reached in December 2015 during COP 21, defined as its central goal to strengthen the global response to the threat of climate change by keeping a global temperature rise well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius, as well as to strengthen the ability of countries to deal with the impacts of climate change and make financial flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Acknowledging the urgency of the matter, Parties agreed to reach global peaking of greenhouse gas (GHG) emissions as soon as possible, undertaking rapid reductions thereafter in accordance with best available science. The Nationally Determined Contributions (NDCs) are the means by which Parties agreed to present their planned efforts to reduce national emissions, including voluntary emission reduction pledges, and adapt to the impacts of climate change.

Five years later, a total of 188 Parties – accounting for 92.7 per cent of global emissions – have submitted their first NDC. Of these, 103 Parties (representing 129 countries and 44.8 per cent of global emissions) have stated their intention to enhance ambition by 2020, and 16 countries (representing 4.6 per cent of global emissions) have already done so, by submitting a 2020 NDC. A total of 20 Parties, representing 40 countries and 26.5 per cent of global emissions have submitted long-term strategy documents[1]. However, the Emissions Gap Report 2019 warned that current NDC pledges are not enough to achieve the Paris Agreement temperature goal in time. For 'well below 2°C', countries need to increase ambitions threefold – and more than fivefold if we are to achieve the 1.5°C limit[2].

During the Paris Conference, Parties also agreed that it would be necessary to mobilize stronger and more ambitious climate action, and acknowledged the engagement of a host of non-Party actors – such as cities, regions, businesses, investors, and civil society – in scaling up the global response to climate change. 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, so that they represent both the current and the incoming COP Presidencies.

Building on the Lima-Paris Action Agenda, established during COP 20, the Marrakech Partnership for Global Climate Action was launched by the High-Level Champions in 2016, during COP 22. The Partnership aims at strengthening collaboration between governments and key stakeholders to lower emissions and increase resilience against climate impacts, and particularly to help increase the pace and ambition of climate action in the pre-2020 period and beyond. In order to provide a consistent and structured approach to facilitating climate action, the Marrakech Partnership implemented a work programme aligned under seven themes – Land Use, Oceans and Coastal Zones, Water, Human Settlements, Transport, Energy and Industry, with Resilience and Finance as additional cross-cutting areas – so that specific priorities could be addressed by the community of actors within each of them.

The Yearbook of Global Climate Action is one of the tools developed by the High-Level Champions with the support of the UNFCCC secretariat to track progress, impacts and results, and to identify best practices and lessons learned. 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 ambition by Parties and non-Party stakeholders alike.

Tracking Progress

The first Yearbook, launched in 2017, showed that climate action had been indeed increasing since the lead-up to the Paris Climate Change Conference, and that, by 2016, cities and

regions representing over a billion people had already committed to reducing greenhouse gases and strengthening resilience, as had businesses with revenues of USD 36.6 trillion.

The 2018 edition of the Yearbook stressed the urgency for immediate climate action raised by the Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°C, which outlined the stakes for ecosystems and humans of allowing global temperatures to increase by even half a degree Celsius more. The report warned that, to limit the global temperature increase to 1.5°C, with no or limited overshoot, global CO_2 emissions would need to fall by about 45 per cent from 2010 levels by 2030, and reach net zero around 2050[3].

The 2018 Yearbook took notice of the increased number of pledges launched during the UN Global Climate Action Summit in September 2018 and throughout the year, in the wake of renewed interest by non-Party stakeholders and society in general. It also noted that the potential emissions savings from a selection of cooperative initiatives were much higher than the aggregate of the individual commitments. If countries were to implement their NDCs fully and the cooperative initiatives were to meet their commitments without displacing action elsewhere, global emissions in 2030 would be in a range consistent with the long-term trajectory to meet the Paris Agreement goal of well below 2°C.

The 2019 edition of the Yearbook noted that, while global ambition was still not strong enough and the pace of action was too slow to achieve the objectives of the Paris Agreement, a growing number of international cooperative initiatives (ICIs) had delivered action that, taken together, increased the likelihood of achieving desired environmental and social impacts. Their performance increased significantly – between 2013 and 2019, ICIs (often with Parties and non-Party actors working together) that achieved high to medium-high output performance increased from just over 30 per cent to nearly 70 per cent.

The 2019 Yearbook also showed global mobilization in the regional Climate Weeks carried out throughout the year, pointing to the specific needs of each region, and growing participation of youth movements demanding more ambitious climate action, such as the Youth Climate Summit, hosted by the United Nations (UN) Secretary-General in September, ahead of the UN Climate Action Summit, and which served as a platform for more than 500 young activists, entrepreneurs and change agents to engage with international decision-makers.

The year of 2020, which marks the fifth Anniversary of the Paris Agreement, was dubbed the year of ambition and implementation. However, due to the health and safety measures put in place worldwide in response to the COVID-19 pandemic, the main negotiation processes such as COP 26 and the subsidiary body sessions had to be postponed to 2021. This does not mean a pause in climate action – much to the contrary. The bulk of the operational rules of the Paris Agreement is in place and ready for implementation, and Parties are expected to submit highly ambitious NDCs coherent with the urgency necessary to reach the Agreement goals. Capitalizing on the experience from the June Momentum for Climate Change, a series of virtual events was planned for November/December 2020 (UNFCCC Climate Change Dialogues), aimed at advancing work and providing a platform for Parties and other stakeholders to showcase progress made in 2020.

Likewise, the 2020 High-Level Champions, Mr. Gonzalo Muñoz (Chile) and Mr. Nigel Topping (UK), are focused on enhancing the Climate Action Pathways and mobilizing actors outside national governments to join the Climate Ambition Alliance through the Race to Zero campaign, launched in June. The Pathways, whose revamped version was launched in November 2020, outline the longer-term sectoral visions for a 1.5°C climate-resilient world, and set out the necessary actions to achieve it. In order to showcase the revised Pathways, reflect on progress made on mitigation and adaptation across the Marrakech Partnership community, and inform the UNFCCC Climate Change Dialogues, the Champions hosted a series of dialogues between 9-19 November (Race to Zero Dialogues). As Parties are encouraged to drive their ambition in achieving the Paris Agreement goals to help the world build back better, so are non-Party stakeholders.

In consonance with the High-Level Champions' objective, this Yearbook reflects the state and scope of global climate action in 2020, outlining the progress in the number of initiatives across the seven thematic areas of the Marrakech Partnership and the range of actors involved, as well as the growing number of net-zero pledges made in the past few months. In the next chapters, it examines the impacts of the COVID-19 pandemic and opportunities for a green resilient recovery, explores the key elements of the Pathways, and delivers key messages and reflections from the High-Level Champions on the future of the Marrakech Partnership.

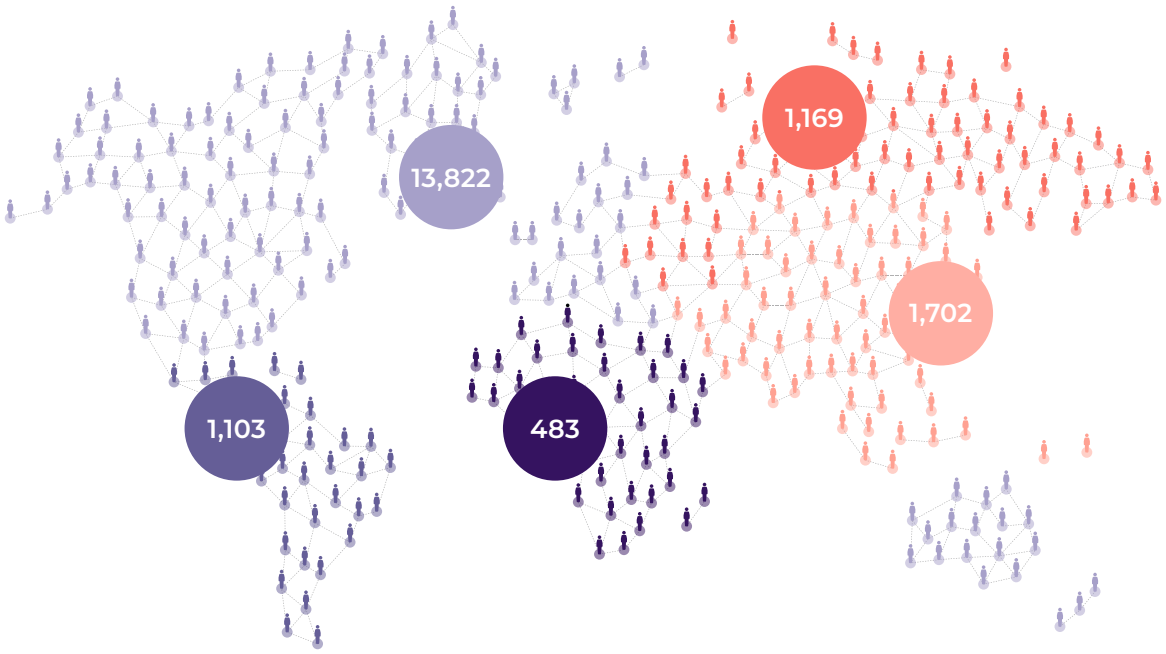
State of Global Climate Action 2020

The Global Climate Action Portal was launched in 2014 as the NAZCA portal, aimed at providing an online platform where actors from around the globe could display their commitments to act on climate change. Today, the Portal compiles actions, initiatives and associated data from a range of partner organizations[i], aimed at presenting a clear and comprehensive view of global climate action from governmental and non-governmental actors, and covering all thematic areas of the Marrakech Partnership.

i. Global Climate Action portal data partners: CDP, Carbonn Climate Registry, The Climate Group, Global Investor Coalition on Climate Change, UN Global Compact, Global Covenant of Mayors, Climate Bonds Initiative and the UN Environment's Climate Initiatives Platform.

Figure 1

Actors per United Nations Region in the Global Climate Action Portal



Latin America and Caribbean

Countries	33
Regions	76
Cities	487
Companies	378
Investors	32
Organizations	97
Actors in total	**1,103**

Africa

Countries	54
Regions	18
Cities	219
Companies	70
Investors	30
Organizations	92
Actors in total	**483**

Western Europe and Others[ii]

Countries	29
Regions	124
Cities	8,588
Companies	2,565
Investors	856
Organizations	1,660
Actors in total	**13,822**

Eastern Europe

Countries	23
Regions	2
Cities	1,047
Companies	43
Investors	42
Organizations	12
Actors in total	**1,169**

Asia-Pacific

Countries	52
Regions	23
Cities	350
Companies	996
Investors	176
Organizations	105
Actors in total	**1,702**

The actions registered in the Portal consist of individual commitments, referred to as individual actions, and participation in cooperative initiatives, referred to as cooperative actions. These cooperative initiatives are multi-actor and in many cases multi-sectoral, and though their main focus is climate change, these partnerships may address multiple goals under the 2030 Agenda for Sustainable Development.

As of November 2020, the Portal registered **27,174** climate actions from **18,279** actors all around the world, ranging from cities (10,691) and regions (243) to companies (4,052) and investors (1,136) and other organizations (1,966). It represents a significant increase in actions and actors being recognized compared to COP 21 in 2015, where **10,825** climate actions and **5,098** actors were registered. This is a result of both the Portal's evolution to capture a greater diversity of climate action and stakeholders, and the groundswell of global climate action.

There are also currently **149** cooperative initiatives involving a total of **20,098** participants. The total number of registered initiatives includes **43** that were announced at the 2019 UN Climate Action Summit, and are recognized in the Portal on a dedicated page.

Figure 1 above shows the distribution of actors registered in the Global Climate Action Portal that are engaged in individual and cooperative climate actions per UN world region.

ii. 'Others' include Australia, New Zealand, Israel, Turkey, the United States and Canada.

Photo: Stuart Croft.

Although a strong focus is given to emission reduction targets, in order to close the emissions gap necessary to keep warming below the 1.5°C limit, a diversity of actions contemplating both mitigation and adaptation goals is crucial to meet the Paris Agreement, seeing that climate change affects society in a number of direct and indirect ways, most of which are interlinked. A significant number of actions have tangible, scalable and replicable outcomes, albeit they may not be necessarily quantifiable. Building resilience is of particular importance, as all thematic areas of the Marrakech Partnership are vulnerable to the various impacts of a changing climate. On that note, an upcoming report on *State and Trends on Adaptation* will feature a chapter on cooperative initiatives and highlight patterns of implementation and progress of initiatives that address adaptation and mitigation. The report, developed by the Global Center on Adaptation, will be published mid-January 2021.

