

Public and Private Entities Need to Step-up Collaboration and Innovation to Tackle Climate Change and Dwindling Natural Assets

In a lively conversation, leaders from business, policy, and government discussed how to improve the productivity of natural assets and deal with the current climate crisis

Population growth and the expansion of the global economy are putting pressure on natural resources. Biodiversity loss has reached unprecedented levels, and the effects of climate change are threatening societies worldwide. The preservation of water, land, forests, minerals, and biodiversity is critical for global health. It supports the sustainability and resilience of cities and nations, and ultimately, humanity's collective future.

During the Frame the Future of Natural Assets on October 6, global leaders working in policy, government, and the private sector discussed innovative strategies to drive sustainable and resilient solutions for the productive and responsible use of fossil fuels, water, minerals, vegetation, and other natural resources. They commented on the factors that impact natural asset overconsumption and discussed the importance of investing in knowledge, accelerating green technologies into the market, and collaborating globally to address future challenges.

The Frame the Future of Natural Assets gathered insights from Mr. Omar Al-Ansari, Secretary General at the Qatar Research, Development, and Innovation Council; Mr. C. Derek Campbell, Executive

Chairman at AlphaSierra Group; Prof. Zakri Abdul Hamid, Science Advisor of the Campaign for Nature, and Scientific Advisor to the President of the Islamic Development Bank; Prof. Guy Poppy, Chief Scientific Advisor to the Food Standards Agency with the UK Government, Director of Transforming UK Food Systems SPF, and Professor of Ecology at the University of Southampton; and Dr. Karin Calvino, CTO and Co-Founder of RenewCO2. Dr. Roberto Alvarez moderated the discussions.

Partnerships and Innovative Systems Thinking Are Key

Uneven distribution of natural resources brings challenges and opportunities for societies and economies. Two things will play a critical role in paving the way for a more sustainable and resilient future: partnerships between governments and private entities; and the capacity to rethink and redesign industries, supply and value chains, and economies in a systemic way.

Qatar's economy is largely backed by its reserves of oil and natural gas. The country is the largest exporter of liquefied

"If you look at aspects associated with water, soil, biodiversity, greenhouse gas emissions, etc., agriculture is one of the highest contributors to many big global issues."

Prof. Guy Poppy

Chief Scientific Advisor, Food Standards Agency at the UK Government

Director, Transforming UK Food Systems SPF

Professor of Ecology, University of Southampton

natural gas (LNG) in the world, and the country's exports of hydrocarbon products provide a significant portion of government revenues.¹ But the country deals with extreme levels of water stress

¹ <https://www.eia.gov/international/analysis/country/QAT>.

Participants

Mr. Omar Al-Ansari

Secretary General, Qatar Research, Development, and Innovation Council

Mr. C. Derek Campbell

Executive Chairman, AlphaSierra Group

Prof. Zakri Abdul Hamid

Science Advisor, Campaign for Nature

Scientific Advisor to the President, Islamic Development Bank

Prof. Guy Poppy

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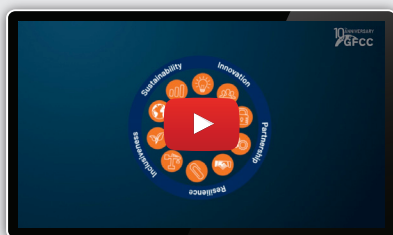
Dr. Karin Calvino

CTO and Co-Founder, RenewCO2

Host

Dr. Roberto Alvarez

Executive Director, Global Federation of Competitiveness Councils (GFCC)



WATCH THE CONVERSATION

"We've been relying on petroleum to provide comfort for such a long time, but in the past few decades, petroleum has become less available. The return on investment of extracting a barrel of oil today is half of what it was in 1950 – this return on investment will continue to lower with time."

Dr. Karin Calvino

CTO and Co-Founder, RenewCO2

and limited land availability, factors that directly affect food security. In the face of these issues, Qatar has been making strides in offsetting Carbon emissions via innovative technology solutions, such as during the upcoming 2022 World Cup, and investing in collaboration and partnerships with other countries and the private sector to develop and deploy sustainable solutions to improve the productivity of natural resources.

