

BUILDING TO COP28: AN INCLUSIVE APPROACH TO UNIFIED GLOBAL CLIMATE ACTION



Hosted by

Roundtables – New York

MASDAR 

Climate action through collaboration

Over the last two decades, Masdar – a pioneer in advancing the clean energy sector and a key enabler of the UAE’s vision as a global leader in sustainability and climate action – has helped to drive global clean energy growth. Through this core mission, Abu Dhabi Sustainability Week (ADSW) has evolved into a global initiative for all who have a stake in the future of our planet – strengthening international collaboration, providing a platform for all, and facilitating cross-sector partnerships to accelerate climate action.

Drawing on this legacy, ADSW engaged an international community of experts and sustainability advocates alongside Climate Week NYC and the UN General Assembly in the build up to COP28. Through a series of timely and relevant roundtable conversations, stakeholders from business, government, academia, and civil society came together to discuss ways to accelerate climate action and share best-practice examples of what is already happening from across the globe.

Stories illustrating successful partnership frameworks that reflect the interconnectedness of climate change’s impact were the focus of one roundtable. Those discussions that centered on partnership carried over into a roundtable on how to sustainably bring food from farm to table. Finally, a third conversation on the global clean hydrogen economy discussed how green hydrogen can achieve its potential in transforming our energy systems, with standards, certification, and infrastructure in place to enable its growth.

This report also includes key takeaways to generate positive climate action – captured from the engaging conversations of the three roundtables.

I would like to take the opportunity to thank all participants for enabling these successful conversations during Climate Week NYC. Together, these conversations will feed into those that come out of COP28, laying ahead a broader path towards addressing the world’s sustainability challenges.



**Mohamed Jameel
Al Ramahi**

Chief Executive Officer
Masdar



3

**DRIVING CLIMATE
ACTION THROUGH
PARTNERSHIPS AND
INNOVATION**

19 SEPTEMBER 2023



20

**SCALING ACCESS
TO FINANCE FOR
FOOD SYSTEMS
TRANSFORMATION**

20 SEPTEMBER 2023



38

**FACILITATING
PROGRESS TOWARDS
A CLEAN HYDROGEN
ECONOMY**

20 SEPTEMBER 2023

ADSW ROUNDTABLE

DRIVING CLIMATE ACTION THROUGH PARTNERSHIPS AND INNOVATION

19 SEPTEMBER 2023



Innovative partnerships and finance can drive a just transformation

Innovative partnerships, financial solutions, and technological applications make possible climate action that is inclusive and sustainable. In the run-up to the 2023 United Nations Climate Change Conference, or COP28, to be held in the United Arab Emirates in November-December 2023, which is being [labelled](#) “a COP for action, a COP for all,” the criticality of effective climate action has made it imperative to examine and apply best practice to the most pressing issues facing our planet.

A comprehensive climate action plan has been [outlined](#): its four pillars focus on fast-tracking the transition, addressing climate finance, adapting to protect lives and livelihoods, and ensuring inclusivity across the spectrum. Establishing meaningful collaborations is essential for transforming business models, shifting mindsets, and shaping innovative financial frameworks and policies.

With the objective of identifying what makes partnerships effective and how lessons from these can be applied in other contexts, Abu Dhabi Sustainability Week hosted an exclusive roundtable during Climate Week New York 2023. Titled ‘Building to COP28: Driving Climate Action through Partnerships and Innovation’, the roundtable convened stakeholders from government, business, academia, and civil society to delineate



partnerships that truly disrupt current economic models, with innovation to achieve sustainable economic development.

Building on the themes of circular economy, energy transition, and finance, this session discussed how COP28 can serve as a medium to accelerate the transition towards a new low-carbon and sustainable economic model in a transformational and just manner.

During the session, participants were divided into three working groups to discuss objectives, innovations, and barriers related to climate action across various sectors. The groups centered their conversations around the themes of Technology and Innovation; Finance and Scaling, and Skills, Access, and Inclusion.

Participants discussed three types of partnerships, innovations, and initiatives, outlining their objectives and

frameworks. At the same time, they deliberated on the barriers to achieving those objectives and goals, and how to overcome them - keeping in mind the urgency for climate action and the imperative to bring the private sector into the equation.

The insights shared during the session reaffirm that partnerships, financing, and inclusive innovation across the public, private, and social sectors are integral to driving meaningful climate progress towards net zero. During the session, a ‘marketplace of solutions’ was set up to encourage participants to share their challenges and initiatives and seek support from all attending organizations. Some of these interactions resulted in immediate collaborations on-site, demonstrating the clear and tangible opportunities for partnership that such initiatives offer.

The reach of technology and innovation impacts their outcomes

The interconnectedness of climate issues spans sectors as well as countries and regions. Solutions can be more impactful if they involve multi-stakeholder partnerships that also include the communities for which the solutions are developed

The **interconnectedness** of the impact of climate change across sectors has become more and more visible. Participants discussed the innovation space and the interlinkages between different disciplines—for instance, the health outcomes from rising temperatures and extreme weather events.

Health [research](#) has emphasized that the nature and timeliness of global response to climate change will shape the **health of nations** in future. Identifying precise **digital biomarkers** of climate-driven health impacts relies on interconnected knowledge sharing. This [encompasses](#) public health, veterinary work, agricultural health, and environmental monitoring. Building resilience among communities empowers them to effectively deal with climate change by applying solutions that work in the local context. In this context, participants said **targeted innovations that solve specific pain points** and needs would prove most impactful.

Equity must be central to new **multi-stakeholder partnerships** along value chains, and the benefits of innovation and technology must be shared fairly among all partners, including communities. Africa's vaccine dependence during the COVID-19 pandemic is one such example. RNA vaccines have emerged as game-changers because of the ease and relatively low cost of implementing their rollout. Scalable **mRNA vaccine production in Africa** has begun with BioNTech [building](#) a manufacturing facility for the production of mRNA-based drugs and product candidates in Rwanda. In October 2023, the Bill and Melinda Gates Foundation [awarded](#) US\$ 40 million to scale up local mRNA vaccine manufacturing adapted to the local context. Synthetic biology is already producing [products](#) like oils, biological nitrogen fertilizer, and polyimide films (with applications in fields like aerospace, energy, medicine, and electronics).

This interconnectedness is visible across disciplines as [research](#) discusses the **water-energy-food nexus**. Access to clean energy may be compromised by a lack of access to clean [water](#). Technological solutions, whether new or existing, and their application – often innovative – hinges on multiple partners or stakeholders finding pathways to work together.

While batteries are seen as a key solution to the problem of electricity access in Sub-Saharan Africa, which has an electrification rate of just 48.2 percent, they are expensive and complicated to maintain and have a significantly negative environmental impact. [Examples](#) of innovation here enable a **circular economy**, which turns **battery e-waste into e-resources**. The Global Energy Storage Program ([ESP](#)) is an example of an international partnership between the World Bank and 43 other entities, which fosters international technological cooperation and training to develop and adapt to new energy

40_m

U.S. dollars were awarded by the Bill and Melinda Gates Foundation to scale up mRNA vaccine production adapted to the local context



storage solutions tailored to the needs and conditions of developing countries. Transitioning to circular economies is imperative for reducing waste and minimizing the environmental footprint.

The main **barriers** to implementing effective innovation are around finance, standards and regulation, credibility, skills, and public policy. Identifying new opportunities in technology and innovation requires creating spaces for **open dialog** between innovators, consumers, and sustainability experts. These spaces will help further capacity-building efforts and ensure that **local perspectives** are heard. Extensive collaboration and creative partnerships across industries and supply chains will be essential to overcoming these hurdles, and governments can help incentivize circularity through robust and creative regulatory frameworks and policies.

Demand-led innovation emerged as a solution that involves reaching those who need solutions so that the right type of innovation can be applied, along with tailored solutions to scale and finance. One of the ways to do this is to address the value chain as a whole to solve the problems across it. Business-model innovation, process integration of solutions, and technologies and innovations can be made possible using technology. Partnerships that bring different parts of the world together are important, participants said.

While large projects continue to drive huge returns for big investors, funding needs to be inclusive and ready to bear the risk of technology in progress



Effective funding vehicles help accelerate the time taken to refine the investment decision and apply the benefits to multiple projects across the value chain

Identifying and supporting innovation is best done via multi-stakeholder partnerships. Effective funding vehicles help accelerate the time taken to refine the investment decision and apply the benefits to multiple projects across the value chain. Partnerships that bring together business leaders, technical experts, policymakers, and communities can prove to be effective.

Multi-lateral organizations such as the Global Green Growth Institute are testament to what **collaborative action** can achieve. The GGGI, initially founded as an NGO, in fact became an intergovernmental organization in 2012 with the UAE as one of its founding partners. Today, it counts 47 countries as members and runs operations in as many countries focused on supporting and accelerating the transition to a green economy.

Financing innovation is a crucial topic. Participants spoke of the importance of **accelerating scale** through different kinds of partnerships. Brookfield Renewables was cited as one of the examples of creating an infrastructure funding partnership to accelerate scale-up. The [commitment](#) of US\$ 500 million towards Carbon Capture and Transformation (CCT) projects that have

achieved certain pre-agreed milestones makes it viable for their partner, LanzaTech, to bring projects to them instead of project developers having to seek funding.

Evidence shows that top **leadership's commitment** to technological innovation and climate action is one of the first steps to realizing net-zero goals. This commitment translates into **strategic action**. The UAE, where [2023](#) is being celebrated as the Year of Sustainability, was one of the first to embrace a National Net Zero Strategy. UAE Net Zero by [2050](#) Strategic Initiative, a national drive to achieve net-zero emissions by 2050, makes it the first Middle East and North Africa (MENA) nation to do so. It is counted among the top countries in terms of renewable energy investment per capita.

Knowledge transfer, capacity-building, and partnerships are crucial to the climate change discussion, especially in the context of new technologies and energy use. While technology and innovation can mitigate climate change with sustainable practices, the process of **technology transfer** may require large-scale systems, infrastructure investment, and skillsets that may not be immediately available in the parts of the world that need them the most. In this context, local technology entrepreneurs and innovators can benefit from finance and scaling.