The columns on the following pages illustrate the different types of challenges faced across the Marrakech Partnership thematic areas, and the types of initiatives that are aimed at tackling them.

Land Use

Land use (encompassing agriculture, forestry and other land uses) accounts for approximately 23 per cent of global greenhouse gas emissions. On the other hand, land absorbs approximately 29 per cent of all anthropogenic CO_2 emissions[4], and natural climate solutions (conservation, restoration, and improved land management actions) can provide over one-third of the cost-effective climate mitigation needed between now and 2030 to stabilize warming below 2°C[5].

The sector is also highly vulnerable to the impacts of climate change: climate-induced changes in temperature and rainfall patterns could significantly undermine yields of staple crops and impact global food security, in addition to the economic impacts to countries' global domestic product (GDP) and a considerable portion of the world's population that directly rely on forests to provide some or all of their livelihoods. A changing climate can also affect a range of ecosystem functions and services provided by land that are essential for humanity.

Although tropical forests can provide up to 30 per cent of the climate change mitigation needed to meet the Paris Agreement goals, finance for forests in deforestation countries accounts for just over one per cent of global mitigation-related development funding[6].

There are currently **24 individual** and **437 cooperative actions** registered in the Portal addressing this thematic area, as well as **19 cooperative initiatives**. **A total of 345 actors** (115 countries, 6 cities, 11 regions, 171 companies, 10 investors and 32 organizations) participate in initiatives with goals ranging from reducing emissions from agriculture, forestry and land use, and restoring deforested and degraded areas to increasing climate resilience and food security and mobilizing financial means to increase the capacity of early warning systems.

Oceans and Coastal Zones

Oceans and coastal zones provide ecosystem services as well as social and economic services globally, including fisheries, transport, tourism and habitat. Moreover, the ocean plays a central role in regulating the climate – it has absorbed around 28 per cent of CO_2 emissions from human activities since the 1980s and over 90 per cent of excess heat in the climate system since the 1970s[7].

While the ocean mitigates climate change, increased ocean temperatures since the beginning of the 20th century have led to impacts such as acidification, deoxygenation, coral bleaching and changes in the geographic distribution of fish. Coral reefs are at a critical stage due to repeated coral bleaching – the goods and services provided by almost one fifth of the global reef area have already been lost, and if local and global threats are left unchecked, many tropical coral reefs could rapidly die by 2050 due to ocean acidification and warming[8].

Coastal systems and low-lying areas are projected to increasingly experience adverse impacts such as submergence, coastal flooding and coastal erosion due to sea level rise, as well as the increasing frequency and intensity of extreme meteorological events[9]. This is particularly concerning, considering that about 40 per cent of the global population is settled on the coastal zones (100km from the coast) and rely on its resources for income generating and living[10].

There are currently **54 cooperative actions** registered in the Portal addressing this thematic area, as well as **5 cooperative initiatives**. **A total of 46 actors** (33 countries, 4 investors and 9 organizations) participate in initiatives with goals ranging from reducing coastal erosion hotspots and protecting population in priority flooding areas to reducing overfishing and driving investment into coastal natural capital.

Water

The water thematic area is inclusive of all freshwater ecosystems – as water is essential to life on Earth, the scope is inherently cross-cutting, covering activities in sectors such as forest and land management, agriculture, industry, transportation, energy and urban systems.

Emissions in the sector are largely linked to energy use, such as for water sourcing, treatment and distribution. Wastewater treatment processes can also produce large amounts of methane and nitrous oxide, which further increase the carbon footprint of the water sector[11].

Water is also the primary medium through which the effects of climate change are felt – from changes in snow and ice dynamics to increased incidences of flooding and droughts, the impacts are projected to intensify in the coming years. Ninety per cent of natural disasters are directly water-related[12], and by 2050, the number of people at risk of floods will increase from 1.2 billion to 1.6 billion, while the number of people living in potential severely water-scarce areas is projected to increase from 1.9 billion in the early to mid-2010s to 3.2 billion in 2050[13].

There is potential to reduce carbon emissions in the water sector significantly, particularly when it comes to urban water and wastewater treatments, which are critical for the safe provision of fresh water and sanitation to all. Investment in improved hydrological data, early warning systems, hydro-meteorological networks, institutional capacity, education and knowledge-sharing can also help reduce the risk of impacts to communities.

There are currently **2 individual** and **180 cooperative actions** registered in the Portal addressing this thematic area, as well as **7 cooperative initiatives**. **A total of 171 actors** (58 countries, 18 cities, 65 companies, 3 investors and 27 organizations) participate in initiatives with goals ranging from reducing city-wide emissions from the water sector to measuring and minimizing risks and impacts related to water and climate change.

Human Settlements

Cities and urban populations are significant drivers of climate change – they are currently responsible for about 75 per cent of global CO_2 emissions[14]. In addition to energy use and buildings, urban transport systems remain a significant source of greenhouse gas emissions[15], all of which are projected to increase as more people move into urban centres and push infrastructure construction, especially in fast-growing cities in developing countries. Today, more than 50 per cent of the world's population live in cities, and projections estimate that by 2050 two-thirds of the global population will live in urban areas[16].

Additionally, urban consumption, especially in the food, clothing, vehicles, aviation and electronics sectors, is responsible for high and growing levels of consumption-based emissions. Consumption represents as much as 10 per cent of global emissions in just 94 of the world's largest cities and could nearly double by 2050 if left unchecked[17].

Cities are also on the front line of climate change impacts. Heatwaves and flooding, and associated risks such as adverse impacts on health, biodiversity and water security, are already affecting cities around the globe. Population growth, rampant urbanization and growing social inequalities further exacerbate the vulnerability of city dwellers.

As hubs of economic activity and intellectual capital, cities are naturally positioned to use available technologies and lead the transition to low-carbon and resilient forms of human settlement. However, city-level climate action should not be confined to mega cities, as smaller and medium-sized urban areas with fewer than one million inhabitants can account for half of all urban emission reduction potential by 2030[18].

There are currently **858 individual** and **10,800 cooperative actions** registered in the Portal addressing this thematic area, as well as **24 cooperative initiatives**. **A total of 10,728 actors** (147 countries, 10,357 cities, 74 regions, 42 companies, 17 investors and 91 organizations) participate in initiatives with goals ranging from reducing region-wide final energy consumption and increasing efficiency to creating climate smart urban projects and enhancing resilience to climate shocks and extreme events and putting climate risk at the centre of decision making.

Transport

Transport infrastructure contributes to economic growth at all levels of GDP and supports personal well-being, and social and economic development. It is also crucial to connect countries and help increase trade, economic growth and regional integration.

However, the transport sector account for around 14 per cent of global GHG emissions[19], and it is still 93 per cent dependent on oil[20]. Even with the implementation of current policy ambitions, the growth in transport demand is projected to lead to an increase of 60 per cent in transport CO_2 emissions, a growth driven mainly by an increased demand for freight and non-urban passenger transport, both of which are projected to grow by 225 per cent by 2050[21].

Currently there are a number of opportunities for mitigating urban transport emissions. However, freight, non-urban and maritime transport and aviation remain challenging as demand for these services continues to grow while limited opportunities for decarbonization exist.

Adaptation measures are also necessary. Transport infrastructure is vulnerable to the effects of climate change such as the risks posed by flooding and extreme temperatures to roads, railroads, ports and harbours.

There are currently **76 individual** and **464 cooperative actions** registered in the Portal addressing this thematic area, as well as **19 cooperative initiatives**. **A total of 508 actors** (73 countries, 78 cities, 20 regions, 294 companies, 8 investors and 35 organizations) participate in initiatives with goals ranging from reducing city- or region-wide emissions from transport and from airport operations to accelerating the energy transition of vehicle fleet, doubling the share of public transport and doubling vehicle fuel efficiency globally.

Energy

Energy production and use is the main contributor to GHG emissions and is a critical ingredient in most economic endeavours. At present, the energy sector accounts for nearly three quarters of global emissions[22], but the International Energy Agency (IEA) data shows that global energy-related CO_2 emissions flattened in 2019, following two years of increases. This is mostly due to the expanding role of renewable sources, fuel switching from coal to natural gas, and higher nuclear power output, but weaker global economic growth also played a role[23].

While these trends are promising, the transformation of the energy sector still lags behind what is necessary to achieve the Paris Agreement and sustainable development objectives. To meet the Paris goals, electricity needs to be decarbonized by 2050 and energy by the third quarter of the century. Energy efficiency needs to improve at much faster rates than has generally taken place historically.

Energy infrastructure is also vulnerable to the impacts of climate change – for example, hot weather and water shortages have affected cooling water for nuclear plants[24], and storms have damaged power cables. Hydropower plants are also directly affected by changes in temperature and precipitation patterns, as well as extreme weather events, all of which are likely to increase.

Technology is key – the confluence of smart-energy networks, digital solutions that better allow for controlling energy demand and trade, electrification, and ample, low-cost renewable power has the potential to transform the energy sector.

There are currently **313 individual** and **15,206 cooperative actions** registered in the Portal addressing this thematic area, as well as **49 cooperative initiatives**. **A total of 13,687 actors** (182 countries, 10,510 cities, 75 regions, 1,877 companies, 264 investors and 779 organizations) participate in initiatives with goals ranging from reducing local government energy consumption, and increasing the share of renewables in city- and region-wide electricity consumption to improving energy efficiency of appliances and equipment and buildings and increasing global installed capacity for geothermal power generation.

Industry

The industry thematic area considers industrial activities over the entire value chain, from extraction, through manufacturing to the final demand for products and their respective services, and therefore has an essential role to play in reducing GHG emissions.

Direct industrial processes are responsible for about five per cent of GHG emissions, but energy use in industry alone accounts for another 24 per cent of all global emissions[25]. Some of the biggest challenges lie in the major harder-to-abate sectors, such as cement, steel, chemicals, plastics and heavy-goods transport. The transition towards achieving the 1.5°C goal of the Paris Agreement requires industrial sectors to achieve net-zero CO_2 emissions within themselves by mid-century[26].

The financial and physical assets, operations and supply chains of many businesses and industrial actors are also highly vulnerable to the effects of a changing climate, including variable temperatures and rainfall patterns, and also intensifying natural disasters.

The various industry sectors each have particular challenges and opportunities in tackling climate change, which may benefit from sectoral approaches and customized solutions. Research indicates that it is technically and economically possible for hard-to-abate industrial sectors to reach net-zero emissions by mid-century at a cost to the economy of less than 0.5 per cent of global GDP, and with a minor impact on consumer living standards. A more circular economy can cut emissions from harder-to abate industrial sectors by 40 per cent[27].

Many industries also have the potential to bring about wider behavioural change through their impact on consumers as well as their own supply chains.

There are currently **1,307 cooperative actions** registered in the Portal addressing this thematic area, as well as **25 cooperative initiatives**. **A total of 1,109 actors** (79 countries, 68 cities, 29 regions, 475 companies, 380 investors and 78 organizations) participate in initiatives with goals ranging from reducing CO_2 emissions from cement production and promoting a shift in cooling technology towards natural refrigerants to setting Science Based Targets aligned with a 1.5°C trajectory and integrating climate risk into corporate value chains.

Photo: Linus Nylund.

The pledges registered in the Global Climate Action Portal are not only diverse in the types of goals established, but also in terms of when they are to be achieved. Most individual targets, however, have 2030 as their target year (Figure 2).

At present, the Global Climate Action Portal does not track progress of the commitments made. However, together with the Camda climate action data and analysis community, work is underway to enhance the credibility of the climate actions and commitments registered in the Portal. At COP 25 in Madrid, a workshop was held by Camda to establish a framework for tracking progress of non-Party Stakeholder climate actions, resulting in a statement communicated to the COP 25 Presidency. Associated with this, decision 1/CP.25 Chile Madrid Time for Action requested 'the secretariat to continue engaging with non-Party stakeholders and enhancing the effectiveness of the Non-State Actor Zone for Climate Action platform, including the tracking of voluntary action'.