Increasingly, Qatar and organizations such as the Qatar Research, Development, and Innovation Council (QRDI Council) are following a challenge-based approach to address sustainability issues and drive the growth of the national innovation ecosystem. Mr. Al-Ansari explained that "the goal is for government agencies and our state enterprises to become platforms where they can communicate their challenges and where the private

"One million species of our plants and animals are on the threat of extinction, and almost 60 percent of ecosystem services that provide humankind with food, water, clean air, and all the rest, are being degraded by human activities."

Prof. Zakri Abdul Hamid

Science Advisor, Campaign for Nature

Scientific Advisor to the President, Islamic Development Bank

sector would be invited to address those challenges through innovative solutions." Sustainability is one of the pillars in Qatar's ten-year strategy, and to tackle the issue of sustainability, they are using the challenge-based approach. Expanding on that, Mr. Al-Ansari stressed that systems thinking and innovation provide the key to turning the climate and sustainability perfect storm that the globe is facing into a "perfect opportunity."

Partnerships between innovative companies and investors who bet on the long term can help to design new solutions for the sustainable use of natural resources. Dr. Calvino expressed the importance of various financial backers to her company's mission to reduce carbon emissions and capture carbon for reuse. Investors who are willing to take a risk, even when short-term financial returns are unlikely, play a vital role in the ability of deep tech

startups to function and eventually thrive. Dr. Calvinho described the relationship as “having investors that are looking to have an impact with their investments by investing in sustainability efforts with long-term positive change.” RenewCO2 also counts on the support of government agencies, like Argonne National Laboratory in the United States, which has a focus on sustainability and can supply research resources that are needed for the technology to further mature.

The establishment of partnerships that support transition to the responsible use of natural resources requires personal connections and trust. Mr. Campbell shared that “the most precious natural resource for every nation and every region is its people.” Without trust and a sense of partnership between those making decisions and those having to abide by those decisions, change cannot happen. When it comes to an energy transition, Mr. Campbell pointed out that without the cooperation and collaboration of people, the transition will not happen. At the same time, people cannot be left behind during a pivotal moment — energy transition needs to be coupled with the betterment of life for people in all geographies, respecting and understanding the differences across local realities.

Innovation of Natural Assets

Leveraging the use of natural assets to be more sustainable, resilient, and productive will require innovative models and practices. There needs to be technological innovation, innovation in policies, and process and systems innovations to make real change in the world’s reliance on natural resources.

Prof. Hamid pointed out how crucial strong R&D endeavors are to GDP growth and the use of natural assets. He gave the context that countries that invest more than 1 percent of their GDP in R&D industrialize and advance more quickly than ones that do not invest as heavily. In Malaysia, the Universiti Teknologi

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 "Energy transition and the use of natural resources should be driven by the people who own the natural resources and empower the people in the emerging and frontier markets."

Mr. C. Derek Campbell
 Executive Chairman, AlphaSierra Group

PETRONAS, a GFCC member, was highlighted and an example of an entrepreneurial higher education institution that connects multidisciplinary, challenge-oriented investments in R&D with society needs, social-economic development, and the development of human resources. Prof. Zakri also commented on the opportunity to use advanced technologies to better use, understand, monitor, and preserve biodiversity; he sees “precision biodiversity” as a critical emerging area for research and innovation.

Prof. Poppy commented on the increased focus on R&D through innovative strategy programs in the food industry in the U.K. He chairs a food systems government initiative, called Strategic Priorities, that works with academia and industrial communities to identify areas that need strategic investment. The goal of the program is to better understand where R&D needs to occur to transform the food industry into a more sustainable platform. Food systems are related to all 17 UN Sustainable Development Goals and must be at the center of any sustainable, future-building initiatives.

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 "We need a re-imagination or innovation facility to bring together problems, big systems thinking, technology, and funding."