Scaling can make a difference when passing on the gains of technology, as is evident from India's expanded market for LED domestic lighting and street lighting, for example. The project also provides the expertise necessary to **pilot new technologies** such as energy-efficient ceiling fans, tri-generation technologies, and smart meters. Bringing efficiency at optimum cost was [possible](#) due to scale at the Indian public-private venture Energy Efficiency Services, set up in 2009, backed by the Global Environment Facility. Demand aggregation was used to buy the bulbs in large quantities and reduce the cost for consumers to make it cheaper and greener than compact fluorescent bulbs. The consumers saw savings while buying the bulbs and in electricity consumption, without relying on subsidies.



Knowledge transfer, capacity-building, and partnerships are crucial to the climate change discussion, especially in the context of new technologies and energy use

Finance and scaling need a long-term view to impact the last mile

Availability of financing for climate solutions has always been a challenge as non-developmental funding continues to view such financing through the perception of a traditional short-term risk-return lens

The conversation on climate finance must reflect the [figure](#) of **US\$ 2.4 trillion** that would be needed every year to address climate change in the developing world. A [report](#) by the Independent High Level Group on Climate Finance has said that the failure of developed countries to deliver the **climate finance commitment** of US\$ 100 billion per year by 2020 has damaged trust and undermined actions. The 2022 assessment of delivery plans shows that the commitment will be met only in 2023, three years after the target date. This too has been a result of increased financing from the multilateral development banks (MDBs). The conversation needs to shift from US\$ 100 billion per year to US\$ 2.4 trillion, participants said.

Anticipating the Global Stocktake at COP28 in November-December 2023, participants spoke of the abysmal report card on climate action. The impact of delayed or absent funding is borne by millions of **climate refugees**. Data show that more than 70 percent of the world's refugees and internally displaced people come from the most **climate-vulnerable countries**. The climate [summit](#) will dedicate a day to Relief, Recovery, and Peace as part of its two-week thematic agenda to discuss ways to support vulnerable communities while building resilience and recovery.

There is an urgent need to step up and accelerate the implementation of net-zero goals. However, the recognition that financing is not going to come from government or public funding is the first step to finding reliable funding sources. The need for **public-private partnerships** and institutional finance has never been greater, participants said.

Another example is a US\$ 70 million [fund](#) of funds launched by the United States and Norway in September 2023. The fund will invest in funds focused on agriculture and small businesses in Africa, aiming to reach a total of US\$ 200 million through additional contributions from donors. The fund aims to catalyze commercial financing by reducing the risk of investing, particularly in the agriculture sector. These examples of funding constructs can bridge the gap between **perceived risk and real risk** among investors.

As an example, the meeting heard about Principles for Net-Zero Financing & Investment [published](#) by the U.S. Department of the Treasury on September 19, 2023. The voluntary principles highlight **emerging best practice** for private sector financial institutions that have made net-zero commitments and promote consistency and credibility in their approaches to implementing them, including the financing, investment, and advisory services the institution provides to clients and portfolio companies. The principles bring together the idea that **fiduciary duty is climate duty**, participants said.

200_m

U.S. dollars aim to be invested by a U.S.-Norway fund in African agriculture and SMEs



Participants also focused on value capture. In the context of climate financing, **land value capture (LVC)** provides the mechanisms to correlate public investment on climate to increases in land value, while providing opportunities to sustainably finance urban climate investment.

The meeting also deliberated on the **role of small and medium enterprises**, especially in regions such as Africa, where small businesses drive the economy. One of the examples shared was that of boilers designed to use piped natural gas instead of coal; making them not only cheaper but also more sustainable. It is essential for finance to be accessible to these businesses. Climate financing tends to be long-term and hence needs clarity in policy. At the same time, the cost of finance must be appropriate to the solution. One of the ways is to use aid funding as insurance for investment opportunities, particularly in the long-term context.

The roundtable also addressed the **need to incentivize environmental protection**. Under current business models, not only is there no price on nature, it is in fact profitable to destroy nature. **Not treating emissions as an externality** is part of a circular economy approach.

Participants discussed the need for a **radical mindset change** in several sectors. For instance, insurance can be prohibitive for different types of scale-up technologies, especially for a first-of-a-kind project. These can be de-risked by having an entire value chain

The recognition that financing is not going to come from government or public funding is the first step to finding reliable funding sources; the need for PPPs and institutional finance has never been greater

approach, where some segments can mitigate the risk of others. Insurance can help **unlock and de-risk investments**.

Participants also discussed the importance of investing across the value chain, instead of focusing on one piece. Financing that covers the entire value chain from production to processing to warehousing to logistics to consumption is more likely to find returns on investment. This requires a **coordinated systemic view**. In Nigeria's agriculture sector, for instance, intelligent financing can resolve the problem of a country having to import over 90 percent of its fruit even while produce is seen rotting by the roadside. Investments in last-mile infrastructure, by creating [CropBanks](#), have helped tackle food waste and strengthen farming communities, with the larger impact of transforming the sector.

The third aspect addresses government **policy alignment with investments**. Technical committees are valuable tools in this because they would allow government investment plans to be informed by investible opportunities. Participants spoke of missed opportunities with examples from carbon credits because of lack of awareness of how to calculate the correct returns.

Policymaking plays a pivotal role in enabling climate finance to be deployed efficiently and at scale. Government investment plans that incorporate sustainability incentivize both public and private capital allocation toward climate initiatives. Meanwhile, **aid and grants can provide a safety net** to catalyze private investment into uncertain environments.

For it to be effective in delivering climate action, there is a need for **cheaper, longer-term, and more accessible finance**. Leveraging the limited amount of public capital, whether it is aid funds, MDB funds, or funds from regional development banks (RDBs), project financing can be used for macro risk insurance to enable long-term contracts.

>20%

U.S. dollar returns can be had from investments in African infrastructure



Participants spoke of reconciling the investment community's priority to have returns within a five- to seven-year horizon with the 25-year timeframe that the planet needs. Long-term financial commitments from both public and private institutions are imperative to effectively address climate change. However, **short-term thinking** has plagued past efforts – new financing mechanisms, regulatory frameworks, and partnerships are urgently needed to secure consistent and equitable funding over time frames of 10, 20, 30 years and beyond.

In another innovative example, the [Indonesian](#) rubber industry witnessed the issuance of a US\$ 95 million Sustainability Bond to finance sustainable natural rubber plantation to combat deforestation and create 16,000 new fair-wage jobs. The bond presented a novel way to unlock private finance to support the Sustainable Development Agenda.

Participants agreed that climate **finance is expensive**. However, they pointed to the availability of cheaper capital being funneled into other sectors, including subsidies for non-regenerative agriculture, and the ways by which policy can ensure that climate finance becomes less expensive. The meeting also discussed the role of **currency exchange** costs in financing. Using local currency to make investments enables better management of repayment risk of the foreign currency. Participants cited examples of Africa where local currency is used to fund infrastructure.

The meeting also discussed the need to push back against the perception of risk among investors, a perception that may arise from incomplete information about certain regions considered risky. Before the concept of microfinance took off, it faced a similar perception that “poor people can't pay back.” In fact, microfinance enjoys a repayment [rate](#) of 95 percent to 99 percent.

Comprehensive **risk mitigation strategies and incentives** are vital when attracting greater investment into climate initiatives. By reducing the perceived technological, policy, and financial risks associated with novel sustainability projects, these can be made substantially more appealing to potential investors and partners across sectors.

An example of a sustainable long-term approach is AFC's focus on building infrastructure in Africa. [AFC](#) has estimated that investments in African infrastructure projects from construction through to maturity could target U.S. dollar returns of more than 20 percent. Outlining the opportunity, AFC compares this to investing when projects are operational, which brings U.S. dollar returns in the low-to-mid teens. The Infrastructure Climate Resilient Fund (ICRF) aims to **climate-proof** Africa's infrastructure for planning, design, development, construction, and operation of infrastructure assets. In March 2023, it [secured](#) a US\$ 253 million commitment from the Green Climate Fund.

This bridges the infrastructure gap, while creating systems that are more resilient for the future. Investing more now will protect the projects in future. While institutional capital bears the excess, commercial capital is allowed to recoup their investments first. This **blended finance** is suitable for the project and more attractive to commercial capital.

For it to be effective in delivering climate action, there is a need for cheaper, longer-term, and more accessible finance

Skills, access, and inclusion can build capacities in all communities

Developing diverse cohorts of empowered climate action leaders, especially in the countries and regions most impacted by climate change, can be achieved by effectively sharing data, insight, and success stories across communities

Effective climate action is not only about energy transition. It hinges on everyone being able to contribute. This can happen only if the question of food security is addressed, and **green jobs** are made available for people who might otherwise become climate refugees. Participants discussed capacity-building for stakeholders, with a focus on youth and women in all regions and countries, crucial for creating diverse cohorts of empowered climate leaders.

Expanded education, training, and equal access to opportunities in areas like clean energy and carbon markets can activate new change agents. The example of Youth 4 Sustainability ([Y4S](#)), a Masdar global initiative that empowers the next generation of **sustainability leaders**, was cited in this regard. Y4S aims to reach one million young people by 2030 through a blended learning experience. It also aims to create awareness of the skills needed for future jobs in sustainability. Its reach on social media and in-person workshops and activities is more than half a million, including 650 graduates from the Sustainability Ambassadors and Future Sustainability Leaders programs.

Tackling Sustainable Development Goals (SDGs) in silos is no longer sufficient. Solutions require a comprehensive systemic approach across multiple SDGs and sectors, moving beyond incremental efforts. Multi-sector and multi-disciplinary coalitions built around interconnected SDGs can support these efforts. Water innovation came up as an example. More than a [quarter](#) of the world population lacks access to safely managed drinking water services within their premises, available when needed, and free from contamination. The solution lies in flexible governance models, data sharing for effective monitoring, and funding technical innovation in the field.