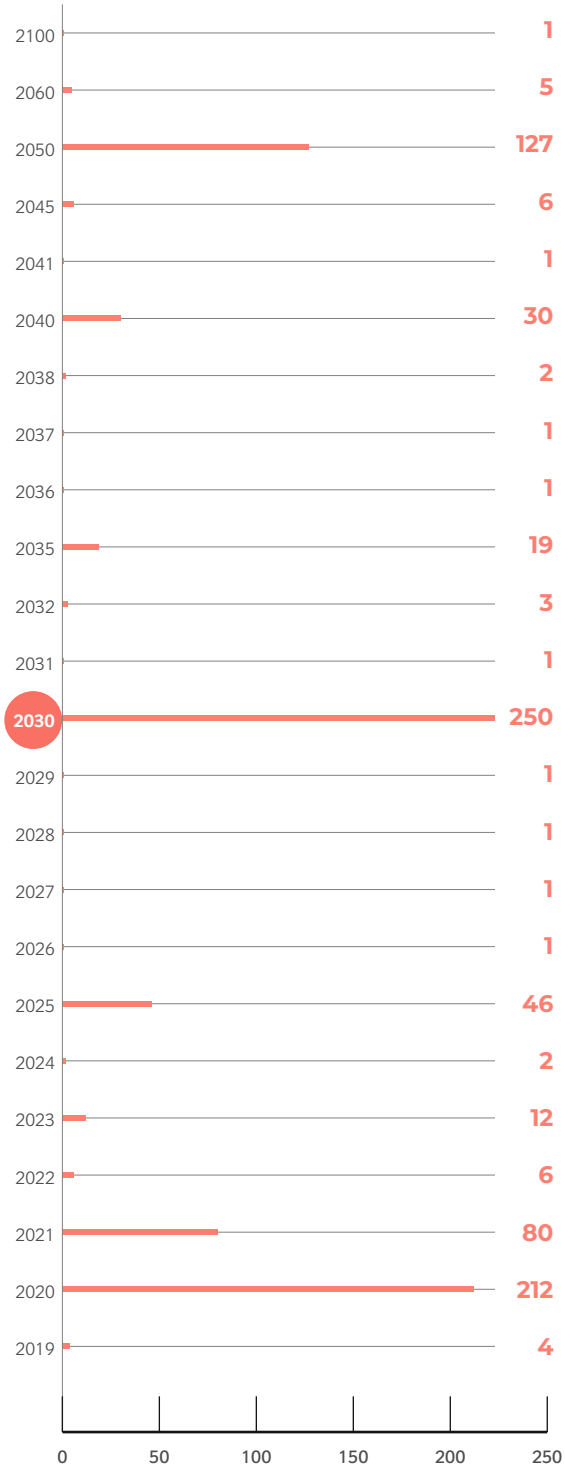
The work has been advanced through 2020, during which priority metrics were drafted for tracking the progress of individual climate actions and initiatives. To help provide an assessment of progress that goes beyond the emissions reductions achieved, the metrics are considered in relation to a conceptual framework[28] that considers different types of progress, including ambition, robustness, implementation and substantive progress. Following stakeholder consultation, the aim is to apply the metrics and framework to the Portal, where they will provide a greater insight into the progress of climate actions. Further underlining the importance of developing an understanding of whether non-Party stakeholders are achieving their emissions reduction targets, a report, associated with the work of the Camda group, is planned for spring 2021, which will aim to provide an aggregate assessment on the progress of individual non-Party actors and initiatives towards their targets.

One of the Global Climate Action Portal data partners, CDP, has seen a substantial growth in disclosure in the past few years. The organization is one of the longest running global disclosure platforms for investors, companies, cities, states and regions to manage their environmental impacts. In 2016, one year after the implementation of the Paris Agreement, over 5,800 businesses responded to the climate change questionnaire. In 2020, over 9,500 businesses submitted the questionnaire, representing a 64 per cent increase. The disclosure platform for cities, states and regions will remain open until December 2020 to allow more time for cities to disclose in what has been a difficult year due to COVID-19. However, in 2016, 633 cities, states, and regions disclosed data to CDP and by 2019, disclosures increased by 51 per cent, with a total of 957 cities, states and regions disclosing.

In 2020, 4,921 companies (representing 51.7 per cent of those that disclosed on climate change) declared that they have an emissions reduction target. Of those, 673 have committed to set a science-based target through the Science Based Targets initiative (SBTi),

Figure 2

Individual and cooperative actions per target year



and 391 have already had their SBTi target approved. Nearly five years after the Paris Agreement, and the launch of the SBTi, over 1,000 companies spanning 60 countries and nearly 50 sectors, and with a combined market capitalization of over USD 15.4 trillion – including one-fifth of the Global Fortune 500 – are working with the SBTi to reduce their emissions at the pace and scale necessary.

Net-Zero Pledges and the Race to Zero Campaign

As mentioned above, an ambitious level of emission reductions across all sectors is necessary in order to meet the Paris Agreement goals. While the Global Climate Action Portal provides a clear and comprehensive view of the scale of commitments, in terms of number and how they are distributed, it does not focus on mitigation outcomes. A couple of reports endorsed by the High-Level Champions as part of the Race to Zero campaign and developed by Data-Driven EnviroLab and NewClimate Institute examined the current scale of net-zero commitments[iii] from cities, regions, and business actors, and the nuances in net-zero approaches[29].

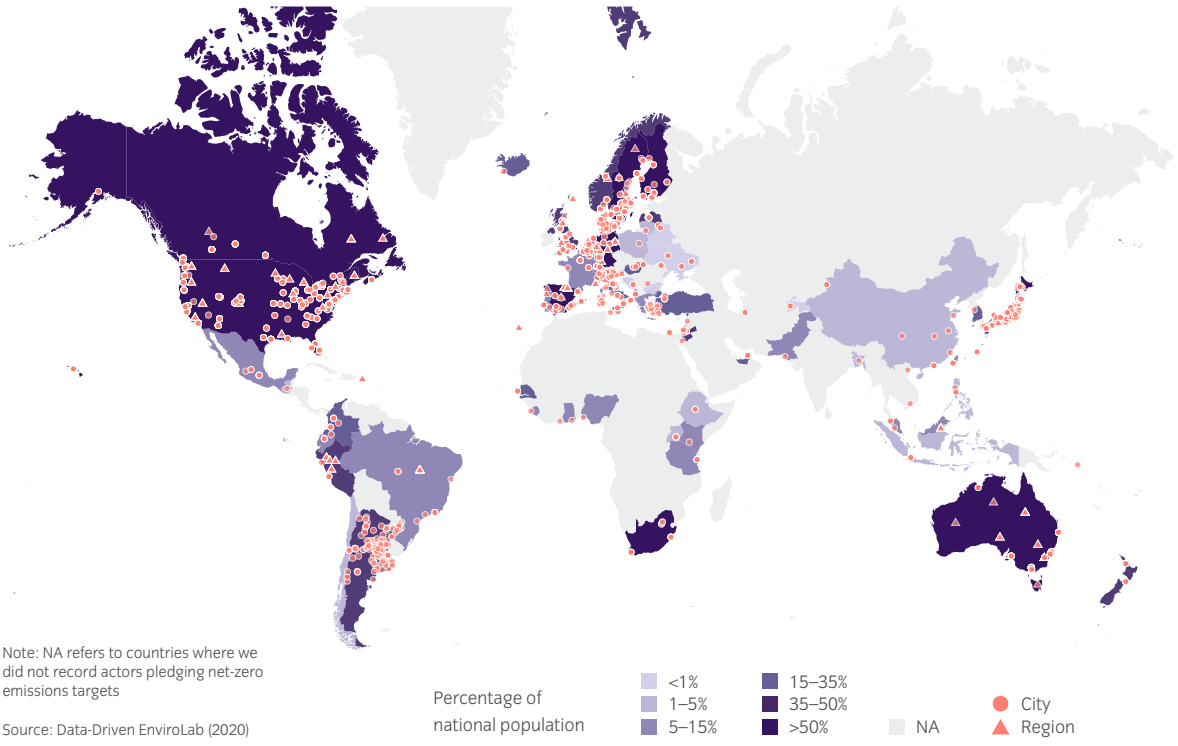
Drawing the analysis from nine reporting platforms, the reports found that there was a significant increase in subnational and corporate net-zero targets in the past year, nearly doubling from late 2019 to ate 2020. As of October, subnational governments (826 cities and 103 regions) representing about 11 per cent of the global population and a GHG emissions footprint of more than 6.5 gigatonnes have committed to net-zero targets, as well as 1,565 companies, responsible for a combined revenue of over USD 12.5 trillion, and covering 3.5 gigatonnes in GHG emissions. It is worth noting that this increase happened despite the COVID-19 pandemic and the economic downturn that it brought about.

Pledges may vary from sector-specific targets (i.e., buildings or specific emission scopes) to economy – or company-wide targets, and there are differences on the intended timelines for achieving them – while a few actors have already achieved their goal, most have established timelines around 2030, 2040 or 2050 for their net-zero targets.

Although the regional distribution of subnational net-zero pledges is diverse (Figure 3 below), the momentum is particularly strong in Europe (with the participation of 291 cities and 39 regions, representing 36 per cent of the EU's total population), Latin

Figure 3

Cities and regions pledging some form of net-zero emissions target



Note: NA refers to countries where we did not record actors pledging net-zero emissions targets

Source: Data-Driven EnviroLab (2020)

iii. Net-zero emissions occur when human-driven greenhouse gas emissions and removals equal each other out (Data-Driven EnviroLab & NewClimate Institute, 2020).

Photo: Milada Vigerova.

America (209 cities and five regions, covering 81 million people) and the East Asia and Pacific region (including 164 cities and 31 regions, representing over 223 million people). Participating regions in Australia alone represent over 95 per cent of the country's total population, while in North America, participating actors (27 regions and 118 cities) correspond to about 60 per cent of the region's total population. Though there are few cities in Sub-Saharan Africa with net-zero targets, those that do are often large mega-cities like Lagos, whose actions help steer national economies and emissions trajectories.

The reports note that, so far, 75 per cent of subnational governments with specified targets (i.e., that have reported a percentage reduction target of at least 80 per cent and a target year of 2050 or sooner) have net-zero plans, and 36 per cent have already incorporated them into binding legislation. The reports also stress that, for these targets to be meaningful, they need to cover a large share of their actors' total GHG emissions and drive very steep reductions. The large emissions footprints of the actors examined in the reports suggest that, if their net-zero targets encompass a substantial portion of their emissions, and if they are fully implemented, these targets could have a significant impact on global and national emissions.

As for the business sector, companies across a wide range of sectors have made net-zero commitments, with the services industry leading the way (290 companies, representing a combined revenue of USD 4.2 trillion), followed by manufacturing (120 companies, encompassing over USD 2.8 trillion in revenue). Although only seven companies from the energy sector have set net-zero targets, those that have, have set aggressive target years – with the earliest median target year at 2025. Even in sectors traditionally considered hard to abate, such as steel and cement, some actors are setting ambitious targets. The reports show that not only are businesses pledging to decarbonize their own activities, but some are targeting emissions outside their immediate control as well, such as from their supply chain or derived from down-stream consumption. The complexities involved in setting net-zero targets, ranging from tackling indirect emissions to considering the use of offsets, are more thoroughly addressed in the report about nuances in target implementation approaches.

A large part of the actors pledging net-zero emissions examined by the reports are already taking part in the Race to Zero campaign, which at the moment encompasses 23 regions, 524 cities, 1,397 businesses, 569 universities and 74 of the biggest investors aiming for zero emissions. These actors join 120 countries in the largest ever alliance committed to achieving net-zero carbon emissions by 2050 at the latest – the Climate Ambition Alliance, which was launched at the UN Climate Action Summit 2019 by the President of Chile, Sebastián Piñera.

The objective of the campaign is to build momentum around the shift to a decarbonized economy, and send governments a strong signal that business, cities, regions and investors are united in meeting the Paris goals and creating a more inclusive and resilient economy.

The 2020 UN Climate Ambition Summit, which takes place on 12 December to commemorate the anniversary of the Paris Agreement, will set the stage for a number of countries and non-Party stakeholders to step up ambition and announce net-zero commitments. It will also host the launch of campaigns and initiatives, such as the Race to Resilience campaign, which aims to catalyze a step-change in global ambition for climate change, and the Net Zero Asset Manager, which shows how financial institutions are raising ambition.

Photo: Nathan Dumlao.

Chapter 2

Impacts of the COVID-19 Crisis

As mentioned in the previous Chapter, 2020 is deemed a critical year for setting the world on the right path to achieve the Paris Agreement goals in time. In addition to the high level of expectation for countries to revise their NDCs and close the emissions gap, the massive scale of bushfires ravaging Australia during the 2019–2020 fire season, fuelled by record-breaking temperatures and months of severe drought[30], were a stark reminder of what is at stake. Every year, extreme events such as droughts, floods and hurricanes cost billions of dollars to the economy, in addition to the lives lost and livelihoods affected – and climate change is making them deadlier and costlier[31]. The Economist Intelligent Unit's Climate Change Resilience Index estimates an average global GDP loss of three per cent by 2050 due to climate change, with the developing world being affected the most[32].