Dr. Roberto Alvarez
 Executive Director, Global Federation of Competitiveness Councils (GFCC)

Prof. Poppy is also involved with the Industrial Challenge Fund, another British program that aims to transform food production by funding SMEs and other companies that are developing alternative proteins to replace livestock and helping farms move towards net zero. Popularity is growing for alternative proteins, like the popular Impossible™ Burger and Beyond Burger® in the United States. Prof. Poppy described his optimism about these types of programs: “It’s interesting to see how these kinds of funding opportunities are being solved by both innovation and small companies, or the academic community, to effectively nudge them towards generating the type of research that is needed to lead to transformation.” The livestock sector represents 14.5 percent of human-induced greenhouse gas emissions,² but through new processes can be transformed into a sustainable, circular economy.

Developing innovative uses of resources, for instance using carbon dioxide captured from pollution as feedstock to create new products, can drastically change the reliability on resources that are damaging the environment. Dr. Calvinho and her team are developing ways to make plastics from CO₂ emissions instead

2 <https://www.worldbank.org/en/topic/agriculture/brief/moving-towards-sustainability-the-livestock-sector-and-the-world-bank>.

of petroleum. This type of innovation would allow chemical companies to meet climate goals while making a profit. This cycle in turn would make companies more likely to invest in innovation efforts that are beneficial to the environment. Dr. Calvinho sees opportunities for this type of innovation because “there are means to close the carbon cycle, but companies aren’t doing it and don’t have the knowledge and technology to do it yet.”

Impact of Natural Assets on Various Industries

Natural assets are used in all facets of society, and all industries rely on different available natural assets.

The current overuse of natural assets, especially fossil fuels, in many parts of the world has negative impacts on biodiversity. Prof. Hamid shared that “those resources that provide humankind with food, clean water, energy, and all the rest are being degraded by human activities.” Irresponsible use of current resources has negative implications on the availability of resources in the future.

The fall of global biodiversity negatively impacts all kinds of other industries, one of them being food. Prof. Poppy pointed out that when looking at “aspects associated with water, soil, biodiversity, and greenhouse gas emissions, agriculture is one of the top contributors to related global issues.” Not only does agriculture play a big role in major problems with the most basic natural resources, but it is also reliant on many of those resources. Moving and producing food has a huge impact on natural assets, and there are currently limited solutions to a more sustainable model for this.

Carbon-based resources are limited, and their availability impacts many industries. Dr. Calvinho explained that “carbon is one

of the most important resources today since it is used to produce energy and sustains a lot of comfort in life that allows humans to live in areas previously not inhabitable.” She also pointed out that petroleum is not as available as it was before, and there is a need to find alternatives to the current heavy reliance on petroleum and other carbon resources. Petroleum is used in a majority of industries globally, and without new solutions to reduce the dependence on petroleum, natural asset use is not sustainable. In other words, we are wasting carbon that could be re-injected into value chains by discarding it in the atmosphere.

Society has always relied on natural assets, but the current climate crisis is changing the way the world needs to view and use resources. Collaboration and innovation will be the key going forward to use natural resources more responsibly and sustainably. An important part of any initiatives that aim to decouple human impact on the planet and growth should be about identifying the best levers and action points. Prof. Poppy suggested that countries should look for opportunities to introduce novel technologies that reduce/eliminate carbon footprints, but do not disrupt existing business models. This could provide a path to accelerate decarbonization and restore balanced use of natural resources.

Dr. Alvarez concluded the session by saying that “we need to accelerate technology development and introduction, but above all, think on systems terms and recognize the diversity and different realities across the globe, looking for fit between new solutions and those realities.” Going forward, natural assets will continue to be essential in societal development, but the nations and players who learn to use those sustainably, and develop the technologies and business models for that, will certainly gain a competitive edge.

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 "Development and sustainability don't have to be mutually exclusive and, in some cases, new and innovative development can bring attention to and create sustainability measures. We need to break trade-offs."

Mr. Omar Al-Ansari

Secretary General, Qatar Research, Development, and Innovation Council