



مؤسسة دبي للمستقبل
DUBAI FUTURE FOUNDATION



FUTURE OPPORTUNITIES REPORT

THE GLOBAL 50

COP 28 SPECIAL EDITION



COP28
UAE

FOREWORD



Khalfan Belhouli
CEO
Dubai Future Foundation



Razan Al Mubarak
UN Climate Change High
Level Champion
COP28

The world has been witnessing significant changes in its environment in the last century: a rise in global temperatures, reductions in biodiversity, shifting weather patterns, species' extinctions and diminishing resources. With calls for continuing innovation in building a climate-resilient future, opportunities lie in improved infrastructure, processes and systems that can mitigate and adapt to changing environmental challenges. A healthy planet is needed for future growth, prosperity and well-being, and innovation can respond.

The Dubai Future Foundation builds its view of the future on three interrelated aspects: uncertainties, assumptions and megatrends. These three aspects act as signposts to help us think about how our way of life may change in the future. The Dubai Future Foundation recognises nature and climate change as both assumptions and uncertainties which also drive various megatrends. While we assume that climate change will persist, we place hope in the innovations which can enhance nature's ability to restore itself.

The primary purpose of the Conference of the Parties (COP) on climate is to support the implementation of the United Nations Convention on Climate Change (UNFCCC). As with previous years, this year's COP aims to review progress towards joint climate objectives. COP28 is set to be a transformational moment for the world to unite around tangible climate action and deliver realistic solutions to keep 1.5°C within reach.

In our joint efforts focused on the future, innovation and climate, we are pleased to share this special edition of The Global 50 report in honour of COP28 which will take place in the UAE, 30 November – 12 December 2023. Highlighting 12 nature-related opportunities from the 2022 and 2023 editions, this report includes diverse perspectives from the UAE and around the world, providing a small window into potential futures. Within the report, some ideas await new or improved technologies, others depend on greater collaboration and some await more resilient systems.

In a significant year for the UAE – marked by both the UAE's Year of Sustainability and the hosting of COP28 – we encourage innovators, investors, policymakers, researchers and the public to go beyond reading this report. In addition to reflecting on the opportunities and contributions, we invite you to brainstorm and imagine bold and transformative ideas that can pave the way for a better planet, ensuring growth, prosperity and well-being for all.



CONTENTS

INTRODUCTION	5
OPPORTUNITIES (IN ALPHABETICAL ORDER)	
A Walk on the Rewild Side	8
An Endless Water Cycle	11
Energy Without End	14
Ice Uncapped	17
International Space Stations – For the Sea	20
Make it 100	23
Mission Accomplished	26
Mobile Super ‘Scrubbers’	29
Rapid Response Regulators	32
The Ultimate Climate Calculator	35
Unstranded Assets	38
Waterless Farms	41
<hr/>	
ACKNOWLEDGEMENTS	44
ABOUT THE DUBAI FUTURE FOUNDATION	45
ABOUT COP28	46
DISCLAIMER	47

INTRODUCTION

The purpose of The Global 50 report is to promote future growth, prosperity and well-being by imaging future possibilities, presenting innovative ideas and highlighting opportunities for a better tomorrow.

In the process of formulating opportunities for The Global 50, categories are not predetermined. Instead, they are established after the opportunities are confirmed. Notably, nature emerges as a main category in both editions. Additionally, some opportunities in other categories are also directly or indirectly related to nature. Between both editions, 30 opportunities were identified that have the potential to advance climate mitigation, adaptation and resilience.

For this special edition of The Global 50 report, the Dubai Future Foundation invited experts, researchers and innovators to contribute with their views and expertise showcasing both international insights and perspectives and those from within the UAE on nature-focused opportunities. Each opportunity explores a unique perspective, highlighting different ways to approach future opportunities.

Even though only 12 opportunities are featured in this special edition, all 100 opportunities from the 2022 and 2023 Global 50 reports focus on growth, prosperity and well-being and can be applied – in one form or another – to benefit the planet.



EXHIBIT 1

Nature related opportunities in The Global 50 that have the potential to advance climate mitigation, adaptation and resilience.

CONTRIBUTORS

(ORDER OF APPEARANCE)



Huda Shaka

Director, Urban Strategy and Planning,
Gehl, **UAE**



Yosuke Maeda

Board Director and CEO,
Wota Box, **Japan**



Dr Tony Roulstone

Department of Engineering,
University of Cambridge, **United Kingdom**



Francis Porter

Senior Manager – Sustainability,
Mott MacDonald, **UAE**



Rebecca Hubbard

Director,
High Seas Alliance, **Australia**



Juana Purchase Hatfield

Director,
Sustainability Africa, **South Africa**



Laila Mostafa Abdullatif

Director General,
Emirates Nature – WWF, **UAE**



Dr Diana Francis

Head of Environmental and
Geophysical Sciences Lab, Khalifa University, **UAE**



Kirstin Morrison

Senior Green Growth Analyst,
Global Green Growth Institute, **UAE**



Pushpam Kumar

Senior Economic Adviser,
UN Environment Programme, **United States**



Jessica Robinson

EY-Parthenon,
MENA Sustainable Finance Leader, **UAE**




Dr Saeed Alhassan Alkhazraji

Founder
Manhat, **UAE**

WHAT IF WE RETURNED THE PLANET TO ITS NATURAL STATE?

A WALK ON THE REWILD SIDE

OPPORTUNITY #22 FROM THE GLOBAL 50 REPORT, 2023 

Phasing out land use for food production accelerates biodiversity and ecosystem restoration – hence rewilding – while mitigating climate change risks.

BENEFITS

Dual benefits to nature and well-being through climate impact mitigation, improved air quality and better environments for humans and animals. Reduced economic costs of environmental degradation and climate impacts. Increased value from ecosystem services. Reversal of the trend towards habitat loss currently being experienced by some 80% of the world's land-based animal species.

RISKS

Increased food costs. Displacement and loss of income and culture for rural and farming populations.



CONTRIBUTOR
HUDA SHAKA

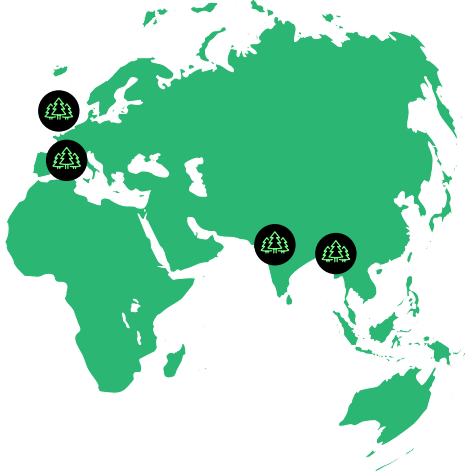
DIRECTOR – URBAN STRATEGY AND PLANNING,
GEHL
UAE

Historically, 15th-century gardens in Europe were elaborately designed landscapes for human enjoyment situated within uncultivated natural settings. The human experience was focused on the highly curated gardens; the untouched wilderness was the backdrop. The wilderness had other purposes, as hunting grounds, for example, or for storm-water management.

The emerging concept of rewilding is a paradigm shift away from the hierarchy of natural and human spaces. While the definition of the term is still open to debate, some of the key principles of rewilding include seeking to restore nature's dynamics and balance. The intention is to reverse the negative human impact on natural habitats and ecosystems. Within the urban realm, rewilding typically refers to creating shared landscapes that as far as possible accommodate humans and nature in their original form. Some of the expected outcomes of rewilding include protecting and promoting biodiversity by providing healthy habitats for diverse species as well as offering more authentic experiences of nature and valuable ecosystem services.

The objective is to restore the balance of nature and steadily integrate nature into environments, particularly urban environments.





OVER THE PAST DECADE, EXAMPLES OF REWILDED LANDSCAPES AROUND THE WORLD RANGE FROM RESTORED FORESTS IN SOUTH ASIA TO MICRO NATURE SPACES CREATED WITHIN CITIES SUCH AS DUBLIN, LONDON AND PARIS.

THE ESSENTIAL ENABLERS

Over the past decade, rewilded landscapes have been developed around the world. Examples range from restored forests in South Asia¹ to micro nature spaces created within cities such as Dublin,² London³ and Paris.⁴ However, the process requires an in-depth understanding of local conditions and needs and benefits greatly from engagement and collaboration with the local communities and sectoral experts.

Another aspect is that, while the aims of rewilding align well with emerging research telling us that nature promotes physical and mental well-being, we are still far from having enough data to quantitatively compare – on a global scale – the impact of experiencing nature on human well-being.⁵ So far the research indicates the importance of multisensory, communal experiences of nature: activities such as a walk on the beach or spending an afternoon cultivating flowers can offer more health benefits than simply contemplating a green lawn from a window.⁶

LIKELY TIMESCALE

It is challenging to state a specific timescale for this opportunity. However, it is never too early to start. What is important to note is that each context would need rewilding to be approached from a different angle. For example, in many Arab cities, it will first require a cultural shift towards appreciating indigenous nature spaces, of all colours, as beautiful and valuable. The next step would be to explore ways of protecting and restoring our nature spaces from threats such as overdevelopment, pollution and desertification. Within an urban context, the key principle is to incorporate indigenous or climate-adaptive species within the public realm. These water-conscious urban nature spaces must be designed to act as welcoming habitats for local species, as well as being usable and accessible spaces for all members of the community.