The World Economic Forum's (WEF) annual Global Risks Report has consistently ranked climate-related risks such as "extreme weather" and "climate action failure" in their top five global risks both in terms of likelihood and impact since 2011. The 15th Edition, launched in January 2020, however, was the first ever to have climate change dominate all of the top-five long-term risks by likelihood. Incidentally, the report also warned that health systems worldwide were underprepared for significant outbreaks of infectious diseases and that, while no country was found to be fully prepared to handle a potential epidemic or pandemic, 'our collective vulnerability to the societal and economic impacts of infectious disease crises appears to be increasing'[33].

Although the world was taken by surprise in the first few months of 2020 by the quick spread of the COVID-19 pandemic and the crisis it brought along, experts have been arguing that it should not be considered a 'black swan' – meaning, a high impact but extremely rare and therefore unforeseen event – but rather a 'gray rhino' event. The term, introduced by policy analyst Michele Wucker at the WEF in Davos in January 2013, refers to a highly probable but neglected threat with potentially enormous impact. In that, COVID-19 crisis is very similar to the climate change crisis that has been looming for decades now, and it additionally threatens to worsen the challenges that both the Paris Agreement and the Sustainable Development Goals (SDGs) under the 2030 Agenda for Sustainable Development seek to address. At the core of both lies the recognition that social, environmental and economic issues are interlinked, and therefore should be tackled – as well as solutions be devised – taking all dimensions into consideration. Similarly, the complex ways in which human societies and nature are interconnected became quite clear with the COVID-19 pandemic – what seemingly started as a health crisis caused by a zoonotic disease rapidly evolved into a socioeconomic crisis of global proportions, exposing the systemic vulnerabilities already referred to by the WEF report.

The first and foremost challenge to be addressed is the health crisis – by early December, the World Health Organization had compiled over 63 million confirmed cases and nearly 1.5 million deaths reported globally as a result of the disease. Rather than a panacea, it is more likely that a combination of measures – vaccines, effective treatments and changes in social interaction – will curb the health crisis and stabilize infection and death rates[34]. However and whenever the end of the pandemics is officially declared, one thing is clear – 'business as usual' is a scenario that is unlikely to be returned to. A series of changes and adaptations that were implemented during the crisis may be incorporated into day-to-day life, affecting societies in a number of ways from here on out.

This leads to another pressing challenge. An overview of the socioeconomic outcomes of COVID-19 crisis shows the alarming and profound impacts it is projected to have over the next months and years. The International Monetary Fund's World Economic Outlook expects a negative GDP per capita growth in 170 countries, compared to their 2019 averages, implying a

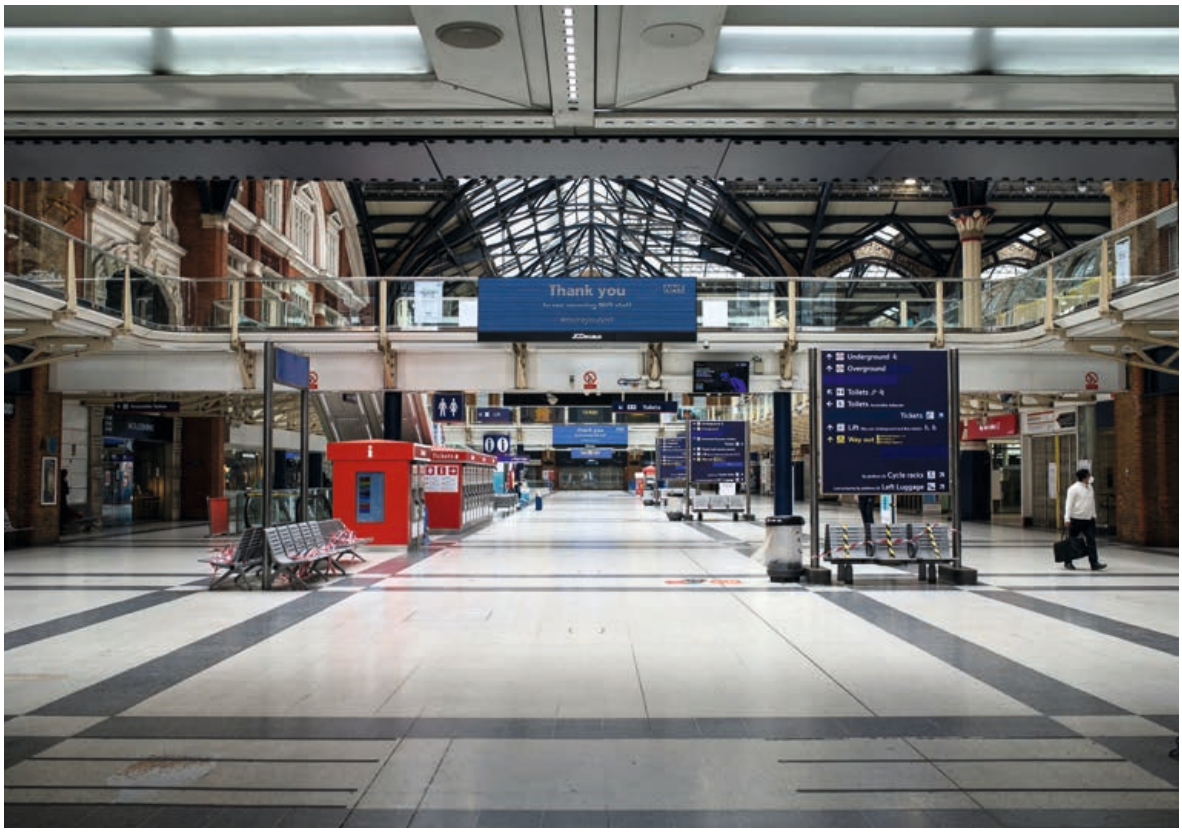


Photo: Ben Garrett.

cumulative loss to the global economy of over USD 12 trillion over 2020–2021. The International Labour Organization (ILO) estimated global working-hour losses at 17.3 per cent in the second quarter of 2020 relative to the fourth quarter of 2019, with the lower-middle-income countries expected to be the hardest hit, showing a decline of around 23.3 per cent[35]. The World Bank estimates that the pandemic is likely to push between 88 and 115 million people into extreme poverty in 2020, setting back poverty reduction by around three years[36]. Meanwhile, the number of people experiencing food crises is projected to double, with about 270 million people in low- and middle-income countries expected to face acute food insecurity by the end of 2020.

In April, UN Secretary-General António Guterres warned that, though the impact of COVID-19 is both immediate and dreadful, the planet's unfolding environmental crisis also poses a deep emergency[37]. In order to protect Earth from both the coronavirus and the existential threat of climate disruption, the recovery process needs to be turned into an opportunity to tackle both challenges in tandem, and build a better future.

As mentioned before, the COVID-19 crisis is not the only 'grey rhino' out there, and the climate crisis has not been put on pause while societies figure a way out of the pandemic. Throughout the year, more large-scale wildfire events spread across the Western United States, Indonesia and Brazil, driven by hotter, dryer seasons[38]. Meanwhile, the hurricane season is inching closer to a record-breaking year[39], and 2020 is poised to be one of the warmest years to date, despite La Niña – a natural event which traditionally has a cooling effect on global temperatures[40]. The impacts of the crises are compounded by one another.

While the lockdown measures resulted in a drop of about four per cent in energy demand in the first quarter of 2020 and the International Energy Agency (IEA) projects a decline of about 8 per cent in CO_2 emissions in 2020 in comparison with 2019, these numbers are to be seen with caution. First, the unprecedented nature of these declines means emissions are expected to rebound once these activities are resumed, as it happened after the economic crisis of 2008[41]. Any such dramatic drop in annual emissions is hard to sustain without specific measures decoupling emissions from economic growth. Second, a single annual decline has little impact on the concentrations of long-lived GHGs in the atmosphere. These concentrations, the World Meteorological Organization alerts, are still on the rise[42]. In July 2020, flagship observatories in Mauna Loa (Hawaii) and Cape Grim (Tasmania) registered CO_2 concentrations of 414.38 ppm and 410.04 ppm, respectively, up from 411.74 ppm, and 407.83 ppm in July 2019[43].

The Emissions Gap Report 2019 estimates that global emissions need to decrease by about 7.6 per cent/year between 2020 and 2030 to meet the 1.5°C goal. This means decarbonizing the economy now. By 2025, the cut needed would increase to 15.5 per cent/year, making it a lot harder to achieve[44]. The fact that it took a complete shock to the system to drive the emissions down to the required level shows the complexity of the task. The need to salvage and revitalize economies can finally provide the incentive to decarbonize them, all the while creating better socioeconomic outcomes and a healthier environment for all.

The UN Secretary-General proposed six climate-related principles to shape these recovery plans: (1) The money to be spent on recovery from the coronavirus must deliver new jobs

and businesses through a clean, green transition; (2) Where taxpayers' money is used to rescue businesses, it needs to be tied to achieving green jobs and sustainable growth; (3) Fiscal firepower must drive a shift from the grey to green economy and make societies and people more resilient; (4) Public funds should be used to invest in the future, not the past, and flow to sustainable sectors and projects that help the environment and the climate. Fossil fuel subsidies must end, and polluters must start paying for their pollution; (5) Climate risks and opportunities must be incorporated into the financial system, as well as all aspects of public policymaking and infrastructure; and (6) All need to work together as an international community[45].

According to the UN report on its comprehensive response to COVID-19, 'transforming energy systems could boost global GDP by USD 98 trillion by 2050, delivering 2.4 per cent more GDP growth than current plans. Boosting investments in renewable energy alone would add 42 million jobs globally, create health care savings eight times the cost of the investment, and prevent a future crisis'[46]. An analysis carried out by the We Mean Business Coalition in support of its Build Back Better campaign also showed that with the same cost to governments, a green recovery plan provides a similar immediate boost to output and employment in comparison with a reduced value-added tax (VAT) recovery plan encouraging households to resume spending, but a consistently larger impact in terms of stimulus and jobs and potentially longer-term economic benefits. By prioritizing five measures (namely, public investments in energy efficiency in buildings and upgrading electricity grids, subsidies for wind and solar power and electric vehicles, and a tree planting programme), this plan estimates CO_2 emission reductions by around 7 per cent/year by 2030 (in addition to a projected reduction of two per cent/year due to COVID-19 impacts)[47].

As a response to a call on governments to focus on a faster and fairer transition towards a sustainable economy, a number of tools and inputs are being made available to help governments and other stakeholders in shaping sustainable recovery plans. In September, the Japanese Ministry of the Environment, in cooperation with UNFCCC, launched an online platform for sustainable and resilient recovery from COVID-19 (Platform for Redesign 2020), to which non-State actors were invited to contribute. The platform collates climate and environmental policies and actions that countries are planning or already implementing in the context of recovery from COVID-19. Similarly, Carbon Brief established an interactive grid to track measures proposed, agreed and implemented by major economies around the world, including stimulus measures that have a direct bearing on climate change or energy. These measures range from planting trees and investing in better fire management in Chile and the installation of five million home solar systems in Nigeria to a 'green homes grant' voucher scheme to fund home efficiency improvements in the United Kingdom and expanding low-carbon and distributed energy systems in South Korea.

At the local level, Cities Climate Finance Leadership Alliance is completing a paper that focuses on the funding that has been announced to support a green recovery for cities since the COVID-19 pandemic hit in March 2020, and provides recommendations for where and how to better channel future assistance for a more resilient recovery.

Other stakeholders are also looking at the role of finance in promoting a green recovery. The City of London Corporation and the Green Finance Institute, supported by WEF, hosted a major summit in November (Green Horizon Summit) focusing on the role of financial services in supporting a green recovery and an economy-wide transition to net zero, and on the concrete actions and commitments financial firms need to make ahead of COP 26 in Glasgow. The Finance in Common Summit, also carried out in November, in Paris, brought together the world's Public Development Banks to discuss how to reconcile short-term countercyclical responses with sustainable recovery measures that will have a long-term impact on the planet and societies.

Non-Party stakeholders have been instrumental in responding to the crisis, and in providing studies, tools and resources to help governments and other decision-makers shape a recovery that addresses challenges beyond those that are in their field of vision at the moment. The boxes below provide an overview of the socioeconomic impacts of COVID-19 crisis across the Marrakech Partnership thematic areas, as well as potential opportunities and resources developed by actors in those areas to help devise policies and measures that take these specific impacts and concerns into consideration in the longer term.

