Impact Reimagined

Voices of the Next Generation for Sustainability

Volume 1 Climate and Nature

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WEGA
WELL-BEING AND EESG ALLIANCE

TPC

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- Volume 1: Climate and Nature
- Volume 2: Economies and Systems
- Volume 3: Well-being and Humanity

About Well-being and EESG Alliance (WEGA)

The Well-being and EESG Alliance (WEGA), where EESG stands for Economics, Environmental, Social and Governance, is jointly established by TPC (Tsao Pao Chee) and the Centre for Governance and Sustainability at the National University of Singapore (NUS) Business School. Established in 2024, it aims to drive corporate sustainability, governance and well-being research focused on Asia. Additionally, it aims to foster a community of practitioners subscribing to the Asian sustainable well-being approach.

Learn more about WEGA at https://bschool.nus.edu.sg/cgs/wega.

About TPC (Tsao Pao Chee)

TPC (Tsao Pao Chee) is a fourth-generation family business holding company headquartered in Singapore that is committed to empowering the Well-being and happiness economy. TPC does this by supporting global connectivity and resilience through its supply chain and logistics activities, and well-being-focused activities aimed at fostering individual and collective growth. TPC's purpose-led Well-being business ecosystem comprises IMC Industrial, OCTAVE, and multiple non-profit organisations, including NO.17 Foundation, OCTAVE Institute, and Restore Nature Foundation, which operates in unity to add value to life. TPC has corporate offices in the People's Republic of China, Thailand, Indonesia, and Japan. Find out more about TPC (Tsao Pao Chee) at tsaopaochee.com and on LinkedIn.

About NO.17 Foundation

NO.17 Foundation is the nexus of capital, consciousness, and collaboration in the Well-being Era — the philanthropic heart of TPC (Tsao Pao Chee). Rooted in SDG 17: Partnerships for the Goals, NO.17 unites values-aligned funders, partners, and changemakers to catalyse systemic transformation. Through trust-based giving, regenerative coalitions, and strategic ecosystem building, we activate new forms of capital — financial, social, cultural, spiritual, institutional, ecological, and human — as a force for collective flourishing. Explore our movement to make philanthropy as a field of love for transformation at https://17foundation.org/ and on LinkedIn.

About Centre for Governance and Sustainability, NUS Business School

Founded in 2010, the Centre for Governance and Sustainability (CGS) is housed at the National University of Singapore (NUS) Business School. Our research empowers leaders, organisations and regulators in making informed decisions related to corporate sustainability and corporate governance. We bridge knowledge with industry needs, enabling organisations in the Asia Pacific, including ASEAN and Singapore, to go further in their sustainability journeys.

Our research pillars are as diverse as they are profound, covering initiatives in sustainability reporting, climate and nature-related reporting, the Singapore Governance and Transparency Index, the ASEAN Corporate Governance Scorecard and more.

Visit https://bschool.nus.edu.sg/cgs/ to find out more about our work.

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Introduction

The e-book "Impact Reimagined: Voices of the Next Generation for Sustainability" began from IMPACT WEEK, a well-being economic conference and festival organised by TPC (Tsao Pao Chee) and NO.17 Foundation. Held from 15 to 19 September 2025, with most activities concentrated at the Suntec Convention Centre in Singapore, the event attracted more than 4,000 people to learn, connect and take actions towards building well-being economies.

Among the attendees were 98 students from the National University of Singapore (NUS) Business School. Enrolled in the course "Strategic Sustainability" taught by Professor Lawrence Loh, these NUS MSc Strategic Analysis and Innovation students were assigned to explore IMPACT WEEK and write a learning journey log based on a session or topic of their own choice. They were also encouraged to include photos and videos in their essays.

Their reflections are diverse in topics and provoke thinking on what individuals, organisations and societies can do to serve our shared future.

The e-book is divided into three volumes. "Volume 1 Climate and Nature" covers perspectives related to climate action, nature regeneration, energy transition and collaboration. "Volume 2 Economies and Systems" portrays reflections on the blue, green and silver economies, the role of social entrepreneurs and family businesses, as well as how Asia writes its own chapter on sustainability. "Volume 3 Well-Being and Humanity" focuses on the mindsets for change, social innovation, and a holistic approach to promote well-being for humanity and the planet.

By publishing these reflective essays, we hope to inspire more meaningful conversations and action for a better world.

Foreword

We are living at a decisive moment in human history. The climate and nature crises confronting us today are not isolated environmental challenges; they are symptoms of a deeper imbalance in how we see ourselves, how we relate to one another, and how we engage with the living systems that sustain life.

For decades, progress has been defined narrowly—through growth, efficiency, and short-term gain—often at the expense of planetary health and social cohesion. Yet nature reminds us, again and again, that life flourishes not through extraction or domination, but through coherence, reciprocity, and regeneration. A truly sustainable future cannot be engineered solely through technology or policy. It must begin with a transformation from within—of values, intention, and consciousness.

Business has played a central role in shaping the world as it is today. With that influence comes responsibility—and opportunity. At TPC (Tsao Pao Chee), a family enterprise spanning more than 120 years, we are learning that the transition toward a well-being era requires more than new strategies or metrics. It calls for inner work: a shift from control to stewardship, from competition to collaboration, and from transactional value to value that serves life.

This spirit of inner and outer transformation was deeply present at IMPACT WEEK 2025 in Singapore, presented by TPC and NO.17 Foundation. Across conversations on climate, nature, capital, education, and leadership, a shared realisation emerged: the health of our ecosystems is inseparable from the quality of human intention that shapes our systems.

The journey toward climate resilience and nature regeneration is not one we can walk alone. It requires partnerships across sectors, generations, and worldviews—and, most importantly, a shared commitment to inner alignment. When our intentions are clear and grounded in care for life, our actions can begin to heal rather than harm.

Under the guidance of Professor Lawrence Loh, 98 National University of Singapore (NUS) students attended IMPACT WEEK 2025. Their reflections on climate and nature—captured in this volume—are not merely academic responses to sustainability challenges. They are honest inquiries into purpose, responsibility, and the kind of future they wish to inherit and co-create. In their evolving perspectives, we see signs of a generation willing to question inherited assumptions and to lead with greater coherence between inner values and

outward action. It offers a mirror—inviting us to reflect on how our inner world shapes the outer one we collectively inhabit.

We invite you to read these voices with openness and humility, and to consider how each of us—wherever we sit in society—might reimagine our systems, our choices, and our relationship with the Earth. Together, through conscious intention and collective action, we can nurture a well-being era that allows both humanity and nature to flourish.

Chavalit Frederick Tsao
Chairman, TPC (Tsao Pao Chee)

Tai Sook Yee
Chair, NO.17 Foundation

Preamble

The adoption of the United Nations' 17 Sustainable Development Goals in 2015 marked a collective recognition that the challenges facing humanity are interconnected—and that progress toward a sustainable and equitable future demands more than isolated efforts. Among them, **Goal 17: Partnerships** stands as a unifying principle, reminding us that meaningful transformation emerges only when we learn to work together across boundaries, sectors, and worldviews.

NO.17 Foundation was established in this spirit. Inspired by the SDGs and guided by a deeper inquiry into what enables life to flourish, we invest in partnerships that strengthen human well-being while restoring harmony with the planet. We believe that collaboration is not merely a mechanism for delivery, but a practice of shared responsibility—one that invites trust, learning, and co-creation in service of the whole.