Data disaggregation is crucial, as is collecting data and building transparency through the value chain. Relying on satellites for background data on the many [variables](#) of climate change, including agriculture, and city mapping can help. Increasingly, there are satellites that can monitor and measure specific greenhouse gas emissions. An emergent group of companies have developed remote sensing and imaging capabilities in this area. Being able to connect commercial, public sector, and non-profit use cases to their new capabilities is essential.

>75%

of global wealth is owned by the richest 10% while the poorest 50% own 2%

Job loss due to climate change and technological shifts is threatening livelihoods across the world. Systemic inequality needs to be tackled. A report by the Business Commission to Tackle Inequality (BCTI), a cross-sector, multi-stakeholder coalition of leaders and their organizations convened by the World Business Council for Sustainable Development (WBCSD), reveals startling [statistics](#) that lay bare the reality of the levels of inequality that need to be addressed. For example, the top 10 percent of earners



receive 52 percent of total global salaries, while the lowest-paid 50 percent receive just 8.5 percent. The richest 10 percent of the world's population own over three-quarters of all wealth, while the poorest 50 percent own 2 percent.

Climate action solutions and policies need to be **inclusive and tailored**, with input from community stakeholders who have a deep understanding of the local context. Deploying solutions at appropriate scale and with appreciation for cultural nuances and sensitivities goes a long way to ensure equity and impact.

Building resilient communities means fostering **self-reliance by capacity-building**. Participants cited the [example](#) helping Africa's largest rice producers and rice importers, such as Senegal, to become self-sufficient in rice. The optimum outcome for this would be that the country exports the surplus to the Middle East, thereby contributing to food security in both regions. The proposals to be presented at COP28 include those that align with the agenda of supporting jobs, food security, and building innovative partnerships between countries and regions.

Procuring fair carbon credits directly from the producer can be empowering. Transparency and fair evaluation of carbon credits

Climate action solutions and policies need to be inclusive and tailored, with input from community stakeholders who have a deep understanding of the local context

can help reach their gains to the poor. [Examples](#) have shown that top-down climate financing and distribution of carbon credits can hurt livelihoods and distort local markets. The lack of information regarding carbon credits needs to be addressed so that those entering into long-term agreements have a clear understanding of what they entail. Building awareness about carbon emissions trading systems can build capacities among diverse stakeholders. An example is the organization of capacity-building workshops to discuss the various aspects and effects of a recently enacted energy conservation [law](#) in India.

The larger context for this is identifying **unintended consequences**, using systems thinking and dynamics. Going big is not always the best solution, participants said, emphasizing that it is important to identify the appropriate scale and replicability for each innovation as opposed to just going big.

Also important is to counter climate anxiety, which can lead to a prevailing sense of paralysis. Media initiatives such as [TIMECO2](#) help amplify the good, while connecting industry leaders, climate experts, and innovators to share their stories of what works and what doesn't. Finding **stories of climate action** that may lead to repeatable, copyable action is part of converting awareness into action.

The proposals to be presented at COP28 include those that align with the agenda of supporting jobs, food security, and building innovative partnerships between countries and regions



KEY OUTCOMES

The role of partnerships – the approaches that work best, the need to outline roles, and define outcomes so that objectives are met – has been discussed before. This roundtable takes the discussion forward by illustrative examples of partnership frameworks in technology innovation, knowledge transfer and inclusion, along with financing and scaling. At the same time, participants shared information about their roles in driving action toward climate goals, and the expertise they have. This was done to create pathways for innovative partnerships at the forum of diverse participants.

1

Address interconnectedness of climate change

The interconnectedness of the impact of climate change requires multi-stakeholder partnerships along value chains. Research on these includes the water-energy-food nexus, which requires cross-sector innovation.

2

A circular economy is equitable

The benefits of innovation and technology must be shared fairly among all partners, including communities. Transitioning to circular economies is imperative for reducing waste and minimizing the environmental footprint.

3

Empower innovation

Barriers to implementing effective innovation are around finance, standards and regulation, skills, and public policy. Create spaces for open dialog between innovators, consumers, and sustainability experts.

4

Develop specific local solutions

Demand-led innovation, along with tailored solutions to scale and finance, is needed. Business-model innovation and process integration of solutions and technologies can be made possible using technology.

5

Capacity-building accelerates tech transfer

Technology transfer can require large-scale systems, infrastructure investment, and skillsets that may not be immediately available. Local technology entrepreneurs and innovators can benefit from finance and scaling.



- 6 Bridge the gap between perceived and real risk**
Innovative funding constructs that catalyze commercial financing by reducing the risk of investing, particularly in key sectors, can bridge the gap between perceived risk and real risk among investors.

- 7 Strengthen SMEs for inclusion of local communities**
Small and medium-sized enterprises drive the economy in many regions. Deploying solutions at appropriate scales and with an appreciation for cultural nuances and sensitivities goes a long way to ensure inclusion, and impact.

- 8 Fiduciary duty is climate duty**
Private sector financial institutions that have made net-zero commitments need to apply best practice to implement them in financing, investment, and advisory services provided to clients and portfolio companies.

- 9 Address the value chain**
A coordinated systemic view focuses on investing across the value chain, covering all aspects from production to consumption. This is more likely to get returns on investment.

- 10 Make available cheap, long-term, and accessible finance**
New financing mechanisms, regulatory frameworks, and partnerships can secure consistent and equitable funding of time frames of 10, 20, or 30 years. The private sector finance community needs to address short-termism.

PARTICIPANTS

Anna Tunkel Group Vice President, Public Affairs, Strategy & Global Engagement, DP World	Arunabha Ghosh CEO, Council for Energy, Environment and Water (CEEW)	Carissa Christensen CEO, BryceTech	Clea Kaske-Kuck Director, Partnerships and Stakeholder Engagement & Member of the WBCSD Extended Leadership Group, WBCSD
Damian Brandy Vice President International Affairs and Stakeholder Relations, TAQA	Dan Zook Executive Director, ISF Advisors	Derek Rozycki Head of Responsible Investing, Mubadala	Dr. Andrey J. Zarur CEO, GreenLight Biosciences, Inc.
Dr. Frank Rijsberman Director General, Global Green Growth Institute	Dr. Gayle Schueller Vice President and Chief Sustainability Officer, 3M	Dr. Jennifer Holmgren CEO, LanzaTech	Dr. Thomas Philbeck Managing Director, SWIFT Partners
Fiona Duggan Head of Global Sustainability, Climate Advocacy, Unilever	James Socas Managing Director & Head of the Climate Solutions, Investcorp	Jennie Dodson Special Advisor, Exponential Systems Change, High-Level Climate Champions	Lea Borkenhagen Senior Vice President, EDF+ Business, EDF
María Cortés Puch Vice President, Networks, UN Sustainable Development Solutions Network	Miranda Schnitger Climate Lead, Ellen MacArthur Foundation	Nao Valentino Senior Director, Corporate Affairs, Tamkeen	Rima Al Mokarrab Chair, Tamkeen
Roger Martella Chief Sustainability Officer, General Electric	Rosita Najmi Vice President, The UPS Foundation	Samaila Zubairu President & Chief Executive Officer, Africa Finance Corporation	Shihab Kuran CEO, Power Edison
Shyla Raghav Co-Founder and Chief Portfolio and Partnership Officer, CO2, TIME CO2	Sufyan Al Issa Global Head, Business Development and Client Coverage, IFC	Trina Malik Vice President, Global Programs, Institute for Sustainable Communities	Valerie Peyre Director, Abu Dhabi Sustainability Week
Zainab Al Ali Director, Outreach and Stakeholder Relations, Masdar			

PARTNERS

Principal Partner





ADSW ROUNDTABLE

SCALING ACCESS TO FINANCE FOR FOOD SYSTEMS TRANSFORMATION

20 SEPTEMBER 2023

CONTENTS

22 INTRODUCTION

- 23 A comprehensive assessment can inform an integrated approach
 - 25 The right policy at the right time can propel transformation
 - 28 The finances of farming – until and after harvest
 - 30 Designing financial models to enhance capital mobilization
 - 32 A new, shared vocabulary of risk and return
-

35 KEY OUTCOMES

37 PARTICIPANTS

Transforming food systems underpins food security

Food security is closely interlaced with food systems transformation in the global climate action roadmap. A responsive financial ecosystem is crucial to food security, especially in the lead-up to the 2023 United Nations Climate Change Conference, or COP28, to be held in the United Arab Emirates in November-December 2023. To promote an integrated approach to long-term food security and meaningful climate action, Abu Dhabi Sustainability Week held a roundtable in partnership with PepsiCo and Mubadala in New York, during Climate Week.

The COP28 UAE Presidency's Food Systems and Agriculture Agenda, [launched](#) in July 2023, calls for an alignment of national food systems and agriculture strategies, with national contributions, plans, and strategies that focus on climate action and biodiversity.

A flagship [initiative](#) launched by the COP28 UAE Presidency, co-chaired with the UN Climate Change High Level Champions, the World Business Council for Sustainable Development (WBCSD) and Boston Consulting Group (BCG), aims to promote the widespread adoption of regenerative agriculture in large food landscapes underpinned by procurement and investment commitments. Bringing together diverse stakeholders is part of the agenda – from businesses to farmer and producer organizations to other non-state actors – to focus on issues across the value chain, including production, consumption, and food loss and waste.

In this context, the roundtable brought together leaders from government, business, civil society, and philanthropy to discuss access to financing for food systems transformation. The closed-door discussion was organized with the aim of addressing the existing gaps and challenges in access to financing, particularly for the countries and communities in greatest need.

The roundtable deliberated on issues including the financial ecosystem of farming, de-risking of investment, and dealing with various types of uncertainties – including those arising from climate change, geopolitical risk, and economic challenges. For the UAE, this topic is important – the country's food security has long been of critical importance due to the challenges of being located in a desert. The 'Emirates [Declaration](#) on Resilient Food Systems, Sustainable Agriculture, and Climate Action', exemplifies the UAE's efforts in strengthening food systems to mitigate climate change, reduce global emissions, and contribute to global hunger eradication.