Impacts across the Marrakech Partnership Thematic Areas

As mentioned before, the COVID-19 crisis has had impacts across all levels of society. Similarly, all thematic areas defined under the Marrakech Partnership were affected in their own particular way, often in an interconnected, compounded and/or cascading manner.

Impacts on the **energy**, **transport** and **industry** sectors were the most obvious, as lockdowns caused immediate changes in all three. In April, the IEA estimated that **energy** demand had fallen by about 25 per cent/week on average in economies experiencing full lockdown, while countries with partial lockdown had an average decline of 18 per cent/week. Global energy demand declined by a total 3.8 per cent in the first quarter of the year. Electricity demand was also affected: there was a decline of 20 per cent or more during full lockdown in a number of countries, mainly due to a halt in industrial and commercial operations. This in turn resulted in a lift in the share of renewables in the electricity supply, as their output is largely unaffected by demand. In fact, not only were renewables the sole source to see a growth in demand, but the expectation is that this trend will continue, due to low operating costs, preferential access and recent growth in installed capacity. Demand for all other fuels is projected to decline[48].

As for **transport**, changes in mobility and lockdown measures caused a decline of about 50 per cent in global average road transport activity in March 2020 in comparison with 2019. The sharp decrease in air travel also resulted in a decline of 60 per cent in global aviation activity by the end of the first quarter, with some European countries experiencing a decline of more than 90 per cent[49]. While air cargo has also declined, freight-only flights have grown, with some passenger aircraft converted to cover for the share of cargo that it would usually carry along with passenger luggage[50]. The International Transport Forum (ITF) estimates that mobility restrictions could reduce global freight transport by up to 36 per cent by the end of 2020[51]. In shipping, ITF reported a decline in global container trade volumes of 8.6 per cent in February 2020 compared to the same month of 2019[52].

Lockdowns affected most **industries**, with some having to shut down almost completely, and most having to reduce activities. Small and medium -size enterprises (SMEs) were particularly affected, as they are typically more vulnerable to economic and social shocks. Impacts on businesses vary from a reduction or loss in demand and revenues, employee health concerns, liquidity shortages and disruptions in the supply chain[53].

As hubs of economic and social activities, **human settlements** were directly affected by the COVID-19 crisis. Many cities around the world have locked down, with impact on local commerce, public transportation, recreational venues and healthcare systems. Residents of poor crowded areas, informal settlements and remote villages were particularly vulnerable in their exposition to the virus and/or lack of access to essential services. The socioeconomic impacts of the health crisis on urban centres, affecting urban access, equity, finances, public services, infrastructure and transport, also affected those who are more socially vulnerable disproportionally.

Photo: Matthew Sichkaruk.

The economic impacts of lockdowns resulted in a decline in tax revenues to many local governments, which may lose up to 25 per cent in revenues in 2021. Areas that rely primarily on less diversified economic bases may see an even sharper decline, such as those based on tourism, for example. These financial shrinkages may in turn have a negative impact on infrastructure investments and public services, undermining broader sustainable urban development efforts[54].

In the **land use** sector, the Food and Agriculture Organization (FAO) warned that the pandemic may lead to an increase in deforestation and forest degradation, since the crisis may cause people in rural areas to look for forests and forest products for subsistence, and quick financial returns and employment may be prioritized by stimulus programmes over longer-term climate and sustainability objectives. The forest sector may suffer from disruptions affecting entire value chains, but micro, small and medium enterprises – which account for over 50 per cent of total forest-related employment – and forest and farm producer organizations risk being hit the hardest, due to their lower capacity to delay spending without earnings[55]. The International Labour Organization (ILO) additionally notes that, as a consequence of COVID-19, many park guides and rangers lost their jobs,

leaving forests open to poaching and illegal logging. ILO also warned that the pandemic has 'exacerbated the vulnerability of indigenous and tribal peoples and other forest-dependent communities, who were already facing the consequences of climate change, deforestation, forest fires and illegal logging'. These communities tend to suffer from poorer health than the rest of the population, and often have limited access to health care[56].

As for the agricultural sector, COVID-19 affected all actors in the entire chain of the food system, from producers and workers to consumers. The first two are impacted by reduced production capacity, limited market access, loss of remittances and lack of employment. Consumers may experience shortages and lack of access, food price inflation and food insecurity – which already affected more than 820 million people before the COVID-19 crisis[57]. Rural communities, especially in the developing world, are largely dependent on agriculture for livelihood and food security. Urban communities including residents in informal settlements also rely heavily on fresh markets and rural-urban supply chains, and were particularly affected by disruptions in it, as well as the associated increase in food prices combined with income loss[58].

The COVID-19 crisis heightened the awareness of the need to ensure availability and sustainable management of **water** and sanitation for the world's population. Access to reliable water supplies for frequent adequate handwashing is the first line of defense against the spread of the virus[59]. However, according to the UN, in 2017 three out of five people in the world had a basic handwashing facility with soap and water, compared with less than one out of three in least developed countries. Globally, about three billion people are still unable to properly wash their hands at home. One out of four health-care facilities in the world also lacked basic drinking water services, affecting over two billion people. Additionally, high water stress already affects billions of people in the world, with millions expected to be displaced by 2030 by intense water scarcity, heightened partly by climate change[60].

Global warming was already a challenge to the resilience of water and sanitation systems, in addition to other trends, such as rapid urbanization and aging infrastructure. The International Finance Corporation estimates a need to invest about USD 114 billion/year up to 2030 in developing countries to close the water sector infrastructure gap, in addition to the cost of maintaining and upgrading existing networks in the developed world. It also notes that COVID-19 is projected to slow down most investments in the water sector worldwide. In addition to that, a decline was observed in water demand by large industrial and commercial users due to lockdowns and other restrictions, which resulted in reduced revenues to water utilities, and deeper revenue loss is projected across the whole water supply chain[61].

As a response to the crisis, and based on the importance of hygiene in reducing the spread of the virus, measures such as partial suspension of water billing for low-income users and moratoriums on water service cut-offs were implemented around the world. As a result, water and wastewater utilities around the world expect revenue collections reductions of 15 per cent on average, which could be compensated in the medium term by well-governed markets (through installment payments of deferred amounts, government transfers, and possibly tariff adjustments). The water and sewerage industry is labour-intensive, and people working on the sector were identified by many governments as essential workers. However, the increased risk of contagion among utility staff and the necessary social distancing protocols meant that only operationally critical staff can be retained on site, which may cause disruptions to the continuity of operations[62].

The impacts of COVID-19 on the **ocean and coastal zones** are mixed. In the near term, the decrease in sectoral pressures that lead to pollution, overfishing, and habitat loss and conversion has led to a healthier environment. Participants in an informal poll conducted by The Economist in one of its World Ocean Initiative webinars ranked tourism and fisheries as the ocean sectors most impacted by the crisis, followed by offshore oil and gas, shipping, offshore renewables and aquaculture. But once these activities resume, so will the pressures, and their impact. On the other hand, the socioeconomic impact in some of these activities may linger for a long time, such as those on coastal tourism jobs and businesses. The livelihoods and food security of millions of people who depend on the ocean and coastal zones to survive may also be seriously affected in the near to mid-term[63].

Additionally, the UN alerted that a number of the existing global observing systems were affected by the COVID-19 pandemic, with impacts on the quality of forecasts and other weather, climate and ocean-related services. This is the result of the reduction of aircraft-based observations and oceanographic research vessels being recalled to home ports, in addition to disruptions in manually operated weather stations and other setbacks. The UN expects the impacts on climate change monitoring to be long-term, which will introduce gaps in the historical time series of essential climate variables needed to monitor climate variability and change and associated impacts[64].

Opportunities and Resources to Help Drive a Green Resilient Recovery across the Marrakech Partnership Thematic Areas

Energy

Universal access to sustainable energy is one of the Sustainable Development Goals for 2030 (SDG 7), and the importance of reaching such goal becomes even clearer in face of a health and socioeconomic crisis.

IEA published a special report on sustainable recovery, where it proposes a Sustainable Recovery Plan with three main goals: boosting economic growth, creating jobs and building more resilient and cleaner energy systems. The Plan presents over 30 sector-specific energy measures that governments can include in their economic recovery plans, focusing on cost-effective measures that could be implemented between 2021–2023. Spanning six key sectors – electricity, transport, industry, buildings, fuels and emerging low-carbon technologies – the plan would increase global GDP by 1.1 per cent in each of the next three years. It would also create nearly 9 million new energy-related jobs (mainly in construction and manufacturing) over the same period, and result in a reduction of annual energy-related GHG emissions of 4.5 billion tonnes in 2023 in comparison with what they would be otherwise. Air pollution emissions would also decrease by five per cent as a result of the plan, reducing health risks around the world.

The International Renewable Energy Agency (IRENA) also published a report, titled the Post-COVID Recovery, an Agenda for Resilience, Development and Equality, where it posits that an accelerated energy transition could add 5.5 million more jobs by 2023, employing people in all regions of the world, even where fossil-fuel jobs are now concentrated. Immediate investment increases could put renewable power generation on track to grow five times faster, and each million dollars invested in renewables or energy flexibility would create at least 25 jobs, while each million invested in efficiency would create about 10 jobs.

Sustainable Energy for All (SEforALL), an organization working in the intersection of SDG 7 and the Paris Agreement, has also launched a series of regional guides addressing how countries can 'Recover Better', prioritizing clean energy investments in their recovery plans and stimulus packages and helping reset their economies and close energy access gaps.

Transport

As stated by ITF, 'Intervention to support aviation during the crisis will need to be compatible with the long-term policy objectives of fostering efficient aviation markets and meeting agreed climate change mitigation targets'. While the Forum projects a serious decline in future demand for air travel, and the retirement of older, less fuel-efficient aircraft, it also notes that neither will have significant and durable impacts on CO_2 emissions from the sector. ITF mentions some of the sector existing measures to reduce emissions, such as the International Civil Aviation Organization's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and work on biofuels. Additionally, it suggests prioritization of technological innovation in government support for aircraft manufacturing for post-COVID-19 recovery, warning that 'aid to the sector must align with existing sectoral policies to increase social welfare outcomes, both in terms of environmental impacts and consumer benefits'[65]. Likewise, state support packages to help the maritime sector to deal with the negative economic impacts of the COVID-19 crisis should align with broader public policy objectives[66].

Industry

In a publication about the consequences of COVID-19 for the decade ahead, the World Business Council for Sustainable Development (WBCSD) notes that recovery packages should be structured so as to ensure the most vulnerable members of society get the best deal, and in the context of business, that means prioritizing the interests of workers and SMEs. It also posits that investments should ideally be used to kickstart the decarbonization of economies, and create jobs in the process[67].

The WBCSD has a dedicated page on COVID-19 response programme aimed at helping address the crisis and support the critical role of business through projects focusing on employee health and business recovery, vital supply chains, and the long-term impacts of the crisis.

WEF has established a COVID Action Platform, focused on galvanizing the global business community for collective action, protecting people's livelihoods and facilitating business continuity, and mobilizing cooperation and business support for the COVID-19 response.

ILO has a policy brief providing guidance to companies on good practices on restructuring in response to the COVID-19 crisis, consistent with the provisions of international labour standards.

Human Settlements

In a report on challenges and opportunities post-COVID-19, WEF notes that many of the most able and agile responses to the crisis came from municipal governments. It also observed that a number of cities around the world are rethinking their design so as to make sure they are more sustainable and inclusive, taking into consideration present and future threats so as to implement resilient models. The report posits that the pandemic will 'trigger enduring changes to the built-space, city plans, building codes and the rules governing city life everywhere', and that 'cities that pivot to resilience, focus on their most vulnerable and adopt a zero-tolerance for inequality will be the ones that survive and thrive in the 21st century'[68].

The UN published a Policy Brief in June addressing how cities can take conscious policy choices with respect to inequalities, local capacities and a green, inclusive recovery to manage the crisis and emerge as hubs of energy, resilience and innovation.

The Under2 Coalition launched a report in October (Building back greener) collecting case studies from state and regional governments on how they are seizing the opportunity to recover better, even while dealing with the effects of a devastating crisis.

The C40 network of cities has created an implementation guide on 'How to build back better with a 15-minute city' to encourage cities working on COVID-19 recovery revive urban life safely and sustainably.

Land Use

Another Policy Brief launched by the UN focused on Food Security and Nutrition, and how to avoid some of the worst impacts of the pandemic on the sector while supporting the necessary green transition. The Brief suggests sets of priority actions to address the immediate, near- and medium-term needs to protect people during and beyond the crisis, and ultimately to reshape and build resilient food systems.

FAO has set a COVID-19 Response and Recovery Programme aimed at addressing the socioeconomic impacts of the pandemic in a proactive and sustainable manner. It encompasses a series of policy tools aimed at supporting policy analyses and assessing the impact of COVID-19 on food and agriculture, value chains, food prices, and food security across the globe.

The UN Department of Economic and Social Affairs developed a Policy Brief which highlights the opportunities provided by investing in sustainable forest management and forestry jobs in green recovery plans, and proposes recommendations to ensure that forest-based solutions are considered in such plans.

Water

The changes in water use observed during the COVID-19 pandemic pinpoint the need for water resources management capacity to respond to sudden shocks, while addressing the longer-term adaptation to climate-related impacts on water resource availability and demand. Resilient and financially robust water and wastewater utilities are in a better position to deal with future climate and health related shocks. There is an opportunity for decision-makers to reprioritize the water sector both in terms of investment and policies, including increased investments in digital solutions, such as automation and remote-control processes, that could help improve efficiency and quality of water and sanitation services[69].

The Stockholm International Water Institute (SIWI), in collaboration with UNICEF, has mapped some of the Water, Sanitation and Hygiene (WASH) initiatives implemented by various countries in response to the COVID-19 pandemic. It also established a website dedicated to offer short- and long-term advice for governments, regulators and utilities in how to respond to the COVID-19 crisis in the water and sanitation sector.

The UN High-Level Experts and Leaders Panel (HELP) on water and disasters released a set of Principles on how to address water-related disaster risk reduction (DRR) under COVID-19. The aim is to offer practical advice to stakeholders, such as political leaders and managers of DRR and COVID-19, on how to prepare and respond to avoid magnified impacts due to co-occurring disasters.

Oceans and Coastal Zones

WEF proposes five ways in which the ocean can contribute to a green post-COVID recovery, highlighting opportunities for equitable, ecological and economically attractive growth from food production and sustainable fisheries to renewable energy. These proposed interventions can also catalyze the growth of future industries and provide jobs, setting ocean economy on a sustainable path, while significantly reducing their carbon footprint.

The High Level Panel for a Sustainable Ocean Economy launched a report in July (A Sustainable Ocean Economy for 2050) that builds on a previous report on 'the Ocean as a Solution to Climate Change' to showcase the opportunities of a blue recovery, as stakeholders such as policymakers, financial institutions and local communities seek to reset, rebuild and enhance resilience in a post-COVID-19 world. This research finds that investing USD 2 to 3.7 trillion globally across four key areas – conserving and restoring mangrove habitats, scaling up offshore wind production, decarbonizing international shipping, and increasing the production of sustainably sourced ocean-based proteins – from 2020 to 2050 would generate USD 8.2 to 22.8 trillion in net benefits, a rate of return on investment of 450–615 per cent.

Resilience

The Climate and Development Knowledge Network (CDKN), the International Centre for Climate Change and Development (ICCCAD) and the Global Resilience Partnership (GRP) have initiated the Voices from the Frontline project, under which a coalition of grassroots organizations and knowledge partners have come forward to document the challenges and solutions emerging from community-led responses to the COVID-19 crisis. These lessons shine a light on how local communities are self-organizing to combat the spread of the virus and supporting the most vulnerable within their communities. They may also help to identify how these can be used to build climate resilience, and at the same time deliver wider benefits, for example in terms of food security.

Crises are moments of profound change. But they can also be used as a lesson on how to improve and avoid other crises, especially those that are already on the horizon. As Michele Wucker summed up, 'The important part [of a grey rhino event] is that it gives you a choice – either you get trampled, or you hop on the back of the rhino and use the crisis as an opportunity'[70]. In this sense, this unprecedented crisis can provide the opportunity to shift to a more resilient and prosperous world. This is the moment to devote time to a more thorough analysis of how future public and private spending can be directed towards more sustainable measures, which will accrue far larger long-term benefits and stability at all levels.

Besides the sectoral opportunities provided above, three main recommendations enshrined in the Paris Agreement and the 2030 Agenda for Sustainable Development can help provide guidance on how to address the compounding crises and reach the goals both frameworks seek to achieve:

Enhance Cooperation 1

One thing to take from the COVID-19 crisis is the immense capacity human systems have for cooperation during times of distress. People and communities around the world rallied to help one another. Scientists and professionals from diverse fields collaborated in a number of studies to tackle some of the challenges posed by the pandemic. Local and regional governments partnered up not only with their own federal-level governments, but also with other countries, academia, businesses and institutions at each and every level to provide for safety equipment, medical resources and other solutions, such as the development of vaccines.

As Professor Ngaire Woods pointed out in her article for WEF's 'Challenges and Opportunities in the Post-COVID-19 World', global leaders in the 1940s understood that cooperation was the key to rebuild from two World Wars interspersed by an unprecedented economic recession – a lesson learned from their previous failure to do so right after the First World War. Redeveloping a global economy within which every country can recover and grow requires cooperative planning, putting aside geopolitical differences to fight a common enemy[71].

Stressing one of the key messages from the UN Comprehensive Response report, it will take a concerted effort to chart a course out of the COVID-19 crisis and towards a better future, and in order to do so, it will be necessary to strengthen the structures for cooperating at the global level so that we are better prepared for the next such crisis.

Seek Balance 2

The increase in highly transmissible zoonotic diseases has a direct correlation with the instability caused by the encroachment of human activities in natural systems. About 75 per cent of new infectious diseases affecting humans come from animals, and the drivers for this emergence are usually human changes to the environment, such as land use change and loss of habitat, which cause closer interaction between wildlife and human settlements[72]. But the increased incidence of epidemic outbreaks of infectious diseases is just one facet of the problem. The excesses in human activities – that is, our collective ecological footprint – are collapsing the Earth's capacity. We are currently using the equivalent to 1.6 Earths per year in ecological resources and services, exhausting our global budget way before the Earth can regenerate.

The imbalances in how we are using the natural systems are also translated into imbalances in how the Earth population is impacted. The most vulnerable in society are the first to suffer the consequences, and in a disproportionate manner. This became clear during the COVID-19 pandemic as well – the poor, the elderly and the infirm are at higher risk of infection and the socioeconomic impacts of the crisis. Women are also affected the harder during any economic crisis, as they tend to earn less, have fewer savings, have less access to social protections, occupy the larger proportion in the informal economy and are more likely to take on unpaid care and domestic work. They also make up 70 per cent of all health workers and first responders, but earn less for the same job[73]. These economic vulnerabilities are partly the reason women are also at higher risk from the impacts of climate change[74]. It should be noted that, in addition to potential future pandemics, the impacts of climate change on health will also lead to spillovers, such as increased number of deaths by malaria, diarrhea and heat stress, for example. As it is the case with other adverse impacts, the poorest and most vulnerable will be affected the most[75].

The fact is that the pandemic has both deepened and exposed pre-existing global imbalances on all fronts. For instance, while income inequality has increased in some countries and declined in others in the past few decades, globally, income and wealth are increasingly concentrated at the top – meaning the richest one per cent of the population now own half the world's total wealth. And though inequality among countries has been declining in relative terms, there are still sharp differences among some countries and regions. The average income of people living in Northern America is 16 times higher than that of people in sub-Saharan Africa, for example[76]. With the pandemic's socioeconomic hit to global growth, however, poverty levels are increasing and inequality is accelerating between and within countries. The poorer parcels of the world population are bearing the brunt of the crisis – both

in developing and developed countries. While over 44 million people lost their jobs in the United States (US) between April and June 2020, for instance, the country's top billionaires saw an increase in wealth of 26 per cent. In fact, during this period, the combined wealth of US billionaires actually increased to a total of USD 3.6 trillion – considerably more than the entire wealth of all 54 countries on the African continent[77].

As pointed out in WEF's report on challenges and opportunities in the post-COVID-19 world, 'Our chain is only as strong as its weakest link'[78]. A recovery process that is truly sustainable and transformative has to address the systemic imbalances that exacerbates our vulnerabilities to present and future shocks, so that we can build healthier societies.

3 Build Resilience

Resilience is a concept that is not only very familiar, but also quite dear to the climate community. It perfuses all thematic areas of the Marrakech Partnership and it features strongly in the Climate Action Pathways that are the subject of the next chapter. The concept of climate resilience varies, but can largely be understood as the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate[79].

The concept of building resilience as a way to cope with disturbances is also being progressively incorporated into other areas, and linked with other mechanisms traditionally used to address potential threats and prevent crises, such as risk management procedures[80] and asset valuations. The WBCSD predicts that the costs associated with transition and physical climate risks will be a natural requirement by financial markets, for example[81].

In order to build resilience to any shock successfully, it is necessary to go beyond short-term solutions and think in the longer term. When put into the perspective of likely future disasters instead of eventual ones, for example, the cost-effectiveness of a range of measures that would otherwise seem too expensive may be perceived more positively.

In consonance with this approach, the WBCSD has also launched an Issue Brief specifically focusing on how companies can build greater long-term resilience through improved approaches to corporate risk management, human and social capital, and environmental, social and governance (ESG) information, aimed at better preparing for future events and disruptions.

As one of its recommendations, the Brief notes businesses should accept that a company's resilience encompasses ecosystems, communities, economies, the rule of law, effective governance and governments, and more. It also warns that collaboration – with peers, partners, governments and regulators, for example – is crucial to achieving long-term resilience, and that 'even the best-run organizations will not be able to successfully tackle and survive disruptions while operating in a flawed and fundamentally unsustainable system'[82].

Building greater resilience at all levels of society, as it turns out, will depend on a better cooperation among actors and a more balanced relationship of humans within our natural and social systems. This will ultimately be the key for our transition into a more equitable, resilient and sustainable world.

An important lesson learned from COVID-19 is how much we depend on each other for our health systems, as well as for our food systems and supply chains. This dependency further emphasises the need for cooperation and multilateralism as the way forward. In particular, it underlines the importance of the Marrakech Partnership in the context of helping the world to recover better by ensuring a bridge between Parties and non-Party stakeholders to amplify and intensify the climate action needed at this moment.

The High-Level Champions are working on innovative ways to cooperate, such as greater participation in the Marrakech Partnership with a broader regional distribution, facilitated by virtual connectivity. The Race to Zero campaign is an example of how to promote a more ambitious level of cooperation. In parallel, in understanding the importance of building resilience and reducing risks in both the COVID-19 and climate crises, the Champions will also launch a sister campaign focused on resilience. In order for this recovery to be sustainable, it is essential to transition to a fairer and more resilient society.

The Climate Action Pathways, which will be discussed in the next chapter, outline the actions needed to achieve a world that is resilient and in line with the 1.5°C limit. More than just seeking to reduce emissions, the actions delineated by the Pathways aim to be in balance with the natural systems. It is now crucial for stakeholders to pivot and put nature at the heart of their organizations.

COP 26 has been postponed due to COVID-19. This interruption may have seemed to have slowed the negotiations, but it has not halted action – especially from non-Party stakeholders. On the contrary, despite the impacts from the COVID-19 crisis, a large number of non-Party stakeholders are determined to build back better by investing in more resilient and more sustainable action. The commitment of these stakeholders to a green resilient recovery can provide a blueprint and great encouragement for Parties to follow suit, and use this extra year to catalyze action on the road to the COP. Inspired by the solidarity and cooperation among actors that this crisis has shown possible, there is hope for a healthier and safer path not just to Glasgow but to a better future.

Photo: Izuddin Helmi Adnan.

Chapter 3

Looking Forwards

The Climate Action Pathways

The Climate Action Pathways are a vital part of the Marrakech Partnership tools to enhance climate action and ambition towards fully implementing the Paris Agreement. First launched in 2019, they set out sectoral visions for achieving a 1.5°C resilient world in 2050, with overarching transformational milestones, and key impacts that need to be achieved to realize them. The Pathways are the result of the consolidated work, outcomes and recommendations throughout the year of the Marrakech Partnership and related forums under the leadership of the High-Level Champions. As such, they are intended as living documents, to be updated periodically with the latest information and lessons learned as the state of climate action evolves.

For this year, the Champions' vision was to update the actions and milestones needed for system transformations within sectors, by also focusing on the synergies and interlinkages across the thematic and cross-cutting areas, thereby assisting all actors to take an integrated approach. The 2020 Pathways aim to provide a roadmap to help Parties and non-Party stakeholders alike to identify actions needed by 2021, 2025, 2030 and 2040 as steps to get to the 2050 vision.

The 2020 Pathways incorporate insights about the exponential nature of the necessary systemic and technological change. The Pathways use the same thematic approach as the Marrakech Partnership to help coordinate climate action across every thematic area, thus maximizing the opportunities for cooperation and accelerated progress. It recognizes that all stakeholders need to work together to effect real and lasting change, and acknowledges that each stakeholder group has something unique to bring. Within the context of the Pathways, these stakeholders can be broadly defined as policymakers (national, subnational, local), business and service providers, financial institutions, technology providers and innovators and civil society.

The 2020 Pathways anticipate that the transition to net zero will occur through exponential change. The term 'exponential' helps capture the speed of change expected (i.e. very rapid) as well as the nature of that change (i.e. non-linear). The image of a hockey-stick is often used to illustrate the very sudden and sharp shift in trajectory that exponential change brings. It breaks with conventional notions of step-by-step, consequential change, replacing it instead with something altogether more dramatic and urgent.

For the High-Level Champions, the best image to illustrate exponential change is that of an S Curve. The shape of the "S" captures the exponential course they envision for the net zero transition; namely, moments of slow or imperceptible change followed by periods of dramatic progress. The snaking curve of the "S" figure illustrates that the nature of the change ahead will not only be non-linear but is also likely to be multi-stage. This reflects the existence of many potential catalysts for change, which may not necessarily be triggered at the same time. As each catalyst emerges, so new momentum and energy will be given to the transition process.

Exponential, non-linear change has been central to all major shifts in human history - think of the shift from horse and cart to the automobile, or from coal power to gas, for example. Exponential change is also increasingly how change occurs on a digitally-connected planet of inter-dependent economies and cross-cutting systems of government. Ripple effects no longer undulate, they surge.

The Pathways set out to help identify and mobilize precisely these kinds of breakthrough moments or 'tipping points'. These can potentially emerge from top-down changes, such as the introduction of new public policies and a shift in investment patterns, or from bottom-up phenomena, such as consumer pressure and technological innovation. The Pathways make provision for both eventualities.

While each of the individual Pathways addresses a specific thematic area, they are intentionally designed to be in continual conversation with one another. This is because each Pathway area is, in reality, a sub-system of an overarching and interconnected macro-system. Fixing one sub-system in isolation will not deliver the net-zero world we need; we require all these sub-systems to be fixed and working in concert. The Pathways are therefore best seen as playing an interactive role, with changes in one thematic area facilitating or accelerating change in another. Below are some illustrative examples:

- **Transport liquid fuels:** The *Energy Pathway* sets out a vision for the production of 652 billion litres per year of advanced liquid biofuels. For this breakthrough measure to stick it will require demand. Hence, the milestones laid out in the *Transport Pathways* for carbon-intensive transport industries such as aviation and shipping to shift away from fossil fuels and to adopt more sustainable alternatives.

- **Low-carbon mining:** The *Industry Pathway* anticipates a substantial uptake in renewable energy by mining companies and metal producers. Ideally, for example, 50 per cent of electricity consumed by mine operators around the world will be zero-emission by 2030. This feeds into the phased increase in renewable power generation foreseen in the *Energy Pathway*, which includes a milestone of 60 per cent of all electric power coming from zero-carbon sources by the same date.

- **Sustainable coastal communities:** The *Oceans and Coastal Zones Pathway* sets out an ambitious strategy for increasing the resilience and adaptive capacity of coastal communities. Part of this will be achieved by nature-based solutions, such as the restoration of salt marshes, seagrasses and other coastal landscapes. This dovetails with the vision laid out in the *Land Use Pathway*, which sets out a goal of restoring at least 200 million hectares of degraded land between 2020 by 2030. The two Pathways also concur in the key role that citizen groups have to play in both informing and delivering these land-based solutions.

- **Waste-free cities:** Waste is a major cause of unnecessary energy consumption and greenhouse gas emissions. Hence, the driving ambition of the *Human Settlements Pathway* to create zero-waste cities. This includes goals to reduce and ultimately eliminate the release of waste pollutants into urban water courses. This will only be possible if urban water management is radically improved. Fortunately, this is a central goal of the *Water Pathway*, which sets the ambition for governments around the world to integrate urban wastewater management into their NDCs by 2025. Similarly, it envisions a transition to aerobic technologies such as composting toilets, a boon for cities in low-income countries where use of non-flush latrines is still widespread. In turn, this also supports the ambition of the *Resilience Pathway* to improve the resilience of 600 million slum dwellers by 2030.

- **Zero-emission fleets:** One of the significant strands to the retail sector's net zero transition is to reduce the footprint of its transport fleets. The *Industry Pathway* sets a course for retailers to have 100 per cent zero-carbon fleets of light goods vehicles by 2030 and heavy goods vehicles by 2040. Retailers are not automakers, however, which is why the *Transport Pathway's* inclusion of the need for vehicle manufacturers to phase out combustion engine models is so important. Likewise, its plans for the full electrification of rail should accelerate retailers' efforts to achieve net-zero transport emissions.

The Champions and the Marrakech Partnership community also set out key guidelines for the development of the 2020 Pathways. Namely, they should be:

Ambitious: Every Pathway makes provision for self-reinforcing feedback. This is seen most clearly in the attention given to positive demand signals. These signals take many different forms, from large corporate buyers expressing a preference for low-carbon freight to citizen groups increasing their leisure use of restored coastal zones. These actions have the effect, either direct or indirect, of encouraging other stakeholders to act. Whoever the intended audience, the intention is to apply the push-pull logic of demand and supply to build a virtuous circle of support for net-zero action.

Resilient: As mentioned in the previous Chapter, building resilience is of the utmost importance to ensure a safer and sustainable future. Nation states and other stakeholders face demands on all sides, from support for economic recovery and environmental conservation to the provision of social mobility and global security. The measures laid out in the Pathways rest on a belief that transitioning to net zero can help deliver multiple outcomes. Climate action is not an 'either-or' equation, in other words; a net-zero system should be as anti-exclusion and pro-prosperity system as it is climate-safe. A good example of resilience's many virtues is the Pathway's promotion of a more circular use of raw materials. Not only will a more circular approach to manufacturing and consumption decrease emissions, it will also create green jobs, protect biodiversity, and improve the security of future supply.

Adaptable: Despite the clear milestones and sense of direction provided by the Pathways, they should not be seen as rigid or immutable. Transitioning to net zero is a dynamic affair. Actors need to be able to adapt in light of events. Such events could take the form of breakthrough technologies, for instance, or unexpected shocks like the current COVID-19 pandemic. With this in mind, the Pathways leave space within their overarching transition strategies for fresh innovation and responsive decision-making.

Science-based: Reflecting the science-oriented nature of the Paris Agreement, the Champions ensured scientific rigor in the Climate Action Pathways by receiving feedback from scientists to the draft. The milestones included in the Pathways, for example, are aligned with the end goal of keeping average temperature rise within 1.5°C and achieve climate resilience. The measures suggested are also strongly grounded in existing scientific observation and analysis. This same commitment to scientific rigor extends to the more cutting-edge proposals included in the Pathways.

Experimental: As with any innovation process, the transition to net zero involves a degree of experimentalism. This is often where breakthrough moments occur. Yet, such experimentation is always conceived within the judicious parameters of the scientific and evidence-based method. By their very nature, the viability of proposed solutions is difficult to assess ex-ante to bring them to fruition. A solution may appear hugely impactful on paper, only to prove ineffective when applied in practice. This has to do not only with the efficacy of the solution itself, but the wider context in which it is deployed. Many factors need to sync up for a tipping point to be reached. Early experimentation in real-world conditions is therefore essential. Hence, the injunction in most of the Pathways to carry out large-scale pilots for high-potential solutions. The lessons and insights from these pilots can then inform a wider roll-out.

Equitable: The Pathways are universal in scope and holistic in vision. They seek the optimal result for the entire planet and for society as a whole. At the same time as being more climate-secure, a net-zero world is one that is more inclusive, more prosperous, and fairer for all. That said, the Champions express a particular concern for those most affected by the impacts of climate change. For this reason, a number of measures place special emphasis on protecting the lives and livelihoods of at-risk populations, many of whom are already vulnerable from pre-existing social, environmental or economic factors.

For the High-Level Champions, the chief ambition is for the Pathways to help normalize the idea of a net-zero future. The goal of achieving a 1.5° C climate-resilient world is already a political reality. As this fact takes root and net zero becomes understood as our common destiny, so momentum will build and opportunities for collective action will increase.

It is the Champions' hope that climate trailblazers will be inspired by the Pathways to take bold steps towards achieving the various milestones. Not only will this make a direct difference, but it will also encourage others to see climate action as the unavoidable response to the challenges we face. Similarly, by embracing the Pathways' vision for change, the signal goes back to decision-makers that demand for climate solutions is strong. In these ways, ambition spreads and aspiration level rise.

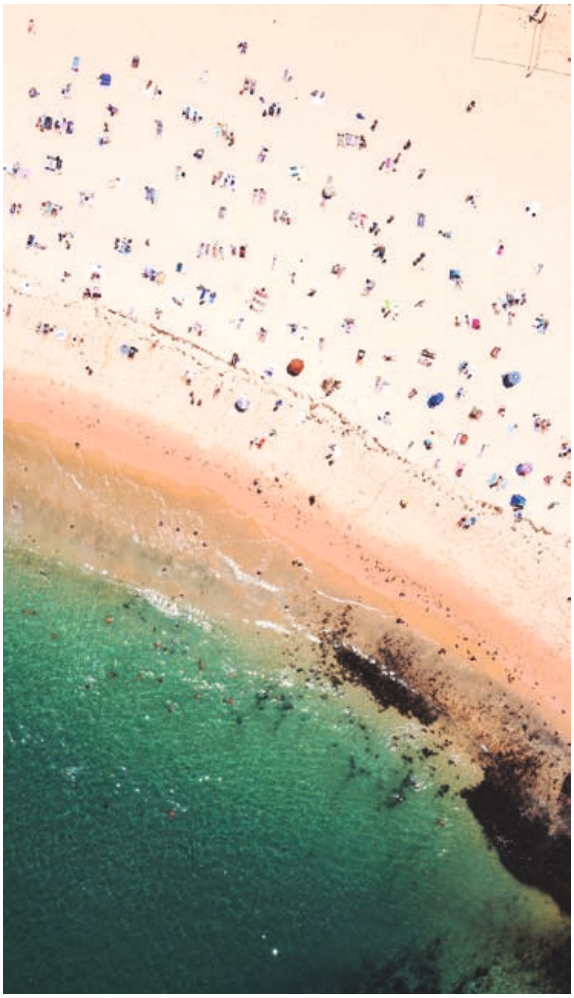


Photo: Manny Moreno.

Achieving the goals of the Paris Agreement requires us to undertake a major transition, from where we are today to where we need to be by 2050. The journey is challenging and time is short. For both these reasons, it is vital that we have a clear map of the route ahead. The Climate Action Pathways are that map. They lay out a shared plan for arriving at the future destination we have collectively agreed upon; namely, the creation of a climate-resilient world based on achieving a 1.5°C future.

Reflections on the Future of the Marrakech Partnership

At its twenty-fifth session, the Conference of the Parties (COP) acknowledged the important role of non-Party stakeholders, welcomed the continuation of the Marrakech Partnership for Global Climate Action and decided to continue appointing High-Level Champions until 2025, requesting the Champions to explore ways to improve work under the Marrakech Partnership for enhancing ambition. In response to this request, the High-Level Champions have been conducting a robust and thorough process for the past year, and will continue to do so in 2021.

Despite the delay in COP 26 due to COVID-19, the work of the Marrakech Partnership and the High-Level Champions was on full speed in 2020. Building on work carried out last year with the launch of the Climate Ambition Alliance and the first version of the Climate Action Pathways, the Marrakech Partnership stakeholders and the Champions have continued to ramp up work across all sectors and with all types of actors. As laid out in the work programme for 2020-2021, the High-Level Champions have focused on: significantly increasing non-Party commitments and action toward achieving a resilient net-zero economy through the Race to Zero campaign – and the development of a sister campaign, Race to Resilience; working with a diverse range of influential actors within and across sectors to clarify and align around a shared vision and roadmap to achieve net zero; fostering collaboration in support of the concrete actions needed from Parties and non-Party stakeholders to activate the ambition loop in order to trigger the rapid systemic change needed to achieve the Paris Agreement goals; and amplifying the progress and evidence of this exponential transformation already underway.

Through vitalized collaboration among Parties and non-Party stakeholders, across and within sectors and through all levels of government, the High-Level Champions intend to drive systemic breakthroughs in all major sectors, targeting breakthroughs in at least ten sectors in 2021. Doing so requires identifying key actors, aligning them around a shared vision, and getting a critical mass across the system to commit to doing their part.

Figure 4 to the right showcases the High-Level Champions' priorities in driving the changes in the Marrakech Partnership in order to enhance ambition and climate action.

Figure 4

Key priorities from the High-Level Champions

To comply with the COP 25 request, the High-Level Champions also conducted an open process to gather feedback, including 42 written submissions from Parties, groups of Parties (representing in total more than 100 Parties), non-Party stakeholders and meetings with negotiating groups. They have also received input and feedback through informal discussions with hundreds of stakeholders, and have been learning by doing together throughout the year – all of which has begun to crystallize a vision for how best to strengthen the Global Climate Action Agenda to be a driver of action in the short-term, to ensure the Paris Agreement long-term goals are met.

A number of core themes and messages have emerged clearly in the feedback and discussions:

1 Be Bold.

The time is now to move into implementation, accelerate progress and work together to raise ambition for driving down emissions, building resilience and scaling up finance. The science is clear, the Paris framework has set a clear direction, the negotiations of the rulebook are progressing to be completed, there is no time to waste, and there is support from all sides to strengthen the Marrakech Partnership into a central driver of implementation and action.

2 Innovate.

Parties and non-Parties alike have expressed their support for innovation and change, recognizing the shift into a new phase of the climate crisis and our collective response to it. While feedback on the Marrakech Partnership' activities over the past five years has been positive, it was mentioned that the Champions must be creative and innovative on the look ahead, to ensure the Marrakech Partnership is updated and fit-for-purpose at this critical time.

3 Strengthen Party and non-Party connection.

Successful implementation of the Paris Agreement depends on all actors coming together. The Marrakech Partnership is a unique and important bridge between Parties and non-Parties, and both are asking that it be set up to do more to help bring them together. The High-Level Champions are being called to help link the growing momentum and action in the non-negotiation space more directly in support of NDCs, National Adaptation Plans (NAPs), and long-term strategies' implementation and enhancement. These instruments can also be helpful in driving a green resilient recovery.

4 Increase inclusion and diversity.

A broader diversity of actors should be meaningfully and consistently involved. It is clear that more involvement and representation from developing countries and an updated structure that empowers local actors in all regions, connecting them to each other and to the global structure, are needed.

5 Establish a sustained, coherent structure.

Many have identified the need for a more permanent and predictable infrastructure to support continuity of implementation and foster genuine and sustained solutions-oriented collaboration among Parties and non-Party stakeholders. The Marrakech Partnership must support working together in a regular rhythm throughout the year and around the world to drive real action on the ground.

6 Strengthen accountability, tracking and narrative.

There were repeated calls to the global climate action community to help provide a widely understood and shared sense of progress, both to ensure accountability and build a stronger and compelling narrative around opportunity and leadership, what is working and where, and how all the activity and action comes together toward a common goal, including contributing substantively and constructively to the global stocktake.

Photo: Noaa.

Improving the Marrakech Partnership to Drive Action

It is clear that the Marrakech Partnership is a unique platform to foster collaboration, align influential actors around a shared vision to galvanize action and drive truly systemic change across the economy, as is the role of the High-Level Champions. As the formal space for non-Party stakeholders in the UNFCCC process, it must serve as a bridge between Parties and non-Parties to accelerate the positively reinforcing ambition loop on both sides, enabling them to accelerate the collective implementation of the Paris Agreement.

The mandate of the High-Level Champions and the Marrakech Partnership have been extended through 2025, a critical period in which there is a need to see a step change in climate action and progress in order to get on track to limit warming to 1.5°C. The improved, evolved and updated Marrakech Partnership must be a key enabler of that step change, starting on the road to COP 26 in 2021 and carrying us to this decisive decade of implementation.

As the UN Secretary General says, there is a need to enter a new era of "inclusive multilateralism". Now is the time to build and refine a new infrastructure for ambitious climate action that will steadily build momentum across the economy. Improving the Marrakech Partnership is not only about updating the governance or structure of this work stream. The High-Level Champions' aim is to contribute to the Parties for a step change in the way the world comes together to address climate change, connecting the massive movement of global climate action underway with the formal process under UNFCCC. The Champions intend to kick off for the decade of delivery with a COP 26 that is energized, inclusive and solutions-oriented, and that sets increased ambition and bold action.

The core principles around which the Champions are organizing the breakthrough approach to a stronger and nimbler architecture that serves as the backbone for climate action globally, regionally and locally have the following guidelines:

Be guided by science – To limit warming to 1.5°C and curb the impacts of climate change, scientific evidence dictates a carbon neutral world should be achieved by 2050 at the latest. As such, the goal of a net-zero resilient world is the guiding star of the Champions' work, and the base of their definition for ambition, as the Race to Zero and Race to Resilience campaigns show.

Take a systems approach – In order for increased ambition and bold action to be realized, common pathways must be defined, relevant actors must be mapped – as well as potential barriers and enablers – and all levers should be utilized to push for change.

Foster vitalized collaboration – Any potential divides should be bridged, so as to best connect actors within and across systems and support them where they need it most, facilitating coordination, reducing fragmentation and bringing new initiatives together.

Drive exponential change – Analyses around the pace and shape of technological change should be used as examples to ensure that the Climate Action Pathways and any other plans are informed by a rigorous understanding of the dynamics of exponential growth that drive the diffusion and deployment of technologies and solutions. Similarly, sectoral S curves defining the technology adoption rates needed to deliver sectoral pathways should be provided to encourage more ambitious action.

Accelerate the ambition loop – Aligning non-Party stakeholders with the ambition mechanisms of the Paris Agreement can help accelerate the positive feedback loop in which bold government policies and non-Party stakeholder leadership reinforce each other, and together they can take climate action to the next level. Likewise, it is important to strengthen the support from the non-state actor community to Parties so that they can identify and accelerate opportunities for ambition enhancement.

Maximize diversity and inclusion – Bringing in all actors from across sectors and society, and from around the world in a transparent way will ensure inclusive and creative problem solving, in a platform where all feel safe, empowered and have a role to play.

Looking ahead to the Global Stocktake in 2023, already next year the High-Level Champions intend to develop and put into practice a strong, objective, transparent and replicable process for assessing the state of systems transformation in key sectors with clear linkages to NDCs and the needs of Parties. This is to ensure that the non-Party stakeholders provide concrete and actionable information into the stocktake, and align themselves around opportunities to accelerate progress and support increased ambition in the next five year cycle. The first such 'non-Party stakeholder stocktake of progress' should be published ahead of COP 26 and become a key annual deliverable of the Marrakech Partnership.

The Champions intend to create an open source set of supporting tools and progress indicators, building on the Marrakech Partnership Climate Action Pathways, in order to scale up support to Parties in their development and implementation of enhanced NDCs, NAPs, and long-term strategies, around which the climate action community can align and organize their work, including collaboration with financial institutions and policymakers.

They also aim to create a renewed architecture for the Marrakech Partnership that establishes an agile, but durable infrastructure, with a balance representation around the world, supporting the work of implementation of the Paris Agreement, bridging between Parties and non-Party stakeholders throughout the year. For this agile, durable and balanced architecture to be possible, it should include a sustainable and predictable support infrastructure in the UNFCCC secretariat and in the Champions team to assist the High-Level Champions and the Marrakech Partnership. Support should also be provided in underrepresented regions to amplify connectivity and work throughout the year in support of non-Party stakeholders working on climate action. The intention is not to duplicate existing non-Party initiatives and work, but to add value and provide the central backbone around which the community can organize itself through shared system-wide goals and pathways, address gaps and to strengthen connectivity between Champions year on year so each Champion can hit the ground running.

The High-Level Champions are also planning to review and refresh criteria for participation in the Marrakech Partnership that embeds alignment with a 1.5 °C resilient future, and update governance focused on science-based ambition, inclusive, vitalized collaboration and solutions oriented-convenings and work programs.

The decade ahead will be crucial for achieving the Paris Agreement goals – a small and closing window in which the need for urgent action can still be met in time, if collective action is taken swiftly and with shared purpose and direction. This calls for leadership in all corners of society. The Marrakech Partnership and the Champions can and must provide a core and go-to space in which that leadership can converge, collaborate and execute together. In order for this to happen, the High-Level Champions look forward to continuing to work closely with Parties and non-Party stakeholders to refine this vision and develop a concrete plan in the early part of 2021.

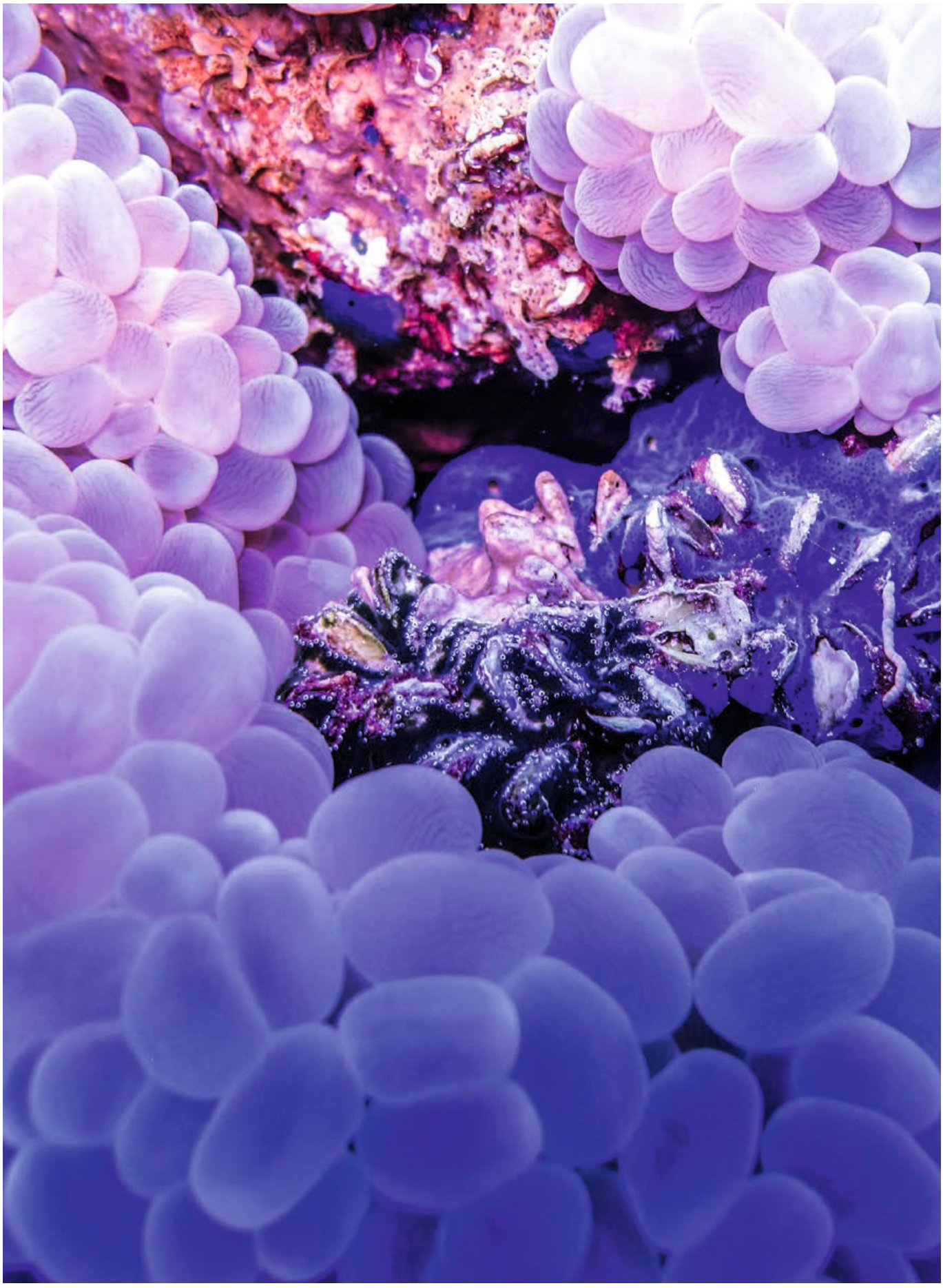


Photo: Nariman Mesharrafa.

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