This belief found vivid expression at IMPACT WEEK **2025**, co-hosted with TPC **(Tsao Pao Chee)** in Singapore. Conceived as a living platform rather than a conventional conference, IMPACT WEEK brought together diverse actors across business, capital, education, policy, and civil society to explore how inner values shape outer systems—and how partnerships can catalyse systemic change. From this convergence emerged initiatives such as the Impact Coalition, dedicated to human and planetary flourishing, and the Well-being and EESG Alliance (WEGA), formed through the partnership between TPC and the Centre for Governance and Sustainability (CGS) at NUS Business School. Each reflects a shared commitment to reimagining value creation through the lens of well-being.

It is within this same spirit of partnership and inquiry that we are honoured to join hands with **WEGA, CGS, and TPC** to present *Impact Reimagined: Voices of the Next Generation for Sustainability*. This three-volume e-book captures the reflections of NUS students who journeyed through IMPACT WEEK—listening, questioning, and engaging with some of the most pressing issues of our time.

Their voices offer more than commentary. They reveal moments of awakening—where ideas encountered in dialogue begin to take root personally, reshaping how these young leaders see climate and nature, economics and systems, and ultimately well-being and humanity. Together, their reflections remind us that sustainable futures are not designed solely through policy or technology, but through evolving consciousness, relationships, and ways of being.

Each story within these pages is a spark—an invitation to reimagine impact not as an individual achievement, but as something that unfolds through connection. As you read, we hope you will be inspired to reflect on your own role within the living systems you inhabit, and to cultivate partnerships that serve life, in all its forms.

Tai Sook Yee
Chair, NO.17 Foundation
Chair, Advisory Board, Well-being and EESG Alliance (WEGA)

About This Volume

"Volume 1: Climate and Nature" is part of the three-volume e-book, "Impact Reimagined: Voices of the Next Generation for Sustainability". The series features reflections by some 100 National University of Singapore (NUS) students, following their participation in IMPACT WEEK. Held from 15–19 September 2025 in Singapore, IMPACT WEEK was co-organised by TPC (Tsao Pao Chee) and NO.17 Foundation. The event's partners included the Centre for Governance and Sustainability at NUS Business School and the Well-being and EESG Alliance (WEGA).

This volume is organised into various sections. The opening section, **"A Connection to Home"**, includes essays on how students relate their IMPACT WEEK learnings to their hometowns and personal experiences. Home is deeply cherished, serving as the foundation where students imagine and shape their future aspirations.

Subsequently, the section **"A Journey for Transition"** delves into students' gained insights relating to energy transition, decarbonisation and the role of capital in this process. Another common theme is reviewing humankind's attitudes towards nature. Meaningful progress depends on a shift from exploiting natural resources to adopting practices of nature regeneration.

Ultimately, addressing climate change and protecting nature require collective action. Success in these areas engages diverse sectors and professions—including business, finance, innovation, and storytelling—where every perspective and action contributes value. In the third section, **"A Mission Across Fields"**, students contemplate how the sustainability and well-being mission can be advanced through collaboration.

We hope their reflections will inspire ongoing dialogue and collective action for the betterment of the climate and nature.

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A Connection to Home

So much of our feelings for climate and nature start from home and our personal experiences. Home is where the conviction begins, and the reason why we want a flourishing future.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). Impact reimagined: Voices of the next generation for sustainability (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

A Meaningful Conversation on People, Planet and Profit

Jeslyn Lim SUHARJA

Introduction

IMPACT WEEK 2025 was more than a gathering and event. It was a collaboration among thinkers, innovators and changemakers. The purpose was to reimagine how business, policy, and innovation can drive meaningful progress for people and the planet.

The event featured not only insightful talks but also various sustainable initiatives, including (from left) low-waste food preparation, hydroponics, mushroom farming by Spore Gardens, and my personal favourite, an augmented reality simulator by OceanX offering an underwater submarine experience.

During the five days of the event, one talk, "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies", caught my attention. This was because it examined how ASEAN could move beyond carbon accounting to building regenerative economies rooted in coherence among nature, markets and communities.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

Mr Bradford Willis from the Columbia Center on Sustainable Investment moderated the session featuring six notable speakers: Mr Wayne Mulligan, Chief Executive Officer of NZ Bio Forestry; Mr Satya Tripathi, Secretary-General, Global Alliance for a Sustainable Planet; Dr Weerawat Chantanakome, the Senior Policy Counsel on Energy at the Economic Research Institute for ASEAN and East Asia (ERIA); Mr Ed Peng, Co-Founder and Partner at Canopy Generations Fund; Professor Yuen Yoong Leong, Director of Sustainability Studies at the United Nations Sustainable Development Solutions Network; and Dr Bo Bai, Executive Chairman and Founder of the Asia Green Fund.

The panel discussion on climate economies in ASEAN was of utmost interest.

Key Discussion Insights

Systems Approach and Mindset Shift

Professor Leong started the conversation by addressing the need for a mindset shift within ASEAN. She stressed that regional sustainability efforts cannot remain as fragmented national climate policies. Instead, they should evolve towards a shared goal that sees sustainability as a living system that integrates environmental, social and economic dimensions. ASEAN's transformation could

be addressed in two parts: the decarbonisation of technical systems and the recarbonisation of ecosystems.

Decarbonisation of technical systems

According to Professor Leong, real sustainability necessitates considering a product's whole life-cycle cost, including everything from mining and transportation to operations, rather than just its apparent carbon savings. Claiming a carbon benefit is simple, but figuring out the full carbon cost is much more difficult. She firmly asserted that assets with a quarter-century lifespan "are not infrastructure", reminding that longevity must be a primary design priority because traditional infrastructure lasts a century while many renewable technologies only last roughly 25 years. In the end, she concluded that decarbonisation is a design challenge that necessitates an emphasis on durability, efficiency, and long-term planning.

Recarbonisation of ecosystems

Shifting her focus to nature, Professor Leong defined recarbonisation as bringing vitality back to degraded ecosystems. She explained that natural systems absorb carbon to create life but have been decarbonised through deforestation and degradation. Her call to action urged ASEAN to move past simply protecting what remains and instead learn to nurture and responsibly harvest from these environments. She clarified that recarbonisation is essentially about "understanding relationships within nature and respecting their complexity".

Carbon Finance

Shifting the conversation to finance, the panel explored how carbon markets could be used as instruments for coherence rather than fragmentation. Mr Ed Peng pointed out that conflicting expectations among governments, philanthropists and investors are a common cause of impact investment difficulties. It was also emphasised that, despite their flaws, carbon credits are still the most widely accepted and useful method of measuring impact. In order to bring disparate forms of capital into alignment and enable justice and accountability, he suggested that carbon should develop into a trustworthy "value marker" akin to currency exchange. Dr Bai clarified how the adoption of the Paris Agreement brought about new difficulties since credits are now associated with the national identities of each nation's climate pledges. He maintained that markets are inefficient due to the complexity of standards and the absence of benchmarking. His proposed solutions are: digital traceability, standardisation and the development of a global carbon currency that incorporates carbon trading into traditional finance.