The first step toward addressing food systems transformation is to acknowledge the complexity inherent in the value chain. A comprehensive approach ensures that stakeholders across the spectrum, including large private sector companies and smallholder farmers, are recognized. Data show that the transformation needs to address interconnected issues of emissions caused by global food systems, as well as soil

degradation and food waste, to increase the efficiency of the system, improve food security and nutrition, and contribute towards environmental sustainability.

While configuring the risk and returns parameters of transformation, the financial sector urgently needs to realign itself to the largest risk that is facing the planet today. The earth faces dwindling resources, while six of nine [planetary boundaries](#), including land systems and freshwater change, have been breached. These require immediate action.

Actionable insights on practical steps needed to accelerate financial investments in food systems transformation include using data to foster greater understanding, creating a bedrock of effective policy recommendations, and adapting financial instruments that address the gap in investments throughout the value chain. Examples of successful initiatives show that innovation in financial structures, as well as partnerships that enable solutions across the value chain of food systems, are possible.

The closed-door roundtable discussed ways forward on how various stakeholders can work together to create effective policy, boost investment possibilities, and create effective solutions to address food systems transformation.

A comprehensive assessment can inform an integrated approach

Who will do what, by when, and how? A comprehensive approach to food systems transformation requires addressing inherent barriers and how to overcome them

The urgency to transform food systems precedes its relationship with climate change and provides the context of today's urgency in addressing food security globally. Agriculture is a major source of greenhouse gas (GHG) emissions. It is also one of the key sectors impacted by climate change. The global food system is [responsible](#) for 21 percent to 37 percent of annual emissions, including emissions associated with pre-and post-production activities from crops and livestock. The sector accounts for 70 percent of [global freshwater use](#). The availability of climate financing is low in the sector, with agrifood systems having received only 4.3 percent of global climate finance at project level, according to a 2023 [report](#) by Climate Policy Initiative.

Participants at the roundtable underscored the urgency for transforming food systems. [Data](#) show that 95 percent of our **food comes from the soil**. Sustainable soil management could produce 58 percent more food. However, globally, 50,000 square kilometers of soil is lost every year. The **quality of soil** is a matter of great concern, with estimates warning that humans have only 60 years of topsoil left. **Soil degradation** has already affected 33 percent of all global soil. **Managing food waste**, including turning it into **compost**, is part of the solution.

Food systems are complex – participants spoke of their concern about the decline in [bee](#) population in specific geographies attributed to intensive farming practices, mono-cropping, excessive use of agricultural chemicals, and higher temperatures associated with climate change, among other factors. The resistance of pests to chemical tools was also brought up as part of the problem.

This complete picture leads to the question of what the financing is being sought for. Participants argued against the idea of continuing to behave as if the resources that power the food systems are unlimited. Understanding what initiatives to finance requires an understanding of food systems. The requirement is not just to produce more food from unlimited resources but to produce **better, nutritious food from limited resources**. It is also necessary to identify the **agents of change**. The question then is: If farmers are being asked to grow food more sustainably, consider soil health and water consumption, and change how food is produced, who is supporting that transition?

The scientific [assessment](#) of all nine planetary boundaries underpinning sustainability shows that humans have pushed past [six](#) of them, including climate change, even sooner than estimated. Encouragingly, we know that timely action, such as the Montreal Protocol in the case of ozone depletion evidenced in the 1990s, can help contain and even reverse the damage. Emphasizing the immediacy, the meeting heard that the speed at which climate

>21%

of GHG emissions
originate in the food
and agricultural sector



The requirement is not just to produce more food from unlimited resources but to produce better, nutritious food from limited resources

action is taking place is far outpaced by the challenges that those in the food and agriculture system are already addressing.

It is imperative, participants said, that the institutions that shape the future economy of the world urgently create business models to ensure that the future is protected. It is no longer about sustainability alone but includes the fiscal space. The **climate debt trap** includes [countries](#) that are vulnerable to climate change and fiscally constrained from implementing any climate action. According to a 2023 UNCTAD [report](#), about 30 poorer countries and several low- and middle-income countries are at the intersection of high debt and climate vulnerabilities.

An **integrated data systems** initiative, specifically focused on connecting earth science and sites to financial data, for instance, was discussed. This would enable clarity, not just timed to periodic reporting but on a **real-time basis**. Being able to place multi-dimensional metrics before financial decision-makers creates a system where they respond to data, with a full view of hidden costs.

The right policy at the right time can propel transformation

Governments have the power to kickstart transformation by developing policies and strategies based on global best practice, which can attract investment

The roundtable discussion tied innovative finance mechanisms to scaling up agricultural and food systems transformation. Participants emphasized that lessons from other sectors demonstrate that it is important to not limit food systems transformation as an agricultural issue but include **best practice across the value chain**.

Agriculture as an activity is heavily intertwined with government policy, in that [subsidies](#) are given to farmers to adopt means that increase productivity. A meaningful action plan will necessarily include an integrated narrative that takes into account actionable points from the private sector, the public sector, and the government. Thus far, the priority of most governments has been to increase production and the agriculture sector is granted subsidies based on productivity. At the same time, farmers are being asked to deliver on ESG commitments just like the private sector.

However, in terms of messaging, this gives out mixed signals to the market, participants said. **Crop insurance** in the United States is one such [example](#), which leads to more growth in **monoculture crop production** rather than regenerative practices that improve soil resilience. Farmers, whether in Rwanda or in Iowa, grow what they are paid to grow. They are recipients of new technologies provided to them because these are tied to how they make money from farming.

In one example, participants said that up to 50 percent of the corn grown in the U.S. is converted to [ethanol](#), which for years has been mixed into gasoline sold at local pumps. Under a new [law](#), biofuels are given tax credit incentives, which farmers may be able to use. These credits are entirely based on a product's carbon intensity score. Under the U.S. Renewable Fuel Standard (RFS), a law enacted in 2005, oil refiners are required to mix corn-based ethanol into gasoline. The policy was intended to reduce emissions, support farmers, and cut U.S. dependence on energy imports. The policy directly led to an 8.7 percent [increase](#) in corn cultivation, adding 6.9 million acres of land between 2008 and 2016. While the **real effects of corn-based ethanol on global warming** are being debated due the emergence of new information and research, the example demonstrates the close interlink between **policy, industry, and agriculture**. As a suggestion, it may be possible for all food companies to receive a similar mandate, specifying that, say, 30 percent of their ingredients have to be grown in a certain way or obtain a carbon intensity score.

Innovation is possible in ways that have not been imagined before. An [initiative](#) in Rwanda, with the help of technical expertise from the Netherlands, utilizes larvae from black soldier flies to convert food waste into valuable protein feeds for animals and organic manure. The initiative was supported by the government, which has launched [standards](#) for the edible insects sector, following the establishment of the country's first commercial insect-based animal feed plant. The

50%

of the corn grown in the United States is converted to ethanol



Attempting to connect various disconnected layers of investment is a problem that affects multiple sectors

example highlights the strong ties between policy and markets creation for new products. The project is bankable because it generates not just the larvae but also fertilizer from the waste stream.

Organizations such as the Global Green Growth Institute (GGGI) work with national governments to develop comprehensive five-year plans that **include a green component** across sectors such as agriculture, transport, infrastructure, industry, and others. The agriculture sector work is aligned with the UN Food and Agriculture Organization (FAO) to prevent duplication of effort. Organizations are mandated to actually bridge the gaps between policy and action. The intergovernmental organization set up in 2012 works on a mechanism where its staff is embedded in ministries of finance, planning, and agriculture, among others. Participants said that attempting to connect various disconnected layers of investment is a problem that affects multiple sectors.

A **public-private partnership** [announced](#) in September 2023 is scheduled to launch at COP28. The Africa and Middle East SAFE Initiative will focus on **Scaling up climate-resilient Agriculture and Food systems transformation for Economic development** in the two regions. It is the fruition of a decade-long engagement with governments to develop smart policies that will attract green climate finance.

Examples from the private sector were shared to demonstrate that a **targets-based approach** works well. Private sector companies in the food systems value chain have made commitments based on targets and protocols, which helps create a roadmap. [PepsiCo](#), for example, aims to achieve net-zero emissions across the value chain by 2040. Contrary to perception, PepsiCo is not just a beverage company but one of the world's largest food companies with 60 percent of its products being convenience foods. The beverages also have a food component. Its footprint across 200 countries covers millions of hectares, which makes the company vulnerable to the effects of climate change across its value chain.

Developing **standards, guidance, and protocols** for agriculture can help **unlock investments** from the private sector and maintain the momentum for climate action in supporting farmers in this transition. Vietnam's example in solar power shows the rapid progress possible when smart policies are in place for the private sector to step up. From heavy dependence on coal and plans for new coal plants, the country transitioned to solar in record time because the government announced a new policy where companies would receive incentives for solar power. It managed to double the weight of the renewable energy in its infrastructure. Vietnam had set a target of 4.5 gigawatts of [solar](#) power by 2025, which it reached in July 2019.

Global efforts are supported by gatherings such as the Africa Food Systems Summit, held in September 2023, which attracted over 5,000 participants, including governments, technology companies, and small and medium-sized enterprises (SMEs). Attempts were made to elevate the understanding of the financial services sector and investors in the food and agriculture space. Countries presented their food systems transformation agendas, flagship projects, investment proposals, and public-private opportunities worth billions of dollars.



Developing standards, guidance, and protocols for agriculture can help unlock investments from the private sector

The finances of farming – until and after harvest

Because finance will flow only where it is guaranteed returns, it is important to develop bankable initiatives across the value chain of food production

Investments to do with agriculture need to account for the sheer **diversity of farming systems** that include large private sector farming corporations on one hand and smallholder farmers that constitute the majority in some countries on the other. The private sector is largely able to make commitments around ESG and build them into their reporting. However, to enable all farmers to understand and undertake sustainable practices requires awareness and education on both sides.

At the same time, more financial institutions need to step up to **absorb early-stage risks**. Institutions such as the Africa Finance Corporation (AFC) have budgets dedicated to project development teams to enable more projects to become eligible for funding.

This also brings into question the profitability of farming, when a large number of farmers have unreliable incomes. Currently, even regions such as Africa, with its **abundance of land resources**, is not seen as profitable for farmers. Many farmers, in fact, struggle to make ends meet. How can a food systems transformation take place when the person on the ground is actually at the bottom of the pyramid and is not empowered? If a farmer is able to make profit, banks would be comfortable lending because they are sure of returns. Participants brought up the point that if farming itself was made profitable, the farmers would scale up and investors would find that attractive for investing.

One of the suggestions that emerged from the discussion was to enable participation in different segments of the value chain. Investor feedback in some cases has been that the **value chain after harvest** is relatively more accessible to financing. Solutions need to bring value to existing operational farms. Once harvested the produce can only be kept fresh for less than a week. However, interventions such as renewable energy solar power conservation systems can help **increase the shelf life of produce** to around three weeks. This immediately affects investment decisioning.

Investments in the value chain, rather than those focusing only on productivity, are needed. Globally, [data](#) show that 15.3 percent of food, or 1.2 billion tons, is lost before it leaves the farm. Food waste [occurs](#) in high, upper-middle, and lower-middle countries. While data for low-income countries is insufficient, participants shared examples of efforts that have gone into increasing yields, without having adequate post-harvest systems.

Local produce is also sometimes not consumed because it is not seen as premium, the meeting heard. It is necessary to change production to what is supported by markets in order to reduce volatility. Logistics systems, including **roads, refrigeration, and warehousing** need to be created to harvest the gain from growth in productivity.

If farming itself were made profitable, farmers would scale up and investors would find that attractive for investing



An example of rice farmers from India demonstrates the complexity of the issue and solutions that target smallholder farmers. The initiative, which involves monitoring rice fields at a granular level, builds transparency so that farmers can access financing. However, **regenerative systems** in rice are concerned with **methane reduction** and **water consumption**. This does not have a great impact on profitability increase. In such cases, incentivizing the farmers to use agricultural innovations needs to be a governmental initiative, because the rice is not meant for export but consumed domestically, thus ruling out the food and agriculture companies as potential funders.

In Côte d'Ivoire, in another example, where 70 percent of the abundant cocoa is exported, ARISE Integrated Industrial Platforms (IIP), funded partially by AFC, has created an industrial platform under the PPP model. Set to open in 2024, the Zones Industrielles de Côte d'Ivoire ([ZIC](#)) focuses on agro-processing, construction materials and chemicals, pharmaceutical industries, logistics, and other manufacturing. The project answers the urgent need for **infrastructure, combining it with agriculture and manufacturing** so that produce can be processed and all value extracted for the good of the local community.

1.2_{bn}

tons, or 15.3%, of food is lost before it leaves the farm

Designing financial models to enhance capital mobilization

New business models and financial instruments that address the needs of large farming corporations at one end of the spectrum to smallholder farmers at the other end can mitigate risk-aversion

Finance is crucial to the process of transformation for farmers from across the world, whether they are large farmers in the American Midwest and Australia, or smallholders in Africa and India with one hectare of land being farmed by a family. The roundtable discussed the innovations taking place in the financial system, structures, and instruments, and those that are needed to fund the transformation.

Not only is there a need to mobilize capital, but the sector also urgently needs to design new business models and financial instruments, participants said. Three elements emerged as crucial to mobilizing significant funding for food systems transformation. The first, **co-investment**, is not just blended finance but also the opportunity for multiple different sources of finance to invest in the same opportunity. To add to that, specific instruments that have been developed for **food systems of the future** are needed. An **innovative collaborative funding model**, participants said, requires working with finance ministries to understand how the long-term fiscal outlook changes with different decisions about long-term food security. Participants discussed the use of aid and philanthropic capital as part of blended finance.

Successful examples use innovative approaches for financing on a case-by-case basis. Finance seeks bankable projects.. However, in regions such as Africa, successful projects have tended to seek innovative funding to close the gap between sourcing raw materials and exporting produce.



The farm sector urgently needs to design new business models and financial instruments

A vertically integrated sugar [facility](#) in Lafiagi, Nigeria, financed by AFC, is one such example. Nigeria imports raw sugar, only to refine it and sell white sugar locally. The country has arable land of millions of hectares, of which only a small percentage is in use. The climate and water resources are favorable for agriculture. The project included a sustainable agricultural component, an ethanol plant, sugar refineries, and created power using waste from the bagasse and molasses, all the while creating thousands of jobs. While the lenders found the industrial aspect of it acceptable, they had challenges with the agriculture component. An innovative financing structure included providing funding to a holding company based on dividends of the main sponsor, which was then channeled into the project. This enabled the risk analysis to take into account a more established business.

Innovation in investment flow is needed to ensure that the benefits of technology can be applied and realized. Effective use of existing technology, rather than dazzling new high-tech, is powering the transition, participants shared. Investment is not just needed in inventing new technologies but also in deploying existing ones with effective regulation, using partnerships. Financing instruments need to stop considering the food industry as one built on unlimited resources. In fact, this is where technology needs to bridge gaps. The success story of Tesla is not based on its innovation in electric vehicles when it has the same battery and motor as others in the sector-it is an innovative company from the perspective of its business model.



Investment is not just needed in inventing new technologies but also in deploying existing ones with effective regulation, using partnerships

A new, shared vocabulary of risk and return

Any transformation comes with financial risk. But ignoring food systems from a traditional risk-versus-return assessment carries the largest risk of all – the inability to survive climate change

On the one hand, the high cost of financing is a deterrent; on the other, financiers are not able to clearly quantify risk and return and the length of time it takes to drive change. This prevents effective financial participation in food systems transformation. However, participants pointed out that investing in such a transformation cannot be approached with the traditional risk-versus-return mindset. The risk of not moving at speed to drive change is larger than financial risk and affects everyone. A common vocabulary around thinking differently about risk and return and how we market these opportunities is necessary to drive capital mobilization.

There is a clear, measurable gap in funding with organizations such as the AFC being mere drops in the ocean with a [balance sheet](#) USD 14 billion when the deficit in **agriculture, food and critical infrastructure** is [estimated](#) at hundreds of billions per year.

Some financial organizations, including national development banks, have a challenge to match the funds that are available with a portfolio of quality projects, participants said. On the other hand, organizations working with governments find that quality projects are crying out for funding. Scaling small businesses that are transformational requires capital. For many countries, participants said, some investments are considered too high-risk. In many cases, **blended finance** seems to be the solution, particularly if a de-risking mechanism is built into it.

Organizations such as the Green Climate Fund ([GCF](#)) have worked on having a guarantee mechanism built into financial structuring to de-risk the delivery of capital flows. Its private sector facility includes **low-interest and long-tenor project loans, equity investments and risk mitigators**, such as guarantees, first-loss protection, and grant-based capacity-building programs. A [majority](#) of its project funding is for projects that target forest and land use, ecosystems and ecosystem services, agriculture and food and water security. Its track record is evidence that with clear financial modeling and a de-risking mechanism, capital can be mobilized.

De-risking is crucial to this process because asset managers and owners continue to use a **traditional risk lens** to determine where they deploy investment and, in some cases, debt capital. Asset managers, including institutional asset managers, balk at investments in agriculture and food systems in certain geographies. In many instances, it is necessary to take a **case-by-case** approach and not treat a region as vast as Africa as a monolith. Within the wider region, the type and magnitude of risks varies. Policy emerges as the foundational question, which can be addressed by governments. There needs to be an ability to de-risk capital in a way that private sector capital can enter seamlessly.

Participants highlighted that there is a **variety of risks** at play, including geopolitical risk, climate change risk, and natural disaster

A common vocabulary around thinking differently about risk and return and how we market these opportunities is necessary to drive capital mobilization



risk. The meeting also deliberated on the need to differentiate between risk and uncertainty. If, for instance, there is tariff around adding sugar to beverages, and it only applies to a portion of the market, then the rest of the market is full of uncertainty. This makes it difficult to finance. In many jurisdictions, regulatory uncertainty adds to the overall picture. In others, uncertainty regarding food security plays a part. Financial instruments are not built to deal with the uncertainty around the risk. However, creating frameworks built on policy can help eliminate the uncertainty.

It is possible to use insurance to mitigate some of the uncertainties and risks. In Africa, for example, aid is one of the sources of financing. Organizations are working actively to be able to channel some of the **aid financing into insurance products**. There is potential to utilize these against certain parts of the agricultural value chain, which counters some of the uncertainty. This can help drive investments into the value chain. A suggestion was made to create a working group to concretize this.

The speed of transformation is limited in a large part by the **speed of funding**, the meeting heard. Mechanisms such as biodiversity credits unlock an immense amount of financing. Setting up standards, providing clarity, and creating use cases with the help of non-

It is possible to use insurance to mitigate some of the uncertainties and risks and help drive investments into the value chain

governmental organizations can help create pathways for financial organizations and publicly traded companies to participate in such initiatives. Philanthropy budgets, though useful, are limited compared to a company's business resources.

Creating immediate and tangible pathways to investment can help ensure visibility of opportunities, while making progress more measurable.

Low-emission development strategies, also known as long-term strategies ([LTS](#)), combine national sustainable development and climate mitigation objectives. These are implemented in many countries. As part of the Paris Agreement, the strategies create a structure for countries to work towards decarbonizing their economies on an economy-wide basis by the year 2050. They include assessment of current policies, practices, and capacities, provide scenario analysis including the impact of funding and other implementation actions, and monitoring the LTS. Visibility of long-term plans helps investments plug in to participate at various stages.

The meeting discussed the importance of sharing success stories, to ensure that information is available to encourage participation. The effect of sharing success stories is contagious, participants said, citing the example of athletes achieving the first four-minute mile – while the first one took hundreds of years, the following ones came close after. The realization that it could be done powered future efforts.