¹ Kahfi, K., Hoang, M., Patchett, J., Cabico, G. and Isnawati, S. (2021) 'Southeast Asian communities spearhead forest restoration efforts'. climatetracker.org, 18 March. <https://climatetracker.org/southeast-asian-communities-spearhead-forest-restoration-efforts/>

² Farag, F. (2021) 'New Roots: 'Rewilding' trinity and Dublin city centre'. *The University Times*, 22 April. <https://universitytimes.ie/2021/04/new-roots-rewilding-trinity-and-dublin-city-centre/>

³ Ambrose, T. (2023) 'Beavers to return to London as part of urban rewilding'. *Guardian*, 21 March. www.theguardian.com/environment/2023/mar/21/beavers-to-return-to-london-as-part-of-urban-rewilding

⁴ Soloviy, V. (2019) 'Paris wants to turn parts of itself into urban forests'. *Sustainability Times*, 20 July. www.sustainability-times.com/clean-cities/paris-wants-to-turn-parts-of-itself-into-urban-forests/

⁵ Holland, I., DeVille, N., Browning, M., Buehler, R., Hart, J., Hipp, J., Mitchell, R. Rakow, D., Schiff, J., White, M., Yin, J. and James, P. (2021) 'Measuring nature contact: A narrative review'. *International Journal of Environmental Research and Public Health*, 18:4092. www.ncbi.nlm.nih.gov/pmc/articles/PMC8069863/pdf/ijerph-18-04092.pdf

⁶ Bratman, G., Anderson, C., Berman, M., Cochran, B., De Vries, S., Flanders, J., Folke, C., Frumkin, H., Gross, J., Hartig, T., Kahn, P., Jr., Kuo, M., Lawler, J., Levin, P., Lindahl, T., Meyer-Lindenberg, A., Mitchell, R., Ouyang, Z., Roe, J., Scarlett, L., Smith, J., Ven den bosch, M., Wheeler, B., White, M., Zheng, H. and Daily, G. (2019) 'Nature and mental health: An ecosystem service perspective'. *Science Advances*, 5(7). www.science.org/doi/10.1126/sciadv.aax0903



WHAT IF WATER WAS A FOREVER RESOURCE?

AN ENDLESS WATER CYCLE

OPPORTUNITY #41 FROM THE GLOBAL 50 REPORT, 2022 

Water is ours to recycle and use
as and when needed.

BENEFITS

A self-sufficient water supply per household ensures no shortages or waste, leading to a massive reduction in domestic water demand and lessening the need for power to pump, extract or desalinate water. This improves people's quality of life in extremely water-stressed areas.

RISKS

There are potential risks to health if systems fail. Risks to health and lives can arise from either unintentional errors or malicious damage to water treatment systems.

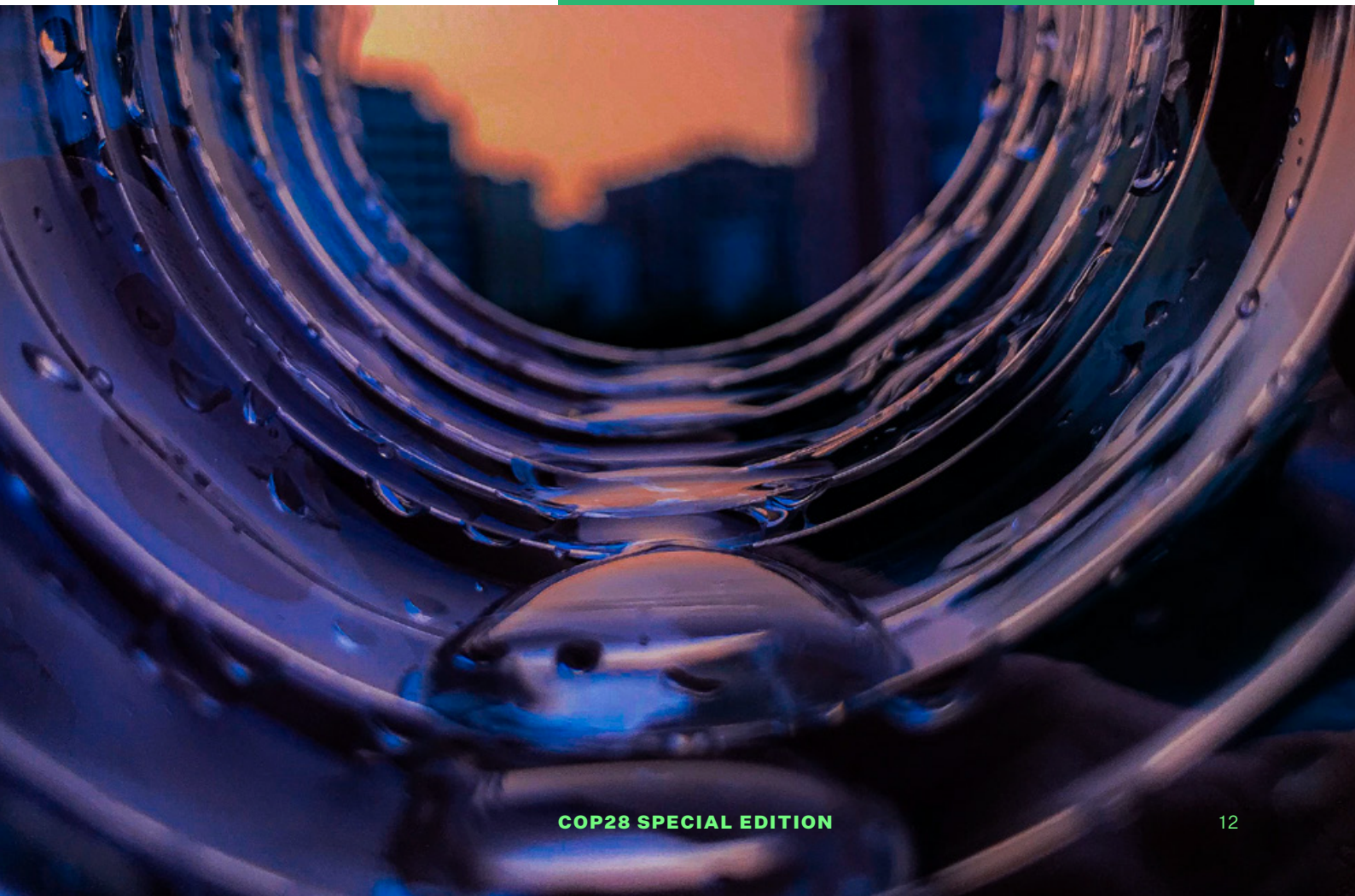


CONTRIBUTOR

YOSUKE MAEDA

BOARD DIRECTOR AND CEO, WOTA BOX
JAPAN

The severity of global water issues – water shortage, pollution and infrastructure financing – is escalating. Existing large-scale, centralised solutions cannot address these challenges within the necessary time frames and budgets. However, recent advancements in small-scale, decentralised water infrastructure, which merges compact water recycling systems with autonomous treatment controls, offer an alternative approach. This rapidly deployable solution can deliver high-quality water services using minimal fresh water in water-stressed or infrastructure-poor areas. In regions with ageing systems, it offers water and wastewater services more cost-effectively than renewing the existing infrastructure, thereby improving water infrastructure finances.





A decade from now, entire cities and communities will adopt

SMALL-SCALE, DECENTRALISED WATER INFRASTRUCTURE

as an alternative to existing methods.

THE ESSENTIAL ENABLERS

For this potential to be realised, a shift from the ‘construction industry’ model of individual design and build to the ‘manufacturing industry’ model of mass production is needed. By leveraging licence manufacturing, we can democratise the resolution of water issues, encouraging everyone, including local residents, to participate in problem-solving. Technological advances in small-scale water recycling processes and sensors and software for autonomous water treatment control are equally crucial. Our key challenges include increasing problem awareness, solution awareness and acceptance of water recycling and reuse, with acceptance being the most unpredictable and difficult to address.

We both experienced and tackled some of these challenges in Japan’s disaster relief efforts as we provided our WOTA BOX and Outdoor Shower Kit. During the process and over a span of four years an increasing number of local governments have become aware of water issues during emergencies and the capabilities of small-scale, decentralised systems. Those who have used it, mainly evacuees, have given overwhelmingly positive feedback, saying that their views on water recycling have changed.

LIKELY TIMESCALE

We envision a future, a decade from now, where entire cities and communities will adopt small-scale, decentralised water infrastructure as an alternative to existing methods, completely solving their water issues. By 2025, we plan to start addressing water issues in several high-priority areas worldwide, aiming for global deployment by 2030.



WHAT IF ENERGY WAS LIMITLESS?

ENERGY WITHOUT END

OPPORTUNITY #6 FROM THE GLOBAL 50 REPORT, 2022 

Daily life transformed by a limitless supply of energy through nuclear fusion.

BENEFITS

Limitless power enables the growth of new industries. Travel and logistics can become both cheaper and less environmentally damaging, as can electricity, heating and cooling. People can live more comfortably, efficiently and productively, increasing their quality of life.

RISKS

Risks include accidental or deliberate incidents with the handling of radioactive waste from fusion, even though it has a short half-life.



CONTRIBUTOR

DR TONY ROULSTONE

DEPARTMENT OF ENGINEERING,
UNIVERSITY OF CAMBRIDGE
UNITED KINGDOM

**THE ADVENT OF FUSION
ENERGY WAS PREDICTED
IN THE**

1930_s

For many decades fusion has been hailed as the power supply of the future. Estimates suggest that fusion could fulfil most global energy needs without carbon emissions and provide enough fuel to meet global demand for hundreds of years. Fusion would transform energy production.

Fusion – the opposite of nuclear fission – releases huge amounts of energy by the fusing of light nuclei together to form a single heavier nucleus. These nuclear reactions power the sun and other stars. The most researched fusion process uses isotopes of hydrogen – deuterium extracted from seawater and tritium produced from lithium.⁷ Furthermore, the fusion process is comparatively safe and produces significantly less radioactivity than nuclear fission.

Making fusion happen is extraordinarily difficult. One has to overcome the repulsion of the nuclei being fused. Many different methods have been attempted individually or in combination, including magnetic, inertial, electrostatic and physical compression methods and the use of catalysts (cold fusion). Recent developments in the two main strands of fusion – magnetic and inertial – have produced fusion neutrons, a key test of viability of the physics of fusion, bringing the prospect of fusion energy generation closer to fruition.

The advent of fusion energy was predicted in the 1930s. The doughnut-shaped tokamak devices, which contain magnets that heat and compress hot plasma (fuel) long enough for a fusion reaction to take place, date from 1960s Russia. These devices use magnets to compress fuel to high pressures and external power to achieve very high temperatures – temperatures hotter than the sun. All the major nations researching fusion now have tokamak experiments. Fusion gain was demonstrated at scale by the Joint European Torus in the UK in the late 1990s and again in 2022 but only with a low power yield lasting for a few tens of seconds. In 2018, new superconducting magnets enabled the South Korea and China tokamaks to achieve plasmas of 100mn°C for tens of minutes – a major step forward. The much larger international ITER experiment (\$25bn) in France seeks to demonstrate high fusion power gain by 2035 and provide the basis for the design of power stations in the 2040s.

⁷Office of Science (n.d.) 'DOE explains...deuterium-tritium fusion reactor fuel'. US Department of Energy. www.energy.gov/science/doe-explainsdeuterium-tritium-fusion-reactor-fuel (accessed 9 September 2023)

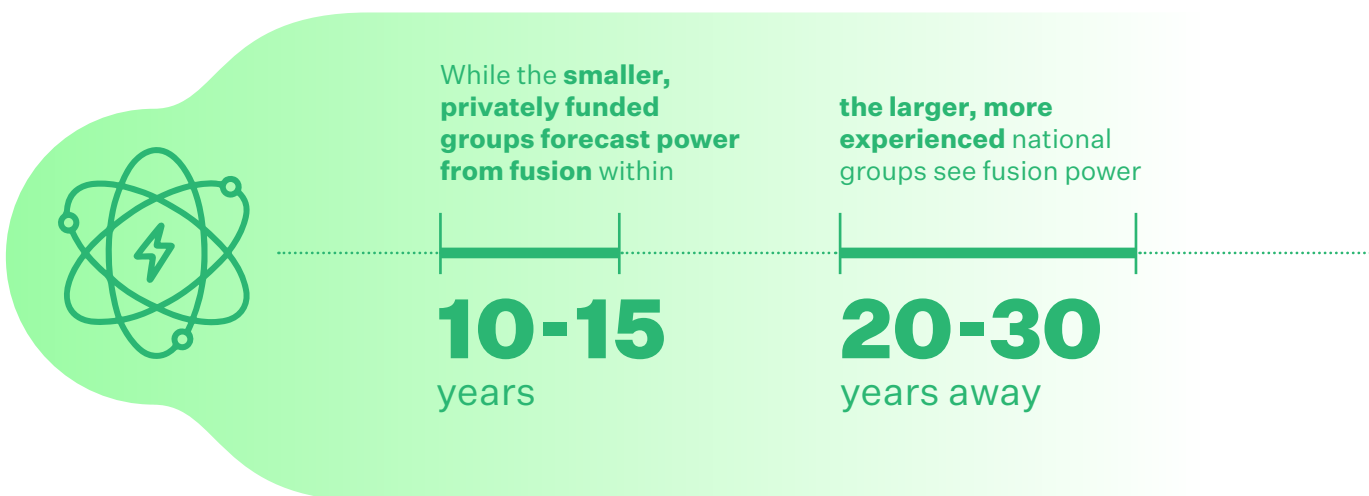
THE ESSENTIAL ENABLERS

The large scale and high cost of fusion experiments has slowed progress. Frustration with this process has precipitated the emergence of new ideas for smaller devices or different fusion methods, often supported by private funding. Over \$3bn has flowed into a myriad of new devices, with prospects of leap-frogging ITER. Rapid progress is being made with higher magnetic fields and more spherical designs, such as those from Commonwealth Fusion Systems in the USA and Tokamak Energy in the UK.

Inertial fusion, which uses shock waves to compress fuel to much higher pressures and high temperatures, is also progressing. In 2022, the National Ignition Facility in the USA showed that the physics works. The use of 192 high-powered laser beams focused on a small deuterium–tritium fuel capsule yielded a very brief but high-power pulse of fusion energy. Also, the UK’s First Light Fusion (a University of Oxford spin-off)⁸ made similar claims for its projectile and shock-wave approach. Both of these inertial methods use large amounts of energy and have very small fuel targets. They will require both very high fusion gains and very rapid fusion repetition rates to yield significant amounts of fusion energy.

LIKELY TIMESCALE

While the smaller, privately funded groups forecast power from fusion within 10–15 years, the larger, more experienced national groups see fusion power 20–30 years away. The scalability and cost of fusion energy are both extremely hard to predict. Fusion is still in the early stage of development. Crucially, fusion energy costs will depend on three main factors: construction costs of these complex and novel systems, system availability (how much of the time power is being generated) and how efficiently heat from fusion is converted into usable energy.



⁸First Light (n.d.) ‘First Light achieves world first fusion result, proving unique new target technology’. <https://firstlightfusion.com/media/fusion> (accessed 15 August 2023)

WHAT IF WE COULD RECOOL THE PLANET BY SAVING THE ICE CAPS?

ICE UNCAPPED

OPPORTUNITY #26 FROM THE GLOBAL 50 REPORT, 2023 

A multi-pronged effort to restore the Arctic sea ice, the Antarctic ice sheet and mountain glaciers around the world leads to the cooling of the planet and oceans and prevents the further release of trapped methane into the atmosphere.

BENEFITS

Regulation of the climate and reduction in the economic and social costs of climate-related disruption. Protection of biodiversity in marine ecosystems and of livelihoods that depend on those ecosystems. Preserving the ice caps would also prevent the release of methane as the ice retreats.

RISKS

Unforeseeable or unintended consequences from geo-engineering for local or even global natural systems.



CONTRIBUTOR

FRANCIS PORTER

SENIOR MANAGER – SUSTAINABILITY,
MOTT MACDONALD

UAE

Between 2013 and 2022, global sea levels rose on average at a rate of 4.62mm per year.⁹ According to the World Meteorological Organization, that is 40% faster than between 2003 and 2012.¹⁰ Sea levels are set to reshape life for people in coastal areas; however, it is possible to mitigate the impact by efforts to restore ice coverage and thickness and by allowing ice sheets and caps to limit the risk of rising sea levels.