Justice, Inclusion, and Governance

Mr Satya Tripathi added a strong sense of urgency and moral clarity to the conversation. He described how global warming is accelerating and cautioned against what he called "carbon tunnel vision", which is the tendency to prioritise lowering emissions at the expense of equity and inclusivity. Mr Tripathi spoke fervently about using carbon as a tool for opportunity and justice. He underlined that carbon markets ought to benefit people's lives as well as businesses. "People, not just businesses, must benefit from carbon," he stated. Millions of people could be lifted out of poverty if carbon funds were allocated to just projects like biodigesters for farmers or regenerative agriculture for smallholders. Using Indonesia as an example, he explained how biodigesters could generate 30 million credits annually from 20 million cattle, giving farmers a source of income and self-respect. He reminded everyone that hope, not fear, is what propels change.

Continuing this thread, Dr Weerawat Chantanakome spoke about governance as what he called the "coherence gap". He explained that regional cooperation through initiatives such as the ASEAN Power Grid could help bridge this gap by pooling resources, sharing resilience, and ensuring that smaller economies gain real benefits. His idea of a "Just Transmission Mechanism" highlighted the importance of fair pricing, job creation and community-centred planning. He stressed that the energy transition must also be a social transition that brings shared value, shared security and shared prosperity to the entire region.

The Bioeconomy

Mr Wayne Mulligan started with a Māori saying about unity between people and nature, "I am the river and the river is me, I am the mountain and the mountain is me." He spoke of both entrepreneurship and culture. As an entrepreneur, he aims to mend the relationship between people and nature by establishing forestry-based businesses that use renewable, bio-based resources in place of fossil fuel-derived materials.

Mr Mulligan reframed carbon as a basis for systemic change rather than just a metric of reduction. From this perspective, carbon credits serve as catalysts rather than endpoints, promoting the development of circular industries that emphasises resource efficiency and the creation of shared value. Through an integrated model that aligns ecological integrity with social and financial well-being, Mr Mulligan demonstrated how economic development and environmental restoration reinforce each other.

Personal Reflections

My perspective has completely changed after listening to this talk. I once believed that there were few or no highly lucrative business opportunities in sustainability. However, after listening to the presenters, I came to the conclusion that sustainability is not only feasible but also the way of the future for business. Every panellist illustrated how financial success and environmental responsibility can coexist, from developing circular economies that benefit both people and the environment to opening up new markets in carbon finance and renewable energy.

The panel discussion served as a crucial reminder of our course's central tenet, which is that sustainability must be fully integrated into every facet of a company. Rather than being a separate department or function, it is a comprehensive system that touches on governance, finance, accountability and community involvement. Additionally, the focus is on integration and considering products' full life cycles and long horizons. This is aligned with Professor Leong's call to decarbonise technical systems and recarbonise ecosystems. The course challenges us to think about trade-offs across time and stakeholders, and to decide on the optimal business model.

In our lectures, we learnt about "Returns, Responsibility and Risk", which form reasons why companies pursue sustainability. Circular models and reliable metrics can turn sustainability from a cost to a value. These points were similar to Mr Peng's and Dr Bai's views on finance. Instead of viewing sustainability risk management as merely a moral obligation, their emphasis on improved markers, verification and liquidity relates to developing the business case for sustainability.

Additionally, our discussions on the environmental and social aspects were also in line with Mr Tripathi's message of caution regarding the carbon tunnel vision. We talked about how market-only strategies can externalise costs and how community outcomes, equity and inclusion are essential components of credible practice. By showing how regenerative farming and biodigesters work, Mr Tripathi illustrated the social pillar in practice and cautioned against unsupported environmental claims—a topic our class explored through researching and analysing greenwashing case studies.

By emphasising regional interconnection, Dr Chantanakome truly made the governance topic come to life. Our course has consistently emphasised strong institutions, well-defined regulations, and trustworthy information. Disclosures, assurance and preserving the integrity of the carbon markets are all necessary for effective climate action. These efforts will create trust, and as Dr

Chantanakome emphasised, these will also attract the required investments for regional planning and equitable benefit sharing.

During the panel discussion, I had my "Aha!" moment regarding coherence. I now consider it to be an essential change in management style and mindset. The goal is to create value by integrating community development, governance and carbon financing into a single, cohesive system. This is exactly in line with the ways of thinking that our programme is fostering. In order to achieve truly regenerative results, we are learning how to be leaders who find ways to harmonise people, planet, and profit rather than merely "balancing" them.

Application

Carbon Credit as a Revenue-Generating Export for Southeast Asia

This talk inspired a meaningful conversation with my father, who has been interested in carbon credits for some time. We discussed how adopting sustainable practices could result in extra revenue. My father shared his vision of fusing agriculture and environmental responsibility, given that he has a strong interest in plantations, particularly those that grow durians. According to him, carbon credits could develop into a solid long-term investment that yields both impact and profit if they were tokenised on the blockchain. To him, selling durians and receiving carbon credits could be a win-win situation. In addition, he contemplated establishing a bamboo forest in order to diversify his plantation business and store even more carbon.

The carbon credit concept has been gaining traction as a viable financing mechanism. According to Liu (2022), around 2021, transactions of agriculture-based carbon credits in the voluntary carbon market jumped from about 300,000 tons to 3.4 million tons within one year, an 876% increase. Many farmers and project developers seized this opportunity. Furthermore, it is projected that if transparency and integrity improve, the voluntary carbon market could grow up to US$1 trillion by 2050 (Yale School of the Environment, 2025).

Focusing on Southeast Asia alone can show how much potential carbon credit revenue can be generated. A recent analysis by BloombergNEF (2025) estimated that nine out of 11 Southeast Asian countries combined could generate about 1.27 billion metric tons of abatement potential by 2050. In the lead is Indonesia with about 749 $MtCO_2e$ of potential credits. This means that Southeast Asia can become the long-term net supplier of carbon credits to the world, turning its conservation and reforestation efforts into a revenue-generating export.

Suggestions for the Philippines' Aquaculture Industry

My second major takeaway came from a conversation with my Filipino friend, Hans. The discussion centred on how aquaculture in the Philippines remains deeply fragmented, with many small farmers struggling to access essential resources like technology, stable financing and coordinated market systems. I began to realise that the same principles discussed by the speakers, such as regenerative finance, regional cooperation and community-centred development, could also apply directly to the aquaculture sector.

In the Philippines, aquaculture is essential for maintaining jobs, food nutrition and foreign exchange, especially in rural and coastal areas. However, the Philippines' ranking in aquaculture production has steadily declined from fourth place in 1985 to 12th place today (Food and Agriculture Organisation of the United Nations, 2025). The industry urgently needs a development plan with a clear global perspective in this era of international trade. Three issues need to be addressed: expanding market reach, increasing competitiveness, and reducing farming risks.

In my opinion, investments in the Philippines' aquaculture industry could lead to innovations, the set-up of regional infrastructure (e.g. depots with ice makers and freezers), training programmes and new marketing platforms that link farmers directly to institutional buyers (such as restaurants and exporters). This regenerative approach could improve livelihoods and also stabilise prices, hence bringing more benefits to society.

Conclusion

My perspective on sustainability and business was totally altered by my experience at IMPACT WEEK 2025. Profit and environmental care, which at one point appeared to be distinct fields, now feel inseparable. The panel demonstrated that sustainability involves more than just reducing emissions. It also entails creating systems in which communities, governments and the financial sector collaborate to restore livelihoods and the environment. I discovered that addressing climate issues calls for collaboration, inclusivity and long-term planning.