Awareness building among the younger generation is crucial as well. This includes transparency on where the foods are coming from, how they are processed, and comparisons with other scenarios. Participants agreed that financing is critical to an effective transformation of food systems – the challenge lies in attracting risk-averse capital to the industry by addressing existing perceptions.

Creating pathways to investment can help ensure visibility of opportunities, while making progress more measurable



KEY OUTCOMES

A strategic approach to the transformation of food systems begins with evaluating the entire supply chain and segments involved in bringing food from farm to table. Effective solutions include taking into account the diversity of farmers, which include smallholders and large corporations at two ends of the spectrum. They also need to address gaps in the value chain that affect food systems. Innovation is required in visualizing financial products that address the uncertainties and risks inherent in farming to minimize the challenges in access to financing. This is particularly important for the countries and communities in greatest need and at greatest risk of climate change. Current financial models need to be aligned to enabling policies. Many solutions to attract investment and drive financial flows towards more sustainable and equitable food systems rely on partnerships.

- 1 Enabling policies for public-private partnerships**
Farming systems closely align with policy. We need regulations that empower a greater focus on sustainability, not just productivity, and promote private sector participation.

- 2 Address the complexity of food systems**
Creating awareness among investors requires an understanding of the complete picture. Attracting investments and partners is possible by ensuring that opportunities in the sector are more visible and quantifiable.

- 3 Adjust targets to reflect sustainability**
A common vocabulary of risk and return ensures a shared understanding of food systems transformation. Financial systems need to adapt to shifts, instead of assuming an abundance of resources, which is no longer sustainable.

- 4 Include farming stakeholders in financial solutions**
Smallholder farmers, particularly in countries in greatest need, bear risk and uncertainty. For all stakeholders to be a part of the food systems transformation, they all need to be supported financially.

- 5 Financial models need to address climate change**
Fiscal institutions urgently need to create new business models. The climate debt trap includes countries who are vulnerable to climate change and fiscally constrained from implementing climate action.



6

Collaborative funding models address risks

Co-investment opportunities and collaborative / hybrid funding models allow multiple financiers to jointly support operational initiatives. Engaging finance ministries in these endeavors can encourage long-term thinking.

7

Create instruments for de-risking investment

Addressing risk-return timelines and uncertainties inherent in the food and agriculture sector can help attract investments. Insurance and blended finance can facilitate the flow of private sector capital into higher-risk regions.

8

Address the value chain

Solutions for food systems transformation are necessarily localized, not just from the perspective of choosing which crops to cultivate but also in recognizing the value chain. In some geographies, for instance, investments can help power conservation systems to minimize food waste.

9

Data solutions to address the knowledge gap

An integrated data systems initiative, specifically focused on connecting technology, policy, and financial data, will help place multi-dimensional metrics before financial decision-makers so they respond to data, with a full view of hidden costs.

10

Leveraging technology for financial innovation

Innovation in investment flows can reap the benefits of technology. Investment is not just needed in inventing new technologies – in many cases, they already exist, and need to be deployed.

PARTICIPANTS

Darci Vetter Senior Vice President for Public Policy, PepsiCo	Dr. Andrey J. Zarur Chief Executive Officer, GreenLight Biosciences, Inc.	Dr. Thomas Philbeck Managing Director, SWIFT Partners	Dr. Agnes Kalibata President, AGRA
Dr. Mahamadou Tounkara Managing Director, MENA, Global Green Growth Institute	Dymphna van der Lans Chief Executive Officer, Clean Cooking Alliance	Ertharin Cousin Chief Executive Officer, Food Systems for the Future	Hanh Nguyen Global Sustainability Vice President, OCI Global
Jean Francois Roberge Head of Infrastructure EMEA, Mubadala	Jim Andrew EVP and Chief Sustainability Officer, PepsiCo	Joe Robertson Senior Advisor, Sustainable Finance, EAT; Executive Director, Citizens' Climate International, UN Environment Program	Krissie Darr Senior Vice President, Communications, Mubadala
Mohammed Abdul-Razaq Senior Vice President, Financial Advisory, Africa Finance Corporation	Rima Al Mokarrab Chair, Tamkeen	Saswati Bora Global Director of Regenerative Food Systems, The Nature Conservancy	Stephanie Bachula Warren Senior Manager, Global Environmental Policy, PepsiCo
Valerie Peyre Director, Abu Dhabi Sustainability Week	Virginia Villar Arribas Deputy Director, Private Sector Partnerships, World Food Program	Zainab Al Ali Director, Outreach and Stakeholder Relations, Masdar	

PARTNERS

Principal Partner

دائرة الطاقة
DEPARTMENT OF ENERGY



Roundtable Partner



PEPSICO

ADSW ROUNDTABLE

FACILITATING PROGRESS TOWARDS A CLEAN HYDROGEN ECONOMY

20 SEPTEMBER 2023



CONTENTS

40 INTRODUCTION

41 Clean hydrogen plays a crucial role
in decarbonization

44 A universal lexicon and standards
drive industry growth and capital

47 Meeting the infrastructure
and distribution challenge

50 KEY OUTCOMES

52 PARTICIPANTS

Standards, infrastructure, and collaboration are vital to hydrogen development

The global clean hydrogen economy can achieve its potential in transforming our energy systems, with standards, certification, and infrastructure in place to enable its growth. At the 2023 United Nations Climate Change Conference or COP28, to be held in the United Arab Emirates in November-December 2023, collaborative action is on the agenda to facilitate pathways for future action. As a precursor to COP28, Abu Dhabi Sustainability Week hosted a roundtable during Climate Week New York, in partnership with the Atlantic Council, to create a platform to discuss the various aspects that go into mutual recognition of hydrogen standards and infrastructure development initiatives.

The inclusive Global Climate Action Plan to fast-track the energy transition and supercharge climate finance [released](#) by the COP28 Presidency includes doubling hydrogen production to 180 million tons per year by 2030, aiming to triple renewable energy capacity and double energy efficiency. According to a forecast by the International Renewable Energy Agency (IRENA) and the Hydrogen Council,

hydrogen is expected to supply between 12 and 20 percent of world energy demand once net zero is achieved.

The action plan relies on a collaborative approach that brings together industry, governments, academia, and civil society. International collaboration and cross-sector partnerships are the only pathways to achieve accelerated climate action. Ongoing dialog synthesizes diverse perspectives, even as it facilitates knowledge sharing and enables partners to coordinate efforts across sectors and geographies.

Titled 'Facilitating Progress towards a Clean Hydrogen Economy', the roundtable during Climate Week New York deliberated on the urgency around accelerating convergence and mobilizing concrete actions. The session brought together multiple stakeholders across functions and sectors to discuss the criticality of agreeing on standards and creating an infrastructural ecosystem that enables a clean hydrogen economy, including the hard-to-abate sectors. Examples of bilateral partnerships and pilot projects between pioneering countries and organizations

emerged as proofs of concept for future action. An ongoing dialog and communication were established as one of the keys to ensuring the success of multilateral hydrogen initiatives.

A clear outcome of the session was the acceptance that no single entity can deliver a hydrogen economy alone. Groups like the Hydrogen Council, the Clean Energy Ministerial, and the Net Zero Producers Forum are already fostering unprecedented collaboration between industry, governments, academia, and other segments of society. Participants emphasized the importance of ongoing dialog via collaborative platforms such as the ADSW and the Atlantic Council roundtables.

The closed-door roundtable discussed how COP28 could be used to deliver comprehensive standards and certifications that address various aspects of clean hydrogen through its entire value chain of production, transport, and consumption. As COP28 approaches, there is a sense of urgency around accelerating convergence and mobilizing concrete actions. Discussions like these maintain the momentum of change while also synthesizing actionable insights.

Clean hydrogen plays a crucial role in decarbonization

Research shows that replacing carbon-based energy systems with clean hydrogen in major and hard-to-abate sectors on a large scale has the potential to accelerate the journey to net-zero

Clean hydrogen can not only play a part in transforming energy systems, but it can also help **decarbonize hard-to-abate** sectors such as aluminum, steel, chemicals, shipping, and aviation. In the long term, clean hydrogen can be used for transportation, manufacturing, power generation, and heating. Many countries are already replacing natural gas with hydrogen in heating, fueling vehicles, generating electricity, and other industry operations.

Japan, for instance, announced its revised basic hydrogen strategy in June 2023, which promotes hydrogen as a means of decarbonizing hard-to-abate sectors, such as heat utilization and carbon feedstock replacement, where electrification is difficult.

The roundtable deliberated specific applications of different types of hydrogen as part of the broader energy transition and the **suite of solutions** going toward energy transition. **Green hydrogen**, produced via electrolysis and powered by renewables, has emerged as the most sustainable long-term solution. **Low-carbon blue hydrogen** from natural gas, paired with carbon capture, use, and storage (CCUS) is considered transitional. Hydrogen's far-reaching applications and versatility as an efficient, storable, and transportable energy carrier were emphasized.

Organizations such as [Carbon Trust](#) are contributing to the discussion around the role of hydrogen in the decarbonization journey, especially focusing on **commercialization** as well as a production journey that uses renewable components. Participants emphasized that hydrogen has a role as an additional source within the overall power system; it is not a replacement for other solutions. The scaling up of the production of green hydrogen in a way that complements net-zero goals is possible by a **systems-led approach** to the conservation of renewable energy resources and limited water resources.

Large-scale deployment of any solution that contributes to **diversification** of energy sources needs to fulfil three criteria – it must be reliable, affordable, and resilient. Participants spoke of the need to ensure the development of the demand side of clean hydrogen to achieve a balanced and reliable market. Costs must be calculated holistically, including the cost of molecules, infrastructure, and facilities to utilize the fuel. The full potential of deploying clean hydrogen across geographies can only be realized by considering the predictably high costs of production expected to continue throughout this decade, participants shared. Simplifying the production line to reduce the risk of individual components also emerged as a suggestion to minimize execution risk and cost, including the cost paid by consumers for the final product.

In particular sectors, targets can help generate discussions on strategies to meet them. The International Maritime Organization

40%

is the shipping emissions reduction target for 2030 set by the IMO



Any solution that contributes to diversification of energy sources needs to fulfil three criteria – it must be reliable, affordable, and resilient

(IMO), for instance, has [announced](#) the 2023 IMO GHG Strategy. This involves the target of reducing the carbon intensity of international shipping (measured by the CO₂ emissions per transport) by at least 40% by 2030, as an average across international shipping operations.

Demand drivers include existing markets such as fertilizer production, oil refining, and fuel cells for electric vehicles. Decarbonizing steel manufacturing via hydrogen usage instead of coking coal can also offer emissions reduction potential, the meeting highlighted. The transition to net zero is an inclusive, global goal, and solutions need to cater to countries across the development spectrum. Participants spoke of the importance of establishing a **hydrogen supply chain** to ensure large quantities of cheaper hydrogen that are needed to promote hydrogen power generation.

Various aspects of the use of ammonia and hydrogen have already begun to be researched. The next step is to ensure that the **benefits of the hydrogen economy** are communicated effectively across the world, so that decarbonization can be achieved in multiple sectors, including the hard-to-abate ones. Many countries are blessed with an abundance of sun, wind, and geothermal energy, which can become alternative sources of renewable energy. This places hydrogen as the **base infrastructure element** around which complex economies can

be developed by attracting industries to build using green electrons, green hydrogen, and green ammonia.

Participants also discussed several solutions to prioritize deployment in key sectors via **predictable long-term policy frameworks** that can help to incentivize investments in production capacity and infrastructure. Ensuring clarity on carbon emissions inherent in various processes is essential for scaling production. Basing the scale on demand can allow markets to assign value depending on carbon intensity based on common standards. Outlining long-term targets and milestones can help spur and enable investment into developing the right options.

It is crucial to define the policies that will address the **cost gap** between clean hydrogen and existing fuels. Government partners emphasized the need for transparency both in domestic markets and with international partners. While some of these solutions seem inevitable, the challenge lies in accepting and adopting them quickly.

Transitional solutions can use existing technologies and assets to accelerate momentum in the near term while working towards a full energy system transformation. Participants also underlined the need to manage environmental risks to do with leakage and about the ultimate climate effects of the hydrogen economy. For instance, research has shown that if hydrogen leaks, it can interact with other greenhouse gases in the atmosphere to intensify their potential for global warming.

Companies such as Germany's Tree Energy Solutions (TES H2) are adopting new technologies involving using hydrogen to produce synthetic methane as part of the solution. This is easier to transfer to facilities and is designed to produce no emissions and zero leakage.

Hydrogen is the base infrastructure element around which complex economies can be developed by attracting industries to build using green electrons, green hydrogen, and green ammonia



A universal lexicon and standards drive industry growth and capital

The hydrogen economy will attract finance and achieve scale only when all stakeholders speak the same language and follow the same standards and frameworks

International standards, mutual recognition frameworks, and certification schemes will be crucial to enable global hydrogen trade and rapidly scaling up the industry. Since clean hydrogen is a relatively nascent industry, setting **globally acceptable standards** for its use in pursuing net-zero goals would infuse it with a degree of certainty that can facilitate investment flows.

Global standards for commodities have developed over more than a hundred years. However, many facets of the hydrogen industry are awaiting **regulatory clarity, compliance, and certifications**. While the conversation on these has already begun, participants said there is an urgency to agree on quality standards for the potential of hydrogen to be realized. The industry needs to define what is deemed acceptable to move from communication to convergence. The act of creating standards and certifications is integral to the timeline, and needs to find its place on a Gantt chart as a task to be performed within a timeframe alongside policies and incentives. Without creating these, the projected growth of clean hydrogen will remain doubtful.

Broad alignment emerged during the roundtable session on the need to **accurately quantify emissions intensity** through consistent measurement methodologies that span production, transportation, and end-use. Participants recommended this for clarity in comparison with qualitative color-coding of hydrogen by origin, which can **obscure major variations** underlying generic labels like “blue” or “green”.

Participants discussed examples of certifications available. **Universal standards bodies** such as ISO are developing such methodologies to calculate full life-cycle carbon intensity, providing an objective metric for transparent comparison and certification across all sources and applications. The European Commission has detailed [rules](#) on the conditions under which electricity used to produce hydrogen can be counted as fully renewable according to European Union (EU) [law](#), as well as on the methodology used to assess the greenhouse gas (GHG) emissions savings from hydrogen-based renewable fuels (so-called renewable fuels of non-biological origin, or RFNBOs) and for recycled carbon fuels (RCFs).

Experts have pointed out that the [International Code Council’s](#) I-Codes cover systems that use pure hydrogen. So far, these have not included any provisions for **blending hydrogen into natural gas**. There is an urgent need to develop and update codes and standards to address safety gaps when injecting hydrogen into the natural gas infrastructure.

Encouragingly, the conversation has moved on from a few years ago, when the world was discussing funding of research and funneling investments into this promising sector. From then to now,

Setting globally acceptable standards for clean hydrogen use in pursuing net-zero goals would infuse it with a degree of certainty that can facilitate investment flows



when Korea has opened a hydrogen power generation bidding market, much progress has been made towards acknowledging that international trade is possible on the basis of transparency and one global standard.

Platforms such as the Hydrogen Council, the Clean Energy Ministerial, Hydrogen Energy Ministerial Meeting, International Partnership for Hydrogen and Fuel Cells in the Economy, and the Net Zero Producers Forum have shown the way forward in fostering collaboration between diverse stakeholders. Specific forums and working groups can help in creating standards and certifications for various facets of the supply chain, including production and transportation. The imperative to chart the progress that each of these is making, while maintaining a global outlook, was also brought up at the roundtable. The development of **certification schemes** underscores the urgency of **international harmonization** and highlights the vital mutual recognition needed to prevent market fragmentation.

As new technologies emerge, it is possible to consider applications in other **hard-to-abate sectors** such as **heavy-duty vehicles** in the mining and construction sector. Already, hydrogen hauling trucks are being trialed at mine sites where decarbonization is crying out to be applied. Participants brought out the under-harmonization of standards and components in some sectors, including **aviation**, where hydrogen may emerge as alternative for enabling low-emission flights.

There is a degree of under-harmonization of standards and components in some sectors, including aviation, where hydrogen may emerge as an alternative for enabling low-emission flights

Rigid additionality principles focused on renewables could potentially deter market activation and compromise efficiency

There is also a need to differentiate between global certification based on an international standard for the assessment of emissions, on the one hand, and what governments and regions are doing to regulate and incentivize industry in their jurisdictions, on the other.

The first point of action is to agree on the basics, internationally, on the **methodology to assess and certify emissions**. The next step is a certification system that is passed on to the International Organization for Standardization (ISO), which can be tasked with managing and updating it. Bureau Veritas or equivalent certification organizations can use that methodology to provide certificates containing relevant information starting with emissions intensity. The certification can also include a provision to ensure that the whole value chain meets all criteria, such as aspects of the circular economy standards and additional information that specific markets may require. Participants agreed that this is the minimum that can be debated and delivered at COP28 so it is ready for ISO and available for the whole world.

The meeting heard the drawbacks of rigid additionality principles focused on renewables, which could potentially deter market activation and compromise efficiency. The principle, published in June 2023 in the detailed EU rules on the definition of renewable hydrogen, “aims to ensure that the supplies of renewable hydrogen which are due to come on board by 2030 are connected to new, rather than existing, renewable energy production, incentivizing an increase in the volume of renewable energy available in the EU.”

Instead, **transitional solutions** should be pursued in the near term to mass balance use of renewables using different mechanisms. To that end, it is important to define a clean molecule of hydrogen, as also the methods of dealing with tax credits as a prerequisite for building and stabilizing a clean hydrogen economy.

In this case, participants considered the example of the U.K.’s well-developed Hydrogen Net Zero Investment Roadmap as a reference point. The U.K. government published a clear low-carbon hydrogen standard in 2022. The roadmap highlights the **investment opportunities** across the hydrogen value chain – from production, through transmission and storage, to the range of potential end uses, including power, transportation, and heating. It also includes a Net Zero Hydrogen Fund to support development, a Production Business Model to ensure long-term revenue support, and a low-carbon hydrogen standard to enable market access and certainty for end use.

Meeting the infrastructure and distribution challenge

Re-purposing existing assets and leveraging emerging technologies can help the industry meet the challenge of developing production, transportation, storage, and distribution infrastructure for clean hydrogen fuel

Transporting and distributing clean hydrogen safely and cost-effectively relies on leveraging existing assets like pipelines, shipping lanes, and port facilities, while applying upgraded and innovative new solutions related to pressure, volume, and metallurgy. Estimates show an **investment gap** of about US\$ 460 billion across the hydrogen value chain. Of this, a gap of US\$ 165 billion remains in transmission, distribution, and storage.

Many governments have prioritized the development of **clean hydrogen infrastructure**. The development of hubs with concentrated infrastructure build-out is considered an advantageous model, as demonstrated by emerging examples in the U.K., the Netherlands, and the Gulf Coast of the United States. These clusters can help overcome geographic disconnects between supply and demand centers.

In October 2023, the U.S. announced funding of US\$ 7 billion for seven regional hubs as part of the broader plan for clean hydrogen production, delivery, and end-use. The regional clean hydrogen hubs will catalyze multistate hydrogen ecosystems that ultimately connect to form a national hydrogen economy. In August 2023, a consortium of three Japanese gas companies and Mitsubishi Corporation announced an agreement with Semptra Infrastructure, a subsidiary of the North American energy infrastructure company Semptra. The objective is to evaluate a project that would leverage existing natural gas infrastructure – including the global liquefied natural gas (LNG) supply chain and the gas distribution systems in nations across the world – to be used as the backbone for the delivery of a long-term, carbon-neutral fuel, including the production or procurement of clean hydrogen, as well as the construction of facilities to produce e-methane.

Technological solutions being **piloted and evaluated** address various issues in the supply chain, the meeting heard. Solutions for hydrogen pipelines need to address the effect of natural gas/hydrogen blends in non-steel metallic gas grid materials. Novel sensor systems for leak detection for various hydrogen/gas applications are required to ensure the safety of the hydrogen technology in use. Distribution by road can be augmented using the next generation of compressed gas tube trailers with increased capacity.

Ammonia was specifically highlighted as a hydrogen carrier well-suited for current maritime transportation infrastructure, and retrofitting gas pipelines was also noted as feasible. In this context, the world's first ship-to-containership methanol bunkering operation in July 2023 was cited as an example. The operation was undertaken with the support of the Maritime and Port Authority (MPA) of Singapore, government agencies, and research institutes. The marine industry's global greenhouse gas emissions reduction targets set by

460_{bn}

U.S. dollars is the estimated investment gap across the hydrogen value chain



The development of hubs with concentrated clean hydrogen infrastructure build-out is considered an advantageous model

the International Maritime Organization (IMO) using green methanol envisage using hubs in order to scale green methanol and ammonia bunker businesses. In Europe, the Clean Hydrogen Partnership is looking at infrastructure development, which includes solutions for innovative cracking of ammonia and solutions for dehydrogenation of liquid organic hydrogen carriers. Large-capacity liquefaction prototypes and a large liquid hydrogen containment concept for shipping are being explored as well. Refueling stations infrastructure can be enhanced to lower costs and improved efficiency. At the same time, refueling protocols will address quality assurance.

Participants urged differentiation between choosing to do “good” now versus postponing to implement in search of “the perfect”. Viable stepping stones in the process exist, such as blending hydrogen into existing natural gas systems.

Energy systems of the future comprise one of the core components and pillars of the COP28 Presidency. This includes the need to address hard-to-abate sectors and foster industrial competitiveness to ensure a sustainable future.

In July 2023, India and Japan agreed to create a certification mechanism for renewable hydrogen and carbon credits. Both governments are considering creating such mechanisms with different



countries, recognizing the need for a common mechanism and standard as critical to developing hydrogen trade. Japan's strategy relies on procuring blue and green hydrogen from stable, low-cost producers around the world, and transporting it using hydrocarbons, ammonia, or methane as energy carriers.

Participants also deliberated on the importance of collaboration with other countries, organizations, and industry to create a hydrogen economy. Energy has emerged as a **collaborative component** of multilateral discussions, participants said, citing the examples of the recently concluded Group of Twenty (G20) meeting in India. Continuing pragmatism toward achieving climate goals, including collaborations between governments and regions on certification and infrastructure development, are important, they said.

This is possible if the role of each partner, including the government and the private sector, is carefully delineated, while ensuring that communication channels are open and there is a shared understanding. Countries such as the U.K. and the U.S. are working on Mutual Recognition Agreements (MRA) in a number of industries. To apply these to technical standard certifications in certain industries would go a long way to nurturing meaningful trade relationships for shared goals.

More work is needed to onboard emerging economies and build broader public awareness, which are crucial steps to expanding the global hydrogen ecosystem and harnessing its full decarbonization potential. **Bilateral and multi-lateral partnerships** and pilot projects between pioneering countries are important mechanisms to demonstrate real-world applications. Ongoing dialog and communication will help prevent duplication across the many existing multilateral hydrogen initiatives.

Clear demand signals, supportive policy frameworks, and proactive consumer engagement are imperative to **spur infrastructure investment**, underpinned by a long-term planning mentality, the roundtable heard. Investing in local economies from a regional point of view is one part of the solution.

Clear demand signals, supportive policy frameworks, and proactive consumer engagement are imperative to spur infrastructure investment, underpinned by a long-term planning mentality

KEY OUTCOMES

While emphasizing the role of clean hydrogen in the transition to net zero, the roundtable laid out a roadmap required to fully develop a robust hydrogen economy. Discussions centered around many aspects of global standards. The infrastructure required for the production, distribution, and consumption of clean hydrogen also formed a major part of the discussion. A thriving global hydrogen economy can be built on proactive leadership, collaboration, predictable policy frameworks, and societal engagement.

- 1 Hydrogen has an important role to play in net zero**
Clean hydrogen has a role not only in transforming energy systems but it can also help decarbonize hard-to-abate sectors, such as aluminum, steel, chemicals, shipping, and aviation.

- 2 An additional source, not a replacement**
Hydrogen has a role as an additional source within the overall energy system and mix; it is not a replacement for other solutions.

- 3 Supply needs to be dependable**
Large-scale deployment of clean hydrogen that contributes to diversification of energy sources needs to fulfil three criteria – it must be reliable, affordable, and resilient.

- 4 Simpler production lines can cut risk and cost**
Simplifying the hydrogen production line to reduce the risk posed by individual components can minimize execution risk and cost – for producers as well as consumers.

- 5 Common standards and certifications will help scale the industry**
International standards, mutual recognition frameworks, and certification schemes can enable a more robust global hydrogen trade and rapidly scale up the industry.



- 6 Time targets are critical**
The process of developing standards and certification is a task that needs to be performed within a timeframe, alongside policies and incentives.

- 7 Robust metrics can aid scaling**
Mechanisms to accurately quantify emissions intensity through consistent measurement methodologies that span production, transportation, and consumption are important.

- 8 Emissions metrics can replace color codes**
Quantifiable emissions can replace color-coding of hydrogen by origin, which tends to obscure major variations underlying generic labels like "blue" or "green".

- 9 Requirement rigidity can become a damper**
Rigid additionality principles focused on renewables could potentially deter market activation and compromise efficiency.

- 10 Partnerships and pilots are the way forward**
Bilateral and multi-lateral partnerships and pilot projects between pioneering countries are important mechanisms to demonstrate real-world applications.

PARTICIPANTS

Alex Campbell Director of Policy and Partnerships, LDES Council	Alicia Eastman President, InterContinental Energy	Andras Simonyi Nonresident Fellow, Global Energy Center, Atlantic Council	Anna Shpitsberg Deputy Assistant Secretary for Energy Transformation, U.S. Department of State
Barbara Harrison Vice President, Offsets & Emerging, Chevron New Energies	Bowen Xu Director, Corporate Development and Investments, OCI Global	Brian Kelly Vice President for Global Public Policy, Semptra	Charlotte Harris Senior Trade and Investment Officer, Clean Energy, UK Government, Department for Business and Trade, British Consulate-General, Boston
Charlotte Svensson Business Developer International Markets, Swedish Energy Agency	Christina Teng Topsoe Vice Chairman of the Board of Directors, Topsøe Holding A/S	Cynthia Walker CEO TES Americas and Chief Strategy Officer, TES-H2	Daiki Nakajima Director, JETRO New York
Diljá Ragnarsdóttir Advisor to the Mayor, Iceland	Dr. Nikolas Meitanis Executive Director, Strategy and Corporate Development, Masdar	Dr. Sunita Satyapal Director, Hydrogen & Fuel Cell Technologies Office of the U.S. Department of Energy	Gerard Conway General Counsel and Executive Vice President, Government Relations, Plug Power
Irina Gorbounova Vice President M&A and Head of the XCarb Innovation Fund, ArcelorMittal	Jessica Olson Head of Global Affairs, Americas Global Sustainability and Public Affairs, Topsoe	Landon Derentz Senior Director, Global Energy Center, Atlantic Council	Lindsey Hibberd Senior Manager, Programmes and Innovation, Carbon Trust
Makini Byron Director Clean Energy Strategy, Linde	Marco Alverà Chief Executive Officer, TES Hydrogen for Life	Mats Shore Senior Manager, Business Sweden	Mayor Dagur Bergþórsson Eggertsson Mayor of Reykjavík, Iceland
Michael Mendieta Advisor, Q Hydrogen	Michelle Sim Director, Corporate Sustainability, Semptra	Pete Sheffield Founding Member, Chief Sustainability Officer and VP, U.S. External Affairs, Enbridge	Petra Schwager Chief, Climate and Technology Partnerships (CTP) Division, UNIDO
Roeland Baan Chief Executive Officer, Topsoe	Sara Kelly Assistant Director, U.S. Department of State	Valerie Peyre Director, Abu Dhabi Sustainability Week	Whitaker B. Irvin Jr. Chief Executive Officer, Q Hydrogen
Zainab Al Ali Director, Outreach and Stakeholder Relations, Masdar	Zarmineh Rab Director, EMEA Strategy and Transactions, Sustainability, Ernst & Young AG		

PARTNERS

Principal Partner



Roundtable Partner



Content & Design



Abu Dhabi Sustainability Week (ADSW) is a global initiative championed by the UAE and its clean energy powerhouse Masdar to accelerate sustainable development and advance economic, social and environmental progress.

Established in 2008, ADSW provides a global platform for all who have a stake in the future of our planet. ADSW brings together leaders from across governments, the private sector and civil society, to discuss and engage on bold climate action and the innovations that will ensure a sustainable world for future generations.

ADSW is not only a premier convenor for global dialogue, but a catalyst for concrete results, providing multi-stakeholder platforms where thought leadership can evolve into thoughtful action.



Abu Dhabi Future Energy Company (Masdar) is the UAE's clean energy champion and one of the largest companies of its kind in the world, advancing the development and deployment of renewable energy and green hydrogen technologies to address global sustainability challenges.

Established in 2006, Masdar is today active in over 40 countries, helping them to achieve their clean energy objectives and advance sustainable development. Masdar is jointly owned by Abu Dhabi National Oil Company (ADNOC), Mubadala Investment Company (Mubadala), and Abu Dhabi National Energy Company (TAQA), and under this ownership the company is targeting a renewable energy portfolio capacity of at least 100 gigawatts (GW) by 2030 and an annual green hydrogen production capacity of up to 1 million tons by the same year.



Hosted by



For more information

General enquiries: contactus@adsw.ae

Media enquiries: media@adsw.ae