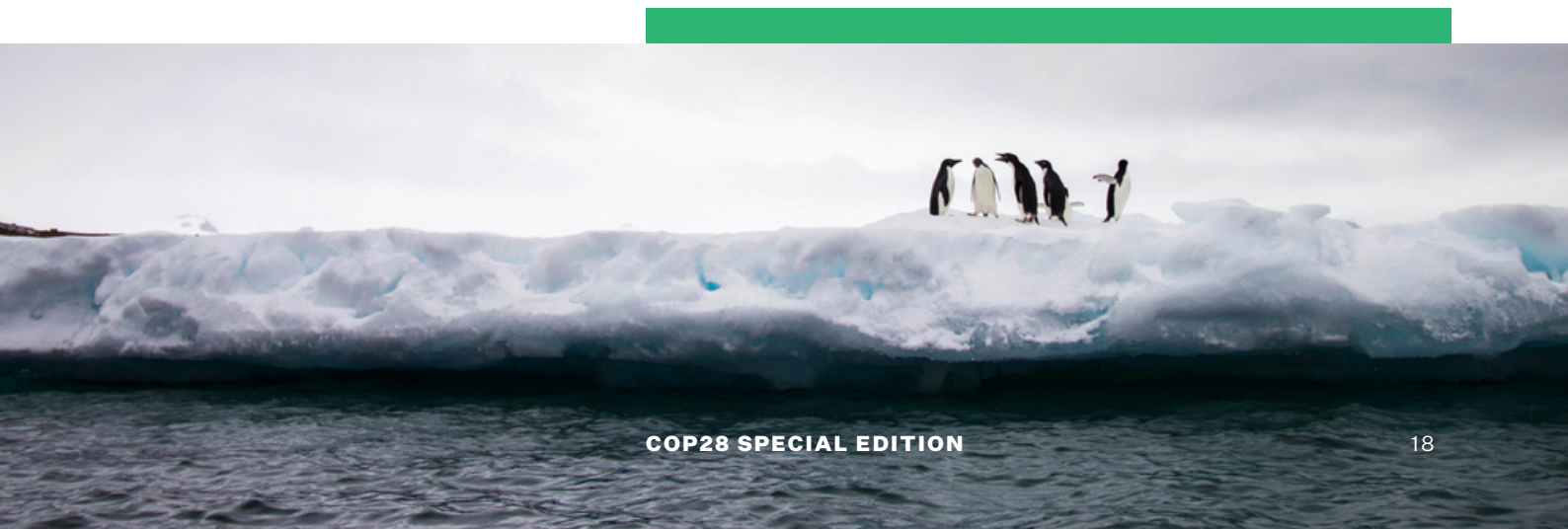
THE ESSENTIAL ENABLERS

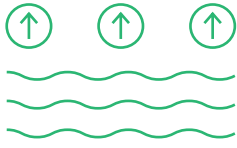
It is essential to implement nature-based solutions. They can mitigate the effects of sea-level rise by protecting communities from flooding and marine water ingress. They can play a part in future-proofing vital infrastructure as well as safeguarding natural habitats and biodiversity. Nature-based solutions are an opportunity to both limit and adapt to global climate change.

Tidal marshes, beach nourishment, barrier islands, mangroves, sea-grass, kelp forests and biogenic reefs are all ways to incorporate nature and natural elements into shoreline management systems. Nature-based solutions are most effective at restoring degraded shorelines where there is existing vegetation. It is also possible to create natural sea barriers from scratch, but this takes time and shorelines will need protection early on.

⁹ World Meteorological Organization (WMO) (2023) 'State of the global climate 2022'.
<https://library.wmo.int/records/item/66214-state-of-the-global-climate-2022>

¹⁰ Ibid.





Between 2013 and 2022, global sea levels rose on average at a rate of

**4.62mm
PER YEAR**

According to the World Meteorological Organization, that is **40% faster than between 2003 and 2012.**

Mangrove planting can reduce the impact of storms on coastal areas and reduce the cost of building and maintaining sea defence infrastructure. New mangrove plantations may need to be nurtured in a safe location and moved to where they are needed when mature enough to withstand storm conditions. Planting mangroves is a quantifiable and cost-effective way to remove carbon from the atmosphere while also improving biodiversity.

Living shorelines are another way of protecting coastal areas from waves and storms by creating a barrier using plants, rocks and sand alone or in combination with grey infrastructure, such as seawalls. In the US state of Texas, we have created an 81ha sea-grass and wetland habitat at the port terminal of La Quinta. The La Quinta barrier is planted with 10ha of shoal grass and 5ha of smooth grass, which is able to capture and store 32.8 tonnes of carbon per year. This is expected to increase to 420 tonnes per year as the grass grows.¹¹ The protective power of the natural barrier was demonstrated when it helped to dissipate storm waves during Hurricane Harvey, a category 4 hurricane that hit the Texas coast in August 2017.¹² It meant there was little damage to the aquatic habitat.

Other coastal communities around the world may have the option of allowing sand dunes to shift inland as sea levels rise. As a way of reducing flood risk, the dunes can then be stabilised by introducing vegetation to hold them together. Alternatively, where there is coastal farmland, this can be restored to its natural state by creating and restoring salt marsh and mudflats. This is another technique for creating a buffer zone between the sea and infrastructure or homes.

LIKELY TIMESCALE

All coastal planning and development needs to be carried out with a dual focus on adaptation and mitigation of sea-level rise. Continued advances in design and carbon analytics mean it is possible to quantify the carbon absorbed by ocean ecosystems and drive down embodied carbon in infrastructure projects.

While focusing on climate adaptation, we cannot afford to lose sight of the vital need for improvements. To achieve global targets, these improvements need to come in sea-level rise forecasts and immediate carbon emissions quantification and reduction. This will give us enough flexibility to balance benefits and risks in response to future scenarios.

¹¹ Mott Macdonald (n.d.) 'Nature-based solutions: New marine habitat on the Texas coast'. www.mottmac.com/en-US/article/70106/la-quinta-terminal-mitigation-texas-usa (accessed 25 September 2023)

¹² Williams, H. and Rains, B. (2022) 'Effect of barrier height on magnitude and character of Hurricane Harvey washover fans, Matagorda Peninsula, Texas, U.S.A.'. *Journal of Coastal Research*, 38(1): 133-9. <https://doi.org/10.2112/JCOASTRES-D-21-00043.1>

CAN WE SAVE OCEAN ECOSYSTEMS AND HABITATS?

INTERNATIONAL SPACE STATIONS - FOR THE SEA

OPPORTUNITY #5 FROM THE GLOBAL 50 REPORT, 2022 

An independent supranational body enforcing the protection and restoration of ocean ecosystems in international waters, preserving aquatic ecosystems with associated economic benefits and aiding in innovation.

BENEFITS

Restoring oceans mitigates some effects of climate change, such as warming and acidity. Furthering international collaboration enables novel commercial use of the seas – such as rare mineral mining, aquatic farming and deep-sea transport – to be approached sustainably and in ways that benefit all.

RISKS

There remains a risk that, if political willingness to collaborate weakens, the new body will lack the effective authority to enforce its decisions.



CONTRIBUTOR

REBECCA HUBBARD

DIRECTOR, HIGH SEAS ALLIANCE

AUSTRALIA

The high seas cover half the planet. They are home to some of the largest reservoirs of biodiversity on earth. Whales and sharks pursue their migratory routes through them and they host remarkable ecosystems, such as deep-water corals and submerged mountain ranges. The high seas also provide essential ecosystem services, such as carbon sequestration and storage, genetic material for medicines and cosmetics, and food for billions of people.

Life on earth depends on a healthy ocean. Any failure to protect its integrity will precipitate multiple ecological tipping points. It is essential to introduce critical protections for the water, while at the same time bringing together the brightest minds – legal, technical, scientific and policy experts – to collaborate with indigenous and community representatives from around the world. This will deliver enormous environmental, social and economic benefits.





AT LEAST

60
PARTIES

to the UN need to ratify the High Seas Treaty for it to enter into force and become International Law

THE ESSENTIAL ENABLERS

We are on the brink of a new era of international governance for the oceans – the High Seas Treaty. Formally adopted by UN Member States on 19 June 2023, the Treaty represents a giant leap forward for planetary conservation. By providing the world’s first legal framework to safeguard ocean life beyond national jurisdictions, it is the first global opportunity in decades to address the many governance gaps that have blighted the ocean and left it vulnerable to over-exploitation.

Once it has been ratified and enters into force, the new Treaty will enable the establishment of marine protected areas on the high seas. These are essential for the delivery of the Kunming–Montreal Global Biodiversity Framework target to protect at least 30% of the sea by 2030 (the minimum level scientists say is critical to tackle the planetary emergency). Furthermore, regular environmental impact assessments will improve transparency and give the international community greater leverage over activities that could harm life on the high seas. Importantly, the Treaty will also ensure the fair and equitable sharing of scientific data and monetary benefits from marine genetic resources and build the capacity of countries to implement the agreement.

The High Seas Treaty has been decades in the making. Scientists, policy experts, lawyers, government departments, civil society, political leaders and over five million citizens from across the planet have been actively engaged in securing a robust treaty – one that will adequately protect, manage and share the benefits of this enormous, diverse and threatened ecosystem. It has required sharing of technical expertise and knowledge, collaboration, political leadership, patience and dedication. Although it has not yet entered into force, its adoption by consensus of 190 parties to the UN demonstrates that multilateralism is still alive and capable of delivering positive global outcomes. However, time is not on our side, so it is crucial that the Treaty is ratified swiftly to reverse biodiversity decline and allay the climate crisis.

LIKELY TIMESCALE

At least 60 parties to the UN need to ratify the High Seas Treaty for it to enter into force and become international law. The High Seas Alliance and its political champions are aiming to achieve this by the UN Ocean Conference in June 2025. This is ambitious, but it is absolutely essential if we are to halt the biodiversity loss that is undermining our oceans and their capacity to support life on earth. We look forward to working with leaders across the world to realise the tremendous potential of the High Seas Treaty.

WHAT IF WE HAD A RESPONSIVE CENTENNIAL PLAN FOR THE PLANET?

MAKE IT 100

OPPORTUNITY #24 FROM THE GLOBAL 50 REPORT, 2023 

Beyond the Sustainable Development Goals, Planetary Development Goals are set up and agreed on a rolling 100-year time frame, creating a long-term global cooperation framework for restoring and preserving ecosystems and biodiversity.

BENEFITS

Definition of long-term goals and coordination of efforts so as to achieve and surpass aims. A means of organising multilateral collaboration and investment. A set of metrics against which to measure progress.

RISKS

Disconnection between a 100-year outlook and shorter-term government policies and interests around climate change. Perception of the goals as too expensive compared to other more pressing socio-economic challenges.



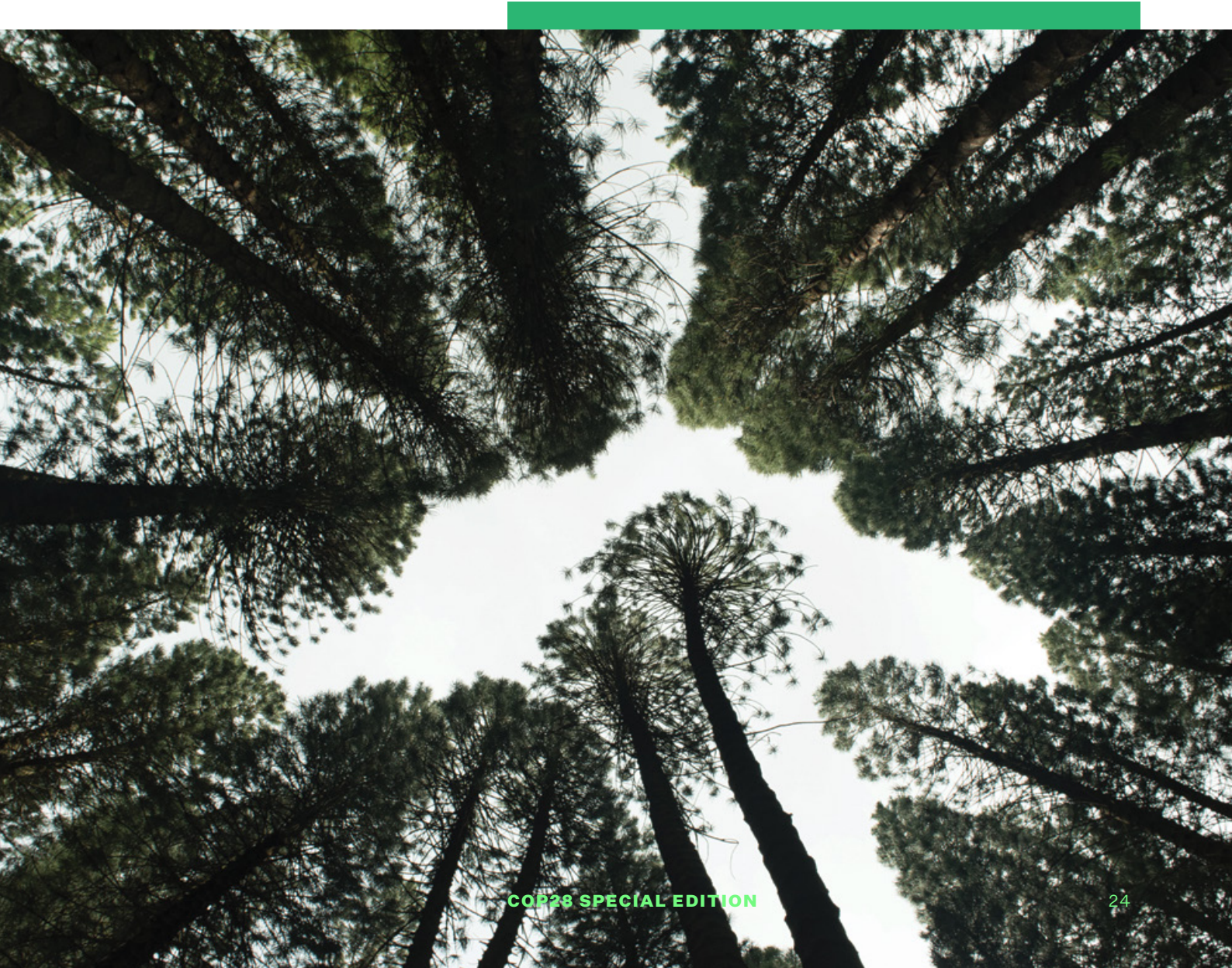
CONTRIBUTOR

JUANA PURCHASE HATFIELD

DIRECTOR, SUSTAINABILITY AFRICA

SOUTH AFRICA

We need to conserve ecosystems and restore biodiversity to maintain human health, food safety, security, economic prosperity and societal well-being. Therefore, developing consistent goals and long-term strategies will be vital to ensure that we, along with all other species, continue to thrive on earth.





FOR A RESPONSIVE CENTENNIAL PLAN FOR THE PLANET, COUNTRIES, BUSINESSES, COMMUNITIES AND INDIVIDUALS MUST HAVE ACCOUNTABILITY, INCENTIVES AND DATA.

THE ESSENTIAL ENABLERS

To fulfil our ambitious plan, a combination of a top-down and a bottom-up approach is required. To do so, countries, businesses, communities and individuals must have accountability, incentives and data. Ultimately, the questions of who has succeeded and who has failed need to be answered using a measure of progress at all levels.

Accountability: Any long-term goals need to be legally binding. We need to assign inter- and intra-country responsibilities and tasks. Progress needs to be tracked and reported in a clear, consistent and transparent manner. Ultimately, the question of who remains and who exits needs to be answered using a measure of progress at all levels.

Incentives: Tangible, intergenerational incentives (and penalties) are required to ensure that all levels of government, the private sector and civil society continue to protect biodiversity and value ecosystems. This necessitates innovative thinking around the development and distribution of financial and non-financial rewards for good performance. This could include tax incentives, the creation of new asset classes and markets (the lessons from carbon credit markets could be applied here), as well as other revenue-generating mechanisms and financial instruments. The benefits should be varied and distributed to a wide range of active participants to ensure broad-based buy-in, both across and within nations.

Data: To drive accountability and ensure the fair distribution of incentives (and penalties), investment in improving the quantity and quality of data is necessary. This also requires the promotion and protection of civil society. A committed citizenry can contribute to producing useful and accurate data.

LIKELY TIMESCALE

Ultimately, the long-term goals we set for restoring and preserving ecosystems need to be aligned across all the existing shorter-term frameworks. This will help establish a single universal set of goals, generate clearer road maps for delivery, better co-ordinate efforts and reduce compliance and reporting costs for participating entities.



WHAT IF WE ACHIEVED ZERO EMISSIONS?

MISSION ACCOMPLISHED

OPPORTUNITY #27 FROM THE GLOBAL 50 REPORT, 2023 

Technological breakthroughs and unprecedented global collaboration bring greenhouse gas emissions to zero,¹³ restoring ecosystems and creating new ones.

BENEFITS

New and restored ecosystems and biodiversity. Better health and well-being for humans and animals.

RISKS

Unintended consequences of geoengineering solutions. Breakdowns in collaboration. Irreversible acceleration of biodiversity loss.

¹³ Close to zero.



CONTRIBUTOR

LAILA MOSTAFA ABDULLATIF

DIRECTOR GENERAL, EMIRATES NATURE – WWF
UAE

According to the World Economic Forum, \$44tn of economic value – around half of global GDP – is dependent on nature and therefore currently at risk as a result of biodiversity loss and ecosystem degradation.¹⁴ Nature is one of our most powerful allies against climate change. We need to invest at least \$11tn in nature between now and 2050 to limit warming to 1.5°C.¹⁵

The climate crisis and nature loss pose great challenges to humanity. Populations of marine species – an indicator of healthy ecosystems – have declined by nearly 50% since 1970.¹⁶ Climate change is projected to become the biggest driver of biodiversity loss in the decades ahead. Looking at coastal ecosystems as an example, nearly half of the world’s coastal ecosystems have been lost over the past century. They are being degraded at four times the rate of tropical forests.¹⁷

Nature underpins everything, including our climate. Reversing the loss of nature will help us to be successful in addressing climate change. A healthy natural world is essential to build resilience and ensure the well-being of both people and planet. Nature-based solutions not only enhance the resilience of natural blue carbon sinks and coastal ecosystems, they unlock multiple benefits for climate, biodiversity and people.

¹⁴ World Economic Forum (2020) ‘Half of world’s GDP moderately or highly dependent on nature, says new report’.
www.weforum.org/press/2020/01/half-of-world-s-gdp-moderately-or-highly-dependent-on-nature-says-new-report/

¹⁵ United Nations Environment Programme (2022) ‘State of finance for nature 2022’.
www.unep.org/resources/state-finance-nature-2022

¹⁶ WWF (2015) ‘Living Blue Planet Report: Species, habitats and human well-being’.
www.unep.org/resources/report/living-blue-planet-report-species-habitats-and-human-well-being

¹⁷ UNESCO (n.d.) ‘Blue carbon’
www.ioc.unesco.org/en/blue-carbon#:~:text=They%20are%20being%20degraded%20or,lost%20since%20the%2019th%20century
(accessed 15 August 2023)

We need to invest at least

\$11 TN

in nature between now and 2050 to **limit warming to**

1.5°C.



THE ESSENTIAL ENABLERS

Nature-based solutions focus on the protection, restoration and sustainable management of land and ocean ecosystems. They address the twin challenges of nature loss and climate change. They ensure a nature-positive future by enhancing biodiversity and providing essential climate mitigation and adaptation services. Globally, nature-based solutions could provide one-third of the mitigation needed by 2030 to stabilise warming below 2°C.¹⁸

As an example, a flagship five-year nature-based solutions project is being implemented in the UAE as a partnership between the UAE Ministry of Climate Change and Environment, the UAE Ministry of Economy, the Environment Agency Abu Dhabi, the Government of Umm Al Quwain, Emirates Nature–WWF and the UAE International Centre for Biosaline Agriculture (ICBA) with funding from HSBC.¹⁹ It seeks to enhance and restore highly productive and valuable coastal ecosystems in the UAE – including mangrove, salt marsh and sea-grass habitats – thus supporting the national strategic initiative to reach net zero by 2050 and contribute towards protecting 30% of biodiversity by 2030 as part of the 2022 Kunming–Montreal Global Diversity framework.²⁰

The science-based project is being implemented at Khor Faridah in the emirate of Abu Dhabi and Khor Al Beidah in the emirate of Umm Al Qaiwain. It will actively engage with local communities and businesses to create a pipeline of commercially feasible projects in order to encourage investment in blue carbon ecosystems and establish a mechanism to enable the provision of blended financing for nature-based solutions in the UAE.

LIKELY TIMESCALE

Between the UN Convention on Biological Diversity and global net-zero commitments, the likely timescale for nature-based solutions to materialise is 10–30 years with action starting now; this assumes that an effective and quantifiable integration of nature and long-term planning is embedded in local policy and economic decision-making, along with the mobilisation of green finance to cover costs.

¹⁸ Griscom, B.W., Adams, J., Ellis, P.W., Houghton, R.A., Lomax, G., Miteva, D.A., Schlesinger, W.H., Shoch, D., Siikamaki, J.V., Smith, P., Woodbury, P., Zganjar, C., Blackman, A., Campari, J., Conant, R.T., Delgado, C., Elias, P., Gopalakrishna, T., Hamsik, ... Fargione, J. (2017) 'Natural climate solutions'. *Proceedings of the National Academy of Sciences*, 114(44): 11645–50. <https://doi.org/10.1073/pnas.1710465114>

¹⁹ Emirates Nature - WWF (n.d.) 'Nature-based Solutions'. www.emiratesnaturewwf.ae/en/conservation-projects/nature-based-solutions (accessed 26 September 2023)

²⁰ Conference of the Parties to the Convention on Biological Diversity 15/4 (2022) 'Decision adopted by the conference of the parties to the convention on biological diversity'. UN Environment Programme, Convention on Biological Diversity. 19 December. www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf

WHAT IF WE COULD ABSORB GREENHOUSE GAS EMISSIONS AND PARTICULATE MATTER ON DEMAND ANYWHERE IN THE WORLD?

MOBILE SUPER 'SCRUBBERS'

OPPORTUNITY #28 FROM THE GLOBAL 50 REPORT, 2023 

Enabled by materials science, automation and advanced machine intelligence, emissions and particulate matter are absorbed on an as-needed basis, anywhere in the world, independent of technological capabilities available on hand.

BENEFITS

Improved health with reduced air pollution in both local and wider regions. Reduced costs for lower-income countries in mitigating the effects of climate change.

RISKS

Increased dependence on technology. Difficulties using advanced machine intelligence to ensure that technologies (especially mobile or offshore ones) are autonomous yet sufficiently efficient. Misuse of platforms.



CONTRIBUTOR

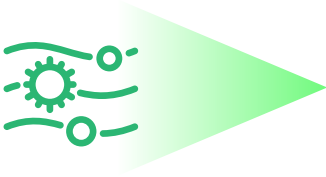
DR DIANA FRANCIS

HEAD OF ENVIRONMENTAL AND GEOPHYSICAL
SCIENCES LAB, KHALIFA UNIVERSITY

UAE

Thanks to advancing climate technologies we may one day have the power to absorb emissions and/or particulate matter on an as-needed basis anywhere in the world. This is a future concept that can improve the environment and public health, especially in megacities where individuals and communities will benefit. When required, this technology can be deployed in urban and industrial areas near to the source of emissions. Pollutants can be captured at source before they disperse over long distances and contaminate the air.





Building a mobile unit that can absorb air pollutants will rely on advanced materials, and detection, monitoring and control technologies which will emerge during the next decade.

THE ESSENTIAL ENABLERS

Proving efficiency is difficult. This is the main challenge related to this opportunity. Air pollution can increase or decrease and move or linger. Any efficiency assessment needs to record how much is removed and how long it takes, and it needs to analyse the cost–benefit ratio of air quality improvement against pollution. The energy and materials used for this technology, as well as the impact on the ecological footprint, should be recorded.

From our research at the Environmental and Geophysical Sciences Lab at Khalifa University in the UAE, a pertinent question arises: do we need to scale up this opportunity in order to be impactful? Removing a certain amount of pollutants within a limited space is almost unnoticeable because the atmosphere redistributes pollution. In the Lab, we investigate the complex problem of atmospheric circulation of pollutants using satellite imagery and numerical models. Our main objective is to isolate the locally produced emissions compared with those that have come from elsewhere. By doing so, we can estimate the emissions and find strategies to reduce them.

Indeed, in order to have a significant impact on air quality, a large-scale pollutant removal process is required. With this technology, it is difficult to scale up and cover large areas. As a result, its impact may be confined to small areas.

Finally, the drawback is the fate of the captured pollutants and gases. What will happen to the captured aerosols and gases? For instance, transforming captured greenhouse gases into solids to prevent them from escaping into the atmosphere again is even more challenging than just capturing them. This opportunity needs to be combined with others in order to provide a holistic approach to aerosol and gas removal/capture and transformation.

LIKELY TIMESCALE

The timescale could be 10 years. Not only is funding an issue but also, for pollutant removal, an ‘air scrubber’ needs to cover large areas. As a result, manufacturing a mobile unit that can absorb air pollutants is not yet feasible. Creating one will rely on advanced materials and detection, monitoring and control technologies which will emerge during the next decade.

WHAT IF REGULATORS COMPETED TO REGULATE?

RAPID RESPONSE REGULATORS

OPPORTUNITY #29 FROM THE GLOBAL 50 REPORT, 2022 

Decentralised, forward-looking regulatory bodies responding with agility to the groups and issues that they govern.

BENEFITS

Better adapted, more widely accepted regulation promoting shared societal goals for growth and prosperity. Reduced regulatory lag for culturally sensitive or divisive issues through more inclusive and rapid consultation processes and decision-making.

RISKS

Increased competition could create a fragmented regulatory landscape, unintentionally creating loopholes for arbitrage.



CONTRIBUTOR

KIRSTIN MORRISON

SENIOR GREEN GROWTH ANALYST,
GLOBAL GREEN GROWTH INSTITUTE

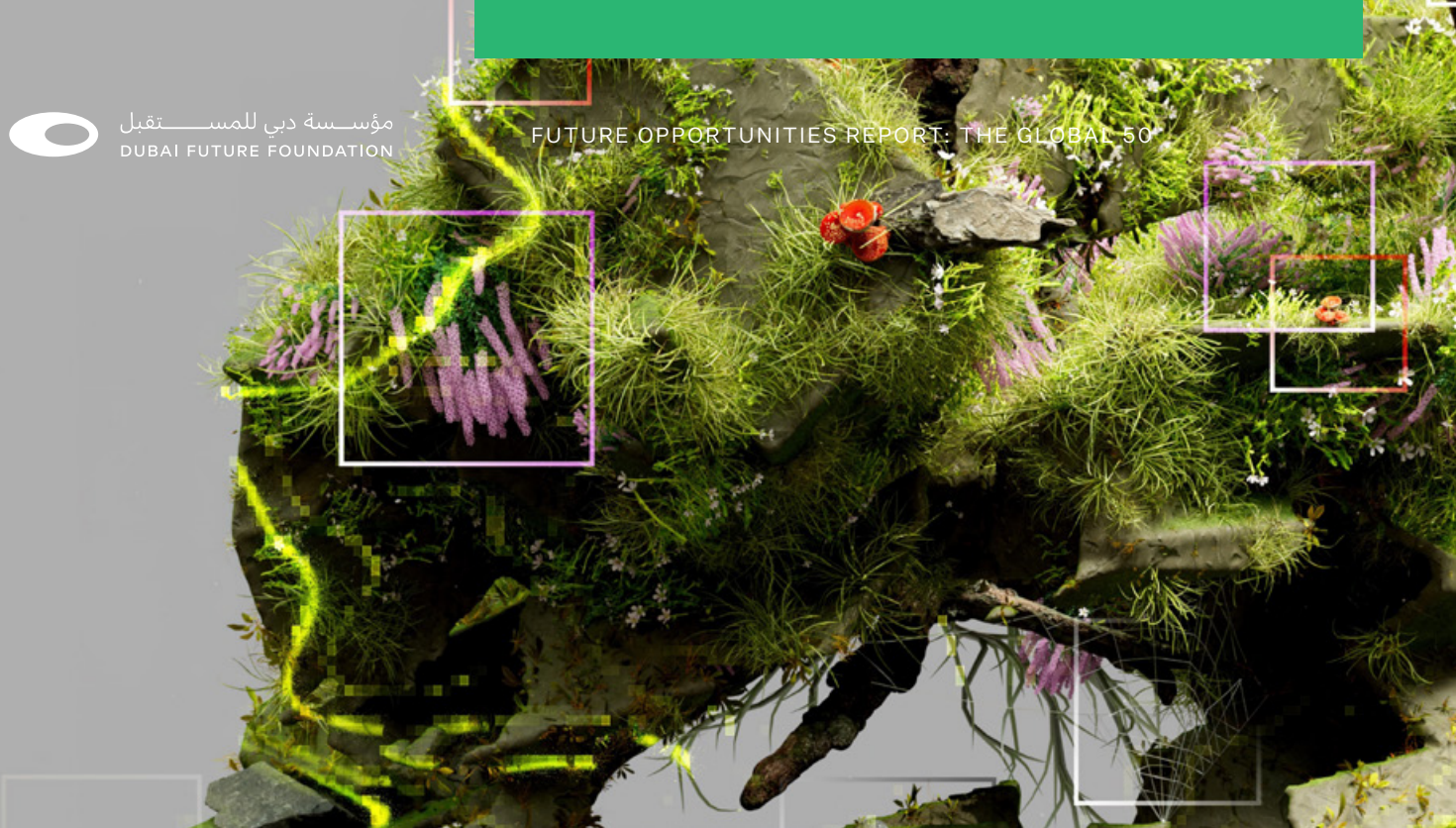
UAE

Our current demands on the natural environment far exceed the earth's capacity to respond to them on a sustainable basis, and the extent to which we have degraded nature has created severe risks and uncertainties for future economies and livelihoods.²¹

In just a few generations, we have developed and invested in technologies and activities that have the ability to alter the biosphere dramatically and which could potentially lead to our extinction. Unfortunately, we have not established the institutions needed to ensure that our engagements with nature are sustainable and welfare-enhancing for both current and future generations. It is vital that we do this urgently. Agile, decentralised, forward-looking regulatory bodies that respond to the groups they govern could play an important role to ensure that nature-related impacts and risks are appropriately incorporated into risk assessments and decision-making processes.

Given the urgent need to address our unbalanced demands on the environment, rapid response regulators could also play an important role in ensuring that new technologies that will help address this imbalance are quickly but thoroughly assessed so that they can be rapidly adopted and, where appropriate, promoted through supportive regulation (e.g. banning old, inefficient, dirty technologies).

²¹ Dasgupta, P. (2021) 'The economics of biodiversity: The Dasgupta review'. HM Treasury. February. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf



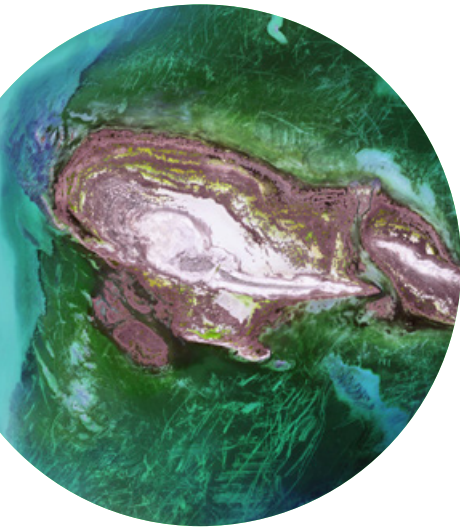
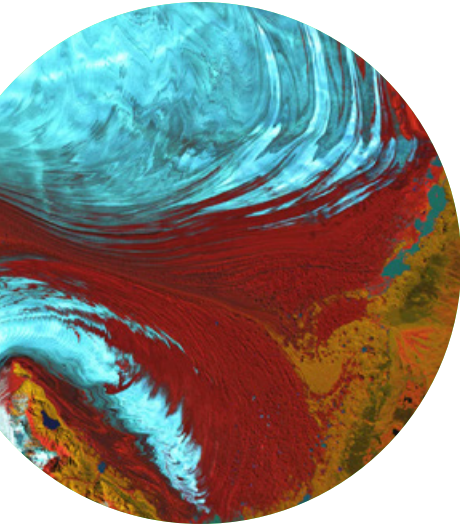
THE ESSENTIAL ENABLERS

Internet of things (IoT)-based environmental monitoring and artificial intelligence (AI) could help rapid response regulators to more swiftly design, develop, monitor and assess regulations and could also help identify and address issues arising from unintended anticipated and unanticipated consequences of new technologies. These could be achieved, for example, by deploying advanced technologies to collect and analyse a wide range of data from a variety of sources to identify and better understand complex interactions between new technologies, society, the economy and the environment that were previously unknown.

Governments will play a key role in enabling, advancing and investing in rapid response regulation and they will need to overcome challenges arising from those with vested interests in maintaining the status quo and resisting regulation: this is not a trivial task and will require many consultations.

LIKELY TIMESCALE

Given the urgent need to address environmental degradation, governments around the world should be seeking ways to better regulate the environmental and social impacts that we are having. If they are willing to invest in the development of rapid response regulators this opportunity could materialise over the next few decades, given the speed at which many technologies are developing.



WHAT IF WE BUILT A DIGITAL CLIMATE CATALOGUE?

THE ULTIMATE CLIMATE CALCULATOR

OPPORTUNITY #19 FROM THE GLOBAL 50 REPORT, 2023

Going beyond the carbon footprint, a digital climate catalogue allows governments, businesses and even individuals to calculate their environmental impact in real time. Fully automated, this valuation system reveals the likely impacts of potential policy and investment choices.

BENEFITS

The possibility of comparable measurements through a common metric and model(s) available to all. Potential to reveal new sources of value and revenue streams.

RISKS

Undervaluation or overvaluation of certain forms of capital in relation to climate impact. Incorrect picture of progress through distorted metrics.



CONTRIBUTOR

PUSHPAM KUMAR

SENIOR ECONOMIC ADVISOR,
UN ENVIRONMENT PROGRAMME

UNITED STATES

Gross domestic product (GDP) has been the primary measure of economic growth for over half a century. It is a trusted guide to the size and health of a country's economy. National offices of statistics put great effort into reporting GDP. Decision-makers know they can rely on the numbers. To monitor the sustainability of the economy and the well-being of people, we need to move beyond the flow approach that is GDP. Instead, we need to use a stock approach to measure wealth, taking into account our consumption of natural resources, along with human and manufactured capital. To estimate the change in the production base, i.e. the change in the inclusive wealth per capita, estimating natural capital at the market price can be extremely unreliable because of various types of externalities.

We need guidance, such as a digital climate catalogue, to allow governments, businesses and even individuals to calculate their environmental impact in real time. This would reveal the probable impacts of potential policy and investment choices on natural capital stock for future generations. Even though, in the post-pandemic world, poverty and inequality are likely to remain challenges, accessible and timely statistics would better uncover connections between natural capital or assets, poverty and inequality and improve the ability of nations to deliver on the 2030 Sustainable Development Goals.²²

²² UNEP (2020) 'For people and planet: the United Nations Environment Programme strategy for 2022–2025 to tackle climate change, loss of nature and pollution'. United Nations Environment Assembly of the United Nations Environment Programme, Fifth Session. 11 November. <https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/35020/Doc3K2002524.pdf>



THE ESSENTIAL ENABLERS

The valuation of natural capital requires policies that translate to sustainable consumption and production. This view is echoed by the UN Secretary-General's Common Agenda,²³ which clearly outlines the need to move beyond GDP as the central measure of national progress.

Another enabler is the inclusion as part of natural capital of impact measures, such as the damage done by greenhouse gases, through appropriate accounting prices. This would enable the decision-makers to capture the source of wealth decline and provide a rationale for investment in combating climate change and restoring ecosystems. The estimation of natural capital would also help to resolve trade-offs in decisions on economic growth and recovery in the post-pandemic era.

LIKELY TIMESCALE

The timescale for this opportunity is hard to predict because it relies on advances in technology and the ability to simultaneously pick up data and analyse it in real-time.

²³ United Nations (2021) 'Our common agenda: Report of the Secretary-General'. www.un.org/en/common-agenda



A DIGITAL CLIMATE CATALOGUE WOULD ALLOW GOVERNMENTS, BUSINESSES AND EVEN INDIVIDUALS TO CALCULATE THEIR ENVIRONMENTAL IMPACT IN REAL TIME.

WHAT IF WE REPURPOSED OIL RIGS?

UNSTRANDED ASSETS

OPPORTUNITY #2 FROM THE GLOBAL 50 REPORT, 2022 

Abandoned oil and gas facilities, both offshore and onshore, can be repurposed for carbon sequestration to reduce both carbon dioxide and methane in the atmosphere.

BENEFITS

By reducing atmospheric carbon levels, these solutions can help lessen the environmental, economic and social impacts of climate change.

RISKS

Risks include carbon dioxide leaks, seismic activity as carbon dioxide is being injected, acidification from deep ocean storage and physical or cyber-attacks on critical systems and storage facilities.



CONTRIBUTOR

JESSICA ROBINSON

EY-PARTHENON,

MENA SUSTAINABLE FINANCE LEADER

UAE

THE PRIORITY IS TO ENSURE THAT FINANCING IS AVAILABLE TO ALL COMPANIES FOR THE CLIMATE TRANSITION.

Our worldwide climate goals are ambitious. They require us to think creatively, in particular to embrace what this shift means for the global economy. Transitioning is not simply about moving away from traditional sources of energy: transition is about rethinking the status quo and adopting new ways of working.

It is an opportunity to use capital in whatever way needed to drive fundamental change in the economy, supporting collective climate action, adaptation and resilience. Part of this will be repurposing old assets and infrastructure, which are increasingly stranded – assets that have lost their monetary value in this new market but can be transitioned to provide value in the future.

THE ESSENTIAL ENABLERS

Transition financing is a key enabler. Now that most financial institutions understand the concept, there are many opportunities emerging with the transition. Every dollar invested will have a sustainability component and will be offered to high-carbon companies moving towards climate-neutral or even positive status. The priority is to ensure that financing is available to all companies for the transition.

We find that many existing assets can contribute to climate-resilient infrastructure and carbon sequestration technologies. This is an opportunity for the financial sector to play a role in supporting these companies to repurpose assets that can become aligned with our climate-resilient future. This means that financiers will have to innovate. They need to design financial instruments that drive adaptation, which can result in a win-win for all parties, as well as accelerating the transition we are aiming for.

LIKELY TIMESCALE

With so much variability in technologies and existing assets, as well as challenges in economies of scale, timescales can be challenging to estimate. This is why – from a financing perspective – it is important to look across the broad spectrum of financial instruments that can be used. Timescales will also depend on the initial capital injection needed and the payback periods as well as the risk/return profile. For example, in instances where repurposing an asset is both fairly simple and yet also quite impactful, we would look to concessional loans, which may be easier and quicker to structure would run over a few years. More broadly, given the urgency of the need for transition financing, financial instruments that work over a three- to five-year period and can scale accordingly are likely to work well.

Given the urgency of the need for transition financing, it is **important to look across the broad spectrum of financial instruments** that can be used.



WHAT IF AGRICULTURE CUT ITS DEPENDENCE ON WATER?

WATERLESS FARMS

OPPORTUNITY #29 FROM THE GLOBAL 50 REPORT, 2023 

Advances in nanotechnology enable the delivery of micronutrients and pesticides through spray coatings that boost yields, safely protecting agriculture from pests and reducing the need for excessive watering.

BENEFITS

Reduced need for water in agriculture. Avoidance of synthetic pesticides. Reduced waste.

RISKS

Health risks if nanotechnology (more generally) and coatings (more specifically) are not tested prior to use, particularly on food.



CONTRIBUTOR

DR SAEED ALHASSAN ALKHAZRAJI

FOUNDER, MANHAT

UAE

Crops require water, carbon dioxide (CO₂) and a plethora of nutrients that allow them to grow and reproduce. Nutrients are delivered to plants through their roots with water, while CO₂ is absorbed from the atmosphere through leaves. Recent advances in hydroponics and aeroponics have amended this approach to minimise nutrient loss and water usage while keeping production rates the same. Thus, any new technology that can serve this purpose of delivering water and nutrients to plants is a welcome opportunity. Advanced coatings based on nanotechnology could be one option of achieving this result.



THE ESSENTIAL ENABLERS

For such an opportunity, there are several factors to consider for wide-scale adoption. First, more testing on a broader spectrum of crops is required to establish baselines for each crop. Second, the manufacturing cost needs to be addressed so that it is competitive because the technology is closely related to ‘drug delivery’ technologies. Third, life-cycle assessment of the technology should be carried out to establish it as a circular technology from the very beginning and avoid linear economic pitfalls.

Technologies in general are not created in a vacuum: a variety of factors play a role in bringing a new technology to the market. In terms of nanotechnology, there are established themes of how to maximise the benefits of this technology, revolving around policy, economics and people. Policymakers need to stay informed about the advantages and disadvantages of nanotechnology from both the technological and safety points of view. Economically, the market would dictate the applicability and adaptation of such new technology in farming. Finally, people are usually sceptical about new technology and it will take time before such technology is accepted.

Coatings as a method of delivering water and nutrients to plants is an interesting approach with high potential. If the technology manages to use only bio-based materials, it will be adopted much more rapidly than one that uses inorganic components.

LIKELY TIMESCALE

The horizon for this technology is probably relatively short – three to five years – mainly because of the need for the adoption of new technology in the agricultural domain. The need to use newer and more efficient technologies in this sector is directly linked to climate change and its current impact on food security.

ACKNOWLEDGEMENTS

This special edition of the Global 50 was led by **Dr Heba Chehade of the Dubai Future Foundation's Research** team. The Dubai Future Foundation produces insights and foresight reports using evidence-based analysis and imagination that enable stakeholders to anticipate and better navigate the future. Our publications can be found at www.dubaifuture.ae/insights/.

We wish to acknowledge all contributors for their time and expertise. In addition, we wish to acknowledge the following contributors:

Brian Jenner – Editor
Cathryn Primrose-Mathisen – Editor
Chris Shaw – Copy Editor
Ehab Khattab – Dubai Future Foundation
Feras Sobh – Dubai Future Foundation
Tanwin Translation and Creative Writing

and the support of the **UAE COP28 team**.

ABOUT THE DUBAI FUTURE FOUNDATION

Dubai Future Foundation aims to realise the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, for the future of Dubai and consolidate its global status as a leading city of the future. In partnership with government entities, international companies, start-ups and entrepreneurs in the UAE and around the world, Dubai Future Foundation drives joint efforts to collectively imagine, design and execute the future of Dubai.

Under the supervision and with the support of His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai, Chairman of the Executive Council of Dubai and Chairman of the Board of Trustees of Dubai Future Foundation, DFF works on a three-pronged strategy: imagine, design and execute the future. It does this through developing and launching national and global programmes and initiatives, preparing plans and strategies for the future, issuing foresight reports and supporting innovative and qualitative projects. These contribute to positioning Dubai as a global capital for the development and adoption of the latest innovative solutions and practices to serve humanity.

Dubai Future Foundation focuses on identifying the most prominent challenges facing cities, communities and sectors in the future and transforming them into promising growth opportunities by collecting and analysing data, studying global trends and keeping pace with and preparing for rapid changes. It is also looking at future sectors, their integration and the reshaping of current industries.

Dubai Future Foundation oversees many pioneering projects and initiatives, such as the Museum of the Future, Area 2071, The Centre for the Fourth Industrial Revolution UAE, Dubai Future Accelerators, One Million Arab Coders, Dubai Future District, Dubai Future Solutions, Dubai Future Forum and Dubai Metaverse Assembly. Its many knowledge initiatives and future design centres contribute to building specialised local talents for future requirements and empowering them with the necessary skills to contribute to the sustainable development of Dubai.

 dubaifuture.ae

 research@dubaifuture.gov.ae

 [@dubaifuture](https://www.instagram.com/dubaifuture)

ABOUT COP28

COP28 UAE is a milestone opportunity for the world to come together, course correct, and drive progress. We need everyone to be more ambitious in the fight against climate change to meet the goals and ambition of the Paris Agreement. COP28 will emphasise a 'leave no one behind' approach to climate action. Underscoring all efforts are the principles of transformation, solidarity, pragmatism, and inclusivity. The world needs a COP of action and a COP for all.

By hosting COP28, the UAE is focusing on practical and positive solutions that drive progress for the climate and the economy, as well as provide relief and support to vulnerable communities. The UAE intends to make COP28 highly inclusive, reflecting the views of all geographies, sectors, and constituencies.

As hosts, the UAE has undertaken a two-year leadership role anchored by the 2023 global climate summit in the middle. The UAE has the role of incoming presidency in the year leading up to the two-week conference and assumes the official presidency from the first day of the conference until passing the baton again one year later to the next hosts.

COP28 UAE will take place from 30 November to 12 December 2023 at Expo City, Dubai, in the United Arab Emirates.



DISCLAIMER

The special edition of **The Global 50** (the Report) includes diverse views and opinions from various contributors. It has been prepared for informational, educational and guidance purposes and includes several future directions based on studies and research that should not be considered as professional advice or relied upon for decision-making. Readers and viewers are encouraged to conduct their own research and seek professional advice where appropriate.

Dubai Future Foundation disclaims any responsibility for the accuracy, completeness or reliability of the information presented in the Report. The affiliations and/or views expressed by the contributors are their own and do not necessarily reflect the views or opinions of the Government of Dubai, Dubai Future Foundation or any of its partners involved in the production of the Report. Furthermore, Dubai Future Foundation does not endorse any specific views or opinions expressed by the contributors. Dubai Future Foundation makes no warranties or representations, either expressed or implied, regarding the content's correctness, fitness for a particular purpose or non-infringement of third-party rights. This report is provided in English as the authoritative and operative version. Any Arabic translation included herein is solely for convenience. While efforts have been made to ensure accuracy, the English version shall prevail in case of any discrepancies or inconsistencies between the two translations.



مؤسسة دبي للمستقبل
DUBAI FUTURE FOUNDATION



COP28
UAE