Ultimately, this experience served as a reminder to me that coherence is not just a theoretical idea. This forward-thinking approach necessitates creating business models that balance social justice, ecological resilience and human advancement. It is our duty as future strategists and leaders to turn sustainability from a compliance exercise into a source of prosperity for all. Besides expanding my understanding, the experience has inspired me to

envision a future where I can contribute to systems that truly benefit people, support the environment, and generate financial rewards.

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AT ONE IMPACT WEEK and a Reminder of Madurai

Shreyaa SARAVANAN

When Professor Lawrence Loh first told us about IMPACT WEEK, I thought it was just another sustainability conference until I attended the event on 17 September, which left such a deep impression on me. That day, I attended the session "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies". Initially, it began as a technical discussion about sustainability. Then, it soon switched into a profound reflection on how we as humans measure progress and impact.

"From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" panel discussion.

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The speaker Mr Bradford Willis, Senior Associate at Columbia Center on Sustainable Investment, began by explaining carbon benefit and how the positive environmental impact of a product means little if we don't account for its carbon cost. This particular sentence stuck with me: "To claim a carbon benefit without accounting for the entire carbon cost is not accounting for it at all." It reminds me of how easy it is to celebrate "green" progress without understanding the hidden chains of mining ores, refining, transportation and the production processes which make the product possible. This made me realise that sustainability is not just about the end results, but about the responsibility in every step of the journey.

How Long Do Renewable Systems Last?

Mr Willis went on to talk about design lifetimes, comparing civil infrastructure which lasts about 120 years and renewable systems like solar and wind farms that last for about 25 years. This moment actually struck me. I've always admired solar energy, my family even works in solar panel installations, but I had never considered how short-lived the technology itself can be. It made me think deeply about how sustainability needs to evolve beyond innovation and towards longevity. A sustainable future is not only about what we create but how long it can serve the planet without exhausting it again.

Then Professor Yuen Yoong Leong, Director of Sustainability Studies at the United Nations Sustainable Development Solutions Network, discussed recarbonising ecosystems. She explained how technical systems require decarbonisation, and natural systems need recarbonisation. Forests, soils and wetlands do not need us to remove their carbon; they need us to restore it. I found that idea powerful. Nature doesn't need our interference; it needs our respect and investment.

What resonated most with me was her idea that vibrancy exists only when the whole ecosystem thrives together. It reminded me of how easily humans forget that we share the planet with countless other living beings. Sustainability, she said, isn't only for the future generations of people but for the vibrancy of all life, plants and animals that make our whole world. It reminded me of yoga, the flow of breath, balance, and oneness, the same philosophy she linked to the Chinese concept of "qi", the life energy that flows through all.

Carbon Credits as a Financial Evolution of Responsibility

Then Mr Satya Tripathi, Secretary-General, Global Alliance for a Sustainable Planet, discussed carbon credits and how they can bridge financial systems with environmental accountability. He also highlighted the challenges of verification

delays, fragmented capital and measurement difficulties. What I found fascinating was how he described carbon credits as a "financial evolution of responsibility", a new kind of market that gives value to care and restoration. I realised that sustainability isn't just a moral responsibility anymore, it's also a space for innovation, collaboration and even creative finance.

Building on this, he brought a more urgent and emotional perspective. He reminded everyone that we have already crossed 423 parts per million in atmospheric carbon, which is higher than it has been in three billion years. His tone was raw, almost pleading.

He questioned how we, as a global community, could still be complacent when the data is literally screaming at us to act. I remember sitting there quietly, feeling an uncomfortable truth sink in. We talk about sustainability in classrooms and conferences, but out there, the planet is literally heating up faster than ever. Despite the warnings, he ended with a strange kind of hope, the idea that carbon can become an opportunity. He shared how the price of carbon credits has risen significantly, and how, if we can treat carbon as a resource and a responsibility, it could push the world towards real change.

This talk was not just academic; it made me see sustainability not as a chapter in my syllabus but as a living philosophy, one that blends science, nature and human empathy.

The House That Breathes

After the talk, as I walked through the exhibits, each space whispered its own story of harmony and innovation. The installation "Waking Up to the House That Breathes" seemed alive with warmth and energy. It reminded me of how we often live disconnected from nature, our homes sealed off from air, soil and sunlight. But here, technology wasn't against nature; it was in tune with it. The idea that a home could support health, mindfulness and balance felt like a vision of the future I want to live in.

"Waking Up to the House That Breathes" Installation.

It made me think of how sustainability can be more than carbon numbers or

charts, it can be intimacy between humans, their spaces and the planet. The Li-Tan, the family portrayed in the installation, didn't just design a house; they created a living organism, and that's what touched me the most, the feeling that sustainability begins not in grand objects but in how we live each day, how we breathe, eat, and care for our surroundings.

SPORE GARDENS' mushrooms as an example of urban farming.

Then I came across the mushrooms that grow in fridges—SPORE GARDENS. This was one of the most fascinating things I saw. The mushrooms inside the transparent refrigerator-like boxes felt magical. I was really fascinated by how these systems grow lion's mane mushrooms and oyster mushrooms using minimal water and energy, designed especially for urban spaces.

Even in dense cities filled with glass and concrete, life can bloom. I was amazed by how this project reconnects people to their food sources. Workers can grow their own mushrooms within their workspace, closing the distance between consumption and cultivation.

Food and Memories from Madurai

As someone from Madurai, a city in India where local produce and traditional food are honoured, the idea of growing food in urban spaces felt deeply grounding. I imagined how Singapore, a city of innovation, could use such ideas to bring a little nature back into people's daily lives. It showed me that sustainability can be as simple as growing food consciously, that progress doesn't always have to mean expansion. Sometimes it's about coming back home to the basics.

The last exhibit I visited was called "The Table That Connects Us". It was not just an installation, it was more like an experience. A long table stretched across the room, filled with different stories. One could feel how every plate became a

"The Table That Connects Us" installation.

bridge between people and cultures; I was also moved by how the exhibit honoured both ancient hands and modern hearts. It reminded me of my own family dinners in Madurai, where tradition and care flow through every meal. It showed me that sustainability also lives in our kitchens in what we choose to eat, share and waste. Food in its purest form is both nourishment and memory. IMPACT WEEK was more than an academic assignment for me; it was basically a mirror. It showed me how sustainability is not just a distant goal but a living rhythm to tune into. From the talks, I learnt that every innovation comes with a hidden cost and true sustainability is about seeing the full picture and not just what is beautiful. From the exhibits, I learnt that harmony could exist between tradition and technology, between the past that roots us and the future that calls us forward.

What inspired me the most was the idea that vibrancy is collective. The planet breathes as one, and so must we. Whether it's designing long-lasting systems, nurturing ecosystems or cooking with care, every act of sustainability is done with awareness.

Walking out of the venue that day, for the first time, I understood that sustainability isn't just about saving the planet. It's about remembering that we are the planet. And that, I think, is the most profound lesson of all.

Leaving IMPACT WEEK with newfound awareness and lessons.

EESG Coherence Starts from Home

Azna Ajeng NURFAIZA

Introduction

A memorable moment with friends at the entrance of IMPACT WEEK 2025.

IMPACT WEEK 2025, a five-day event to build a better future, took place from 15 to 19 September 2025 at the Suntec Convention Centre in Singapore. Co-convened by TPC (Tsao Pao Chee) and NO.17 Foundation, this event was filled with ideas that challenged us to think differently about the world that we want to live in. TPC is a purpose-driven business ecosystem that works across logistics, learning, capital and community to support well-being, while NO.17 Foundation is a philanthropic arm dedicated to awakening consciousness, regenerating systems, and shaping a future where everyone can thrive (IMPACT WEEK, 2025b).

IMPACT WEEK was built around the Six Pillars of the Well-being Economy: Climate & Nature, Circular Economy, Energy Transition, Food Systems, Human Construct, and Well-being. These ideas were further expressed through the Six Domains of Impact: Sustainable Finance, Corporate Philanthropy, Nature Restoration, Technology & AI, Future of Education, and Partnerships. All aligned

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Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

with the United Nations Sustainable Development Goals (SDGs) (IMPACT WEEK, 2025a).

Event Experience at IMPACT WEEK

The venue entrance was filled with activities, such as yoga, stretching and mindful movement sessions that encouraged a healthy and positive start for everyone. After registering, participants received thoughtful souvenirs: a reusable tote bag and a minimalist tumbler that is easy to carry around. I thought it was a nice reminder to avoid plastic and be more sustainable.

When we went into the main hall, the phrase "Welcome to Impact City - the heart of IMPACT WEEK" really stood out. My friends and I stopped to take a photo together to capture the excitement of the moment and the start of this meaningful journey.

"Waking Up to the House That Breathes"

The first installation that caught my attention was "Waking Up to the House That Breathes". This installation mentioned the Brundtland Report on sustainable innovation, which explained how we could fulfil our needs in the present without compromising future generations. The installation was designed as a home connected with natural elements such as natural light, air and skylight. It was supported by the mindful use of technology and created a living ecosystem that balanced comfort and conservation.

"The Table That Connects Us"

The second installation, "The Table That Connects Us", symbolised food as a social infrastructure inside the home. This installation beautifully continued the story of the previous installation, depicting how a simple dining table became a symbol of connection. Family or friends could share stories and experiences through food that carries culture

"The Table That Connects Us" installation.

and values. Each dish on the table reflected sustainability in action, from traditional recipes to low-waste preparation, illustrating how crucial eating can be in nurturing a harmonious relationship between people and the planet.

I believe these two installations demonstrate the essence of the Six Pillars of the Well-being Economy introduced at IMPACT WEEK. The ideas of Well-being and Climate & Nature were reflected through the home setting, Food Systems were represented through the dining table, and Human Construct was shown through the family bonds and shared experiences. Altogether, they remind us that sustainability truly begins at home, the very place where life starts.

"Strategic Intelligence Map"

Switching to another installation that focused on the global systems level, one that truly captured my attention was the "Strategic Intelligence Map" by the World Economic Forum (WEF).

One thing that I liked most about this installation was its interactivity. We could click and explore - different topics in real time. The installation was presented as a digital map that visually displayed how social, economic and environmental issues are connected within one global ecosystem.

The goal of this installation was to remind us that even though the Gross Domestic Product (GDP) is a common measure of a country's growth, it cannot fully capture social progress or environmental impact. This installation helped us understand that every industry in our world is interconnected; therefore, collaboration is required across countries and sectors to achieve real sustainability.

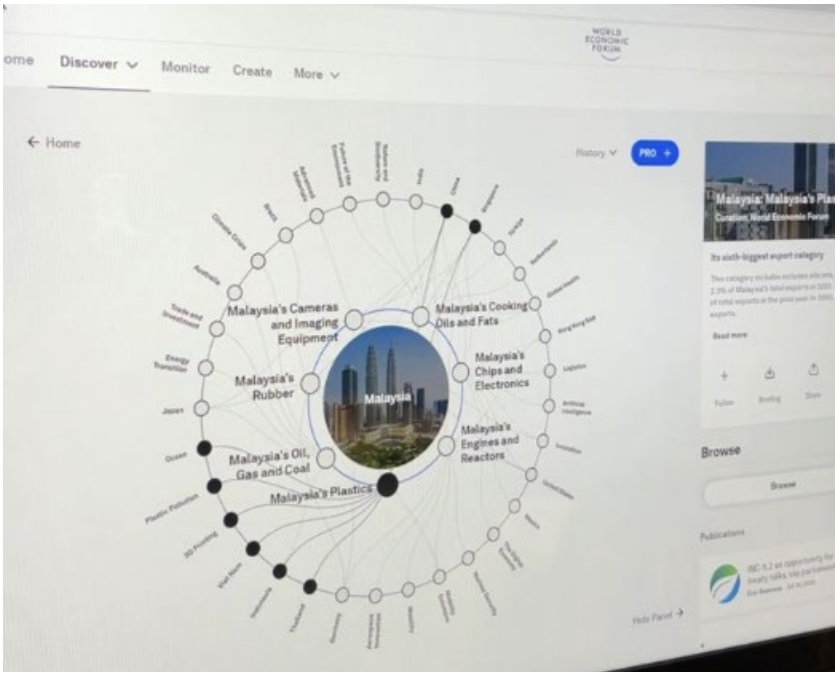
I explored the map by clicking on a few topics to see how it worked. First, I tried to select the industry "Malaysia's Plastics". The map linked it to the ocean, plastic pollution, 3D printing and countries such as China, Indonesia, Thailand, Singapore and Vietnam.

This showed how Malaysia's plastic industry is part of a regional network where production, trade and waste management are closely linked across Asia. It also highlighted how plastic use and disposal affect marine ecosystems.

Second, I clicked on "Malaysia's Rubber", which is connected to Brazil, China, Germany, Japan and the United States. This reflected how Malaysia's rubber industry operates within a global value chain, where these countries serve as major trading partners and end markets for rubber-based products used in manufacturing, automotive (such as tyres), and other industrial goods. It

highlighted how economic decisions, such as those relating to trade policies, can have cross-border sustainability consequences.

Exploring this installation helped me to clearly see that every issue, industry and country is part of a connected system. Achieving true sustainability means understanding and acting within these global interconnections.



"Strategic Intelligence Map" installation by the World Economic Forum (WEF).

Learning and Discussions: From Carbon to Coherence

The first forum I attended was "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies". The goal of this session was to discuss how ASEAN can move from short-term emissions reduction to long-term regenerative transformation that connects the environment, economy and society within one sustainable system.

The discussion was moderated by Mr Bradford Willis from the Columbia Centre on Sustainable Investment.

Prof Yuen Yoon Leong: Sustainability Means Harmony and Regeneration

First, Professor Yuen Yoong Leong, Director of Sustainability Studies at the United Nations Sustainable Development Solutions Network, emphasised the importance of restoring the natural flow of life within ecosystems.

Her message was more philosophical, calling for a deeper understanding of nature as living infrastructure and not just as a resource to exploit. A memorable quote was, "Sustainability is not just about ensuring the well-being of future generations. Vibrancy exists only when the entire ecosystem is alive. That is the flow of life, what the Chinese call 'qi'."

Her words highlighted that true sustainability means keeping harmony and regeneration within all ecosystems, and not just focusing on short-term emissions reduction. I believe this idea connects strongly with the Circular Economy framework. Instead of the old linear model "take, make, use, throw away", the circular model follows "reduce, reuse, recycle, regenerate". Growth in this system happens by circulating resources rather than continuously extracting more.

This principle should be practised not only by companies but also by individuals, as sustainability begins with the awareness of how people's actions are connected to natural systems. This concept can also be clearly seen in natural ecosystems. For instance, a forest continuously recycles nutrients through fallen leaves that decompose into the soil, which will nourish new trees and sustain biodiversity. By learning from this natural process, humans can design lifestyles and systems that minimise waste and restore balance.

The conversation turned to how innovation and long-term finance investment could push sustainability.

Mr Wayne Mulligan: Cleaner Alternatives for Oil-based Products

Mr Wayne Mulligan, Chief Executive Officer of NZ Bio Forestry, emphasised that monoculture projects, in which one type of plant is grown, can harm biodiversity and make it harder for nature to recover from pests or climate issues.

He also provided examples of how products made from oil, such as plastics and chemicals, could actually come from trees. Hence, there are cleaner options that can also help rural communities.

Dr Bo Bai: AI Can Enhance Carbon Verification Process

On the other hand, Dr Bo Bai, Executive Chairman and Founder of the Asia Green Fund, shared his experience in investing in carbon projects since 2007. It gave him the view that traditional carbon markets have become too slow and complicated.

He proposed making the carbon verification process faster and more transparent by using technologies such as AI, blockchain and emission databases. He developed the idea of carbon-backed stable coins, a type of digital

currency supported by carbon credits, so that carbon can become a key financial asset traded like foreign exchange.

Mr Ed Peng: Long-term, Scalable Financing Model Needed

Lastly, Mr Ed Peng, Co-Founder and Partner at Canopy Generations Fund, shared his concern that many projects currently over-rely on short-term profit from carbon markets. He said using carbon credits merely as extra income is not an effective strategy for real impact. It needs long-term investment and scalable financing models that can strengthen the sustainability system.

Together, their insights reflected the Economic Sustainability Priorities, particularly impact economic development, where time and money are invested in sustainable businesses to create long-term value for the future economy.

Perspectives focusing on policy and governance were also shared.

Mr Satya Tripathi: Climate Crisis Can be Opportunity for More Inclusive Economy

Mr Satya Tripathi, Secretary-General, Global Alliance for a Sustainable Planet, shared that the world has already reached 423 parts per million (ppm) of CO_2 in the atmosphere, a level that last occurred three million years ago. He pointed out that this number shows how far humans have pushed the planet beyond its safe limits.

However, beyond this crisis, Mr Tripathi also highlighted that it can be an opportunity to build a fairer and more inclusive economy. He shared examples such as Indonesia's biogas projects, which turn cattle waste into clean energy and carbon credits, as well as India's regenerative farming, which improves soil health while empowering six million farmers.

These programmes show that sustainability can benefit both people and the planet. His point was that with the right policy inclusion and good governance, countries can not only reduce carbon figures but also create systems that restore the environment and improve lives.

Dr Weerawat Chantanakome: Transparent Planning and Shared Benefits are Crucial

Dr Weerawat Chantanakome, the Senior Policy Counsel on Energy at the Economic Research Institute for ASEAN and East Asia (ERIA), talked about the ASEAN Power Grid. It is a regional initiative to connect electricity networks across Southeast Asia with the purpose that countries can share renewable energy and have better access to clean power.

Dr Chantanakome explained that this large project needs strong governance and cooperation, since every country has different capacities and interests. He also mentioned the importance of transparent planning, fair governance, and shared rewards or benefits to make sure all countries take responsibility and benefit together.

For me, Mr Tripathi's and Dr Chantanakome's viewpoints support the idea of "corporate governance for sustainability", where both governments and organisations must act not only efficiently but also ethically and responsibly, ensuring that the programme truly benefits both people and the planet.

Through this discussion by professionals from different fields, I began to understand how sustainability truly reflects the idea of Economic, Environmental, Social and Governance (EESG).

Each speaker represented a different part of this system. First, Prof Leong spoke about the environmental and philosophical foundation of restoring nature's flow of life, which also connects to the social aspect, as it reflects the relationship between humans and nature.

Second, Mr Peng, Dr Bai and Mr Mulligan shared the economic and financial aspects of long-term investment and green innovation.

Finally, Mr Tripathi and Dr Chantanakome focused on the role of governance, showing that the correct governance and fair policies are what hold sustainability together.

I understood that real sustainability isn't about one dimension, but about linking everything. Achieving this coherence means maintaining the flow of life through thoughtful actions that nurture harmony between people and nature, rather than only focusing on reducing emissions.

Personal Reflection and Application to Practice

Reflecting on the whole experience, now I have come to realise that sustainability is not a single discipline but a mindset that connects many dimensions of life. From the entrance installations, the forums and up to the final exhibition, everything was designed to show how systems must move together. All of it comes back to the EESG framework.

It also reminded me that even small actions at home, such as preparing dinner or being mindful when building a home, are part of this larger system and will have a long-term impact on nature. Before exiting, I came across the spinning

wheel of the Six Pillars of the Well-being Economy, which helped me see how each pillar connected with what the speakers discussed earlier.

For instance, Climate & Nature and Circular Economy echoed Professor Leong's idea of the flow of life; Energy Transition and Food Systems reflected Mr Tripathi's and Dr Chantanakome's call for fair and inclusive development, as well as the ideas shown in the installations. Finally, Human Construct and Well-being reminded me that the purpose of sustainability is not just growth, but improving the quality of life it creates.

The spinning wheel installation showing "Six Pillars of the Well-being Economy".

Conclusion

I also reflected on how these concepts apply to my own future path. As someone interested in product management or consulting, I often think about how systems interact (e.g. technology, people and policy) and how small design or innovation decisions can create large-scale impact.

The EESG framework now feels much more practical to me. At the moment, I feel that this is not just a theory, but a mindset for people to make ethical decisions. Whether it is developing a product, a business model or even a policy, one good question to ask is: Does this create long-term value for both people and nature?

Ultimately, IMPACT WEEK taught me that sustainability is about coherence, i.e. aligning intentions, actions and systems. Seeing the Six Pillars installation before the exit felt like completing a circle, a reminder that everything is interconnected and that regeneration begins when awareness turns into action.

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From Chocolate to Regeneration: The Cacao Project

ZHOU Ruixi

Introduction — From Chocolate to Sustainability Narrative

When the lecture began, Ms Louise Mabulo held a piece of chocolate in her hand and took a bite as she walked onto the stage. This simple yet highly symbolic action immediately caught my attention—it conveyed a clear idea: sustainable development is not an abstract slogan, but a real existence that can be touched, tasted, and integrated into daily life. Her composed and confident demeanour, combined with her natural and casual expression, made her speech extremely compelling, possessing both stage charisma and genuine enthusiasm.

Before attending the lecture, I already knew her story. Ms Mabulo is a chef, farmer and social entrepreneur. She is best known for The Cacao Project that she founded in San Fernando, Camarines Sur Province, Philippines—a regenerative agricultural programme centred on climate-smart agriculture. By 2025, this project had helped over a few hundred farmers plant more than 350,000 trees, restored over 800 acres of degraded land (The Cacao Project, n.d.), and rebuilt a climate-resilient ecosystem, while providing sustainable livelihoods for the farmers. She has received multiple international recognitions for promoting innovation and environmental actions at the grassroots level, including from the United Nations Environment Programme, National Geographic, and Forbes Asia 30 Under 30 (UNEP, 2019).

According to the first-person interview "Digging for Victory in the Philippines" (United Nations, 2021), Ms Mabulo has seen how typhoons severely damaged the Bicol region in the Philippines. Climate disasters have exposed the vulnerability of the local community's reliance on a single crop and chemical fertiliser farming model. Faced with this reality, Ms Mabulo realised that farmers are not only victims of climate change but also potential leaders in ecological revival. She

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proposed to focus on regenerative agriculture, through ecological diversification, soil restoration, and knowledge sharing, to transform agriculture from a "vulnerable industry" into a practical scenario for climate action.

Therefore, the emergence of The Cacao Project is not merely about post-disaster reconstruction; it also represents a new paradigm shift in agriculture—moving from resource consumption to ecological regeneration, and from individual survival to community resilience.

This report will systematically explore the sustainable development practices of The Cacao Project from the following four perspectives:

Environmental Dimension: Analyse how the project can enhance the environmental resilience of the land and communities in the context of climate disasters and ecological degradation.

Social Dimension: Examines its role in improving farmers' livelihoods, promoting women's empowerment, and reshaping the social identity of the agricultural sector.

Governance and Partnership Dimension: Evaluate how the multi-party collaboration and community participation mechanisms of the project support its long-term sustainability.

Reflection and Insights: Summarise the key inspirations gained from the IMPACT WEEK learning experience and consider future innovation paths in light of the strategic sustainability framework.

Environmental Dimension: From Post-disaster Rehabilitation to Ecological Regeneration

Climate Crisis and Environmental Vulnerability

The Philippines is one of the countries most affected by typhoons and climate disasters.

On average, over 20 typhoons make landfall each year, causing large-scale floods and landslides. Long-term heavy rainfall and soil erosion have depleted the topsoil of farmlands, leading to severe nutrient loss. Deforestation and monoculture have further exacerbated ecological degradation. To sustain their livelihoods after the disaster, farmers have had to rely on fertilisers and pesticides, causing the land to gradually lose its self-repairing capacity (United Nations, 2021).

Ms Louise Mabulo speaking at IMPACT WEEK.

Source: Louise De Guzman Mabulo, 2025

In 2016, Typhoon Nock-ten severely hit the Bicol region of the Philippines. Farmlands were destroyed, trees were uprooted, and the soil was exposed. The agricultural ecosystem almost collapsed. Ms Mabulo personally experienced the devastation after the disaster and realised that relying solely on relief aid cannot restore the ecology. She founded The Cacao Project, hoping to restore the land's vitality and climate resilience through the method of regenerative agriculture.

In her speech at the IMPACT WEEK, Ms Mabulo emphasised that the goal of reconstruction was not only to restore production, but also to make the land "function again". This concept became the starting point for The Cacao Project to shift towards regenerative agriculture, starting with restoring the soil and biodiversity, and transforming agriculture from a victim of climate change to a part of the solution.

Regenerative Actions and Environmental Mechanisms

In implementation, The Cacao Project takes cocoa trees as the core crop and builds a multi-level agroforestry system. This system interlaces fruit trees, vegetables, and nitrogen-fixing plants among the cocoa trees, forming a stable ecological hierarchy. The tree roots prevent soil erosion, while fruit trees provide shade and organic debris, and nitrogen-fixing plants improve soil structure, gradually restoring the originally barren land to vitality. The project also implements the systems of organic composting and natural pest control.

More importantly, the project has established a "profit–reinvestment–regeneration" positive cycle mechanism. Economic gains are partially reinvested in nursery construction and ecological training, enabling ecological restoration and economic gains to complement each other. As Loh (2025) pointed out in the course, this "circular ecology" represents a new development model: growth is based on ecological regeneration rather than at the expense of the environment.

Environmental Achievements and Long-Term Implications

The environmental benefits of the Cacao Project are mainly manifested in three aspects.

Firstly, the carbon sink effect is remarkable. Through the combination of planting and composting cycles, farmland has transformed from a carbon emitter to a carbon-absorption system.

Secondly, the soil structure and hydrological functions have been restored. The soil permeability and water retention capacity in the project area have significantly improved. The soil erosion caused by heavy rainfall has been greatly reduced. Farmers' reliance on chemical fertilisers has decreased, and the soil fertility has gradually returned to a natural cycle. Ms Mabulo also mentioned in her speech that this indicates that the land is beginning to "operate on its own" rather than passively relying on external inputs.

Thirdly, the overall resilience of the ecosystem has increased. As the vegetation and microbial communities recover, the land gradually acquires the ability to self-regulate. The agricultural losses caused by extreme weather have significantly decreased, achieving the transition from disaster to regeneration.

This nature-based restoration model is in line with the "Healthy Soils Mission" concept proposed by the European Commission (2025), which aims to significantly improve soil health by 2030. The Cacao Project demonstrates that through localised, low-cost and community-participatory regenerative agriculture, developing regions can also achieve a balance between ecological restoration and livelihood development.

Overall, the Cacao Project has demonstrated the practical potential of regenerative agriculture in climate governance. It restores the ecological functions of degraded land and transforms agriculture from a victim of climate change to a part of the solution.

Social Dimension: From Farmer Livelihoods to Social Empowerment

Leadership of Women and Gender Equality

In many developing regions, female farmers are often excluded from agricultural decision-making. The Cacao Project has established a system of female trainers and supervisors, enabling women to play a key role in the project (United Nations, 2021). They not only participate in daily management but also are responsible for technology promotion and community education, becoming the backbone of regenerative agriculture.

Ms Mabulo, as a female entrepreneur herself, has also implicitly become an embodiment of the "gender role-model effect". She has proven that women can

become decision-makers and changemakers in the fields of sustainable agriculture and climate action.

During the project's implementation, the leadership of women significantly enhanced the organisation and trust levels of the community. They demonstrated meticulousness and patience in nursery management, compost production, and ecological monitoring, shifting community governance from "centred on labour" to "centred on collaboration and knowledge sharing". This change has enabled women to transform from passive family roles to leaders of sustainable society, becoming a key source of social capital.

Youth Participation and Rural Revitalisation

Farming was not appealing for youth in the Philippines. But The Cacao Project has let young people directly participate in composting, tree seedling cultivation and sustainable cooking courses. The project also collaborates with local schools to incorporate ecological agriculture into the education system, making agriculture once again a creative and dignified career option.

Ms Mabulo aims to let youth see agriculture not as a symbol of backwardness, but rather a green career that integrates ecological concepts with entrepreneurial potential (Lim, 2024).

This will allow social sustainability to have a generational continuity: When young people return to the agricultural sector, the knowledge system and innovation capabilities of the countryside can be rebuilt. This "generational co-creation" mechanism makes agriculture truly become the foundation of a sustainable society.

Social Impact and Long-Term Implications

The social impact of the Cacao Project is manifested in three aspects:

Economically: Farmers' income diversification, forming a closed loop of ecological products, market sales and reinvestment.

Culturally: The agricultural identity was reaffirmed, and the social participation of young people and women significantly increased.

Structurally: Knowledge sharing and cooperative networks have replaced the traditional single production structure, forming a community-centred social ecosystem.

Ms Mabulo's practice reveals that sustainable transformation is not merely a technological revolution, but also a renewal of social culture. Through

empowerment, education and community co-creation, she has revalued the "farmer" identity and made agriculture once again a symbol of hope.

Governance and Cooperation Dimension: Multi-party Collaborative Sustainable Mechanism

Participatory Governance from the Community Perspective

The governance model of the Cacao Project is centred on the community rather than top-down administrative management. As Ms Mabulo emphasised in the UN News interview (2021), the key to the project's success lies in empowering farmers. By forming cooperative groups, farmers directly participate in training, composting and the design of agroforestry systems, achieving knowledge sharing and joint decision-making.

This participatory governance not only grants farmers the leading role in ecological restoration but also creates a community atmosphere of "shared responsibility". Various planting areas operate in a cooperative and collaborative manner, enabling the project to continue to advance even in the absence of external financial support (The Cacao Project, n.d.).

This reflects the core concept of sustainable governance: governance is not about control but about empowering local actors with autonomy. The Cacao Project integrates governance into the daily processes of education, cooperation and ecological management, allowing local knowledge itself to become a force for promoting long-term sustainability.

Cross-departmental Collaboration and Global Partnerships

Ms Mabulo holds multiple identities as a chef, entrepreneur and climate activist, enabling The Cacao Project to establish a bridge between the local and global levels.

At the local level, The Cacao Project collaborates closely with local governments, educational institutions, and non-governmental organisations (NGOs) to conduct climate-smart agriculture training and programmes to help young people re-recognise the social and environmental value of agriculture.

This cross-departmental and multi-level collaboration network forms a typical multi-stakeholder governance model. Its characteristic is not resource transfer but knowledge creation: international organisations provide strategic directions, while local communities provide practical wisdom. Through this two-way interaction, The Cacao Project achieves synergy between "global goals - local actions" and provides a vivid case for the UN Sustainable Development Goal 17 (Partnerships for the Goals).

Governance Experience and Insights

From a governance perspective, the experience of The Cacao Project reveals the key to a project's longevity:

Governance is not the establishment of a single system, but a long-term collaboration within a social ecosystem.

Firstly, the core of governance lies in trust and co-creation.

The project did not rely on top-down policy implementation; instead, it established a community network of mutual trust, enabling farmers to have a shared sense of responsibility for the land, the environment and the future. This trust-based governance model enabled the project to maintain resilience in an environment with frequent typhoons and fluctuating markets.

Secondly, effective cooperation stems from consensus and sharing.

Whether it is working with local governments or international organisations, the focus of cooperation is always on mutual learning rather than one-way assistance. This knowledge-sharing governance approach ensures the replicability and local adaptability of the project.

Finally, governance mechanisms are closely linked to environmental goals.

Regenerative agriculture is not only a production model but also a governance logic: through ecosystem restoration to promote economic cycles, and through joint management to achieve social trust. The Cacao Project is an exemplary case of this "governance–ecology coevolution" model.

Reflections and Insights: From Local Actions to Global Sustainable Thinking

Ms. Mabulo's story has made me re-examine the true meaning of "sustainability". In class, we often consider environmental, social and governance (ESG) as an analytical framework. However, in The Cacao Project, these three dimensions are interwoven and mutually reinforcing:

Environmental restoration empowers the community, and community collaboration in turn nourishes governance capabilities. This cycle is precisely where the vitality of sustainable development lies.

Firstly, I became aware of the question "How do local actions have a global impact?" Bicol was originally a marginalised rural area, but with the promotion of the project, it became a testing ground for climate-resilient agriculture. The

global climate goals (such as SDG 13, SDG 15) are not grand slogans; they are accumulated through the small actions of countless communities.

Secondly, I have come to understand the true value of "innovation". Ms Mabulo's innovation lies not in technological breakthroughs, but in reweaving traditional knowledge, ecological agriculture and market logic into a sustainable system. The project achieves a "profit - regeneration" cycle, demonstrating that true sustainability is not about optimising the status quo, but about reshaping the value logic and making economic growth serve ecological renewal.

Thirdly, I witnessed "the power of narrative". Ms Mabulo redefined the social image of agriculture by telling the story of how farmers, women, and young people jointly revitalised the land. Narration itself is a form of governance power—only when the community believes that they are the agents of change can ecological actions be sustained.

Finally, I realised that sustainability is not only an analytical perspective but also a matter of value choice. Ms Mabulo demonstrates that climate action does not have to start from the top levels of policy; it can begin with a piece of land and a group of farmers. Sustainability is not an abstract concept but a state that is practised and lived. I hope to incorporate this bottom-up resilience and creativity into my future learning and work.

In conclusion, the Cacao Project has provided me with two important insights:

True sustainability begins with respect for the land and people.

Innovation is not just about technology, but also about systematic thinking and cross-border collaboration.

The goal of strategic sustainability is not to mechanically balance the triple bottom line, but to create a new development logic where economy and ecology coexist.

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Kumintáng: The Land of Rolling Hills and Wide Shore Lands

Hans Jeremy Hernandez REYES

Introduction

The Batangas province in the Philippines, also known as "Kumintáng", is home to amazing landscapes. Described as "the land of rolling hills and wide shore lands", it is a strong economic driver, accounting for a fifth of the Calabarzon region's Gross Domestic Product (GDP) in 2023 (Department of Economy, Planning, and Development, 2024). As a whole, there are great opportunities to develop a blue economy in the Philippines. However, "there has been inadequate planning, budgeting, and investment in marine and coastal ecosystems" (Asian Development Bank, 2025).

In this context, when attending IMPACT WEEK 2025 in Suntec Convention Centre, talks that captured my interest were "Financing the Blue Shift: From Pledges to Regenerative Capital" and "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies".

Panel discussion "Financing the Blue Shift: From Pledges to Regenerative Capital".

My learnings from these discussions will be applied to the case of Batangas, my home province in the Philippines.

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Growing the Blue Economy

From my perspective, this panel discussion brought out the importance of growing the blue economy globally and, more specifically, in the Asia context. According to Hong (2024), oceans hold great importance for Asia, given that they offer large economic opportunities. However, if exploitation reigns instead of blue economies, critical sectors such as eco-tourism or fisheries would be adversely affected.

At the conference venue, a booth by OceanX, an ocean exploration non-profit organisation, caught my attention. At first, I wondered if its initiatives were more like fun, educational tools. However, through the panel discussion, it dawned on me that we just do not know enough about our oceans yet, and organisations like OceanX enable us to learn more so that we can leverage that information for ocean solutions.

It is clear to see why protecting our oceans is important, but why aren't actions in place? The keyword may be economics. One learning from my course is the need to put economics with Environmental, Social and Governance (ESG). A similar point was highlighted by the panellists. To them, one of the best ways to reach ocean solutions is through industry. If there were more incentives for people to develop ocean solutions, a more robust industry could be formed, fostering competition and, in turn, innovation.

OceanX interactive booth.

While the panellists pointed out the importance of government involvement—a view I share—my other classes at the National University of Singapore have taught me that government action is not the sole solution. In fact, approaching challenges with an entrepreneurial mindset can reveal new opportunities.

A question was posed, "What gives you hope for the transition (to 'Wealth 2.0' and regenerative blue economies)?" Among my favourite responses were the

desire to financially innovate, the next-generation changemakers, and that "what we need is not hope, but determination".

My generation, Gen Z, is known to be environmentally conscious. According to Petro (2021), Gen Z is emerging as the sustainability generation, with purchase decisions highly tied to their sustainability-related values. Now, add on the fact that Gen Z is also highly entrepreneurial (Perna, 2024) and yearns to create impact for their community. Coupled with data initiatives such as OceanX, the future for creative ocean solutions is very promising.

Connecting the Dots for the Carbon Economy

At the conference, an interactive wheel highlighted the Six Pillars of a Well-being Economy*,* namely Climate & Nature, Circular Economy, Energy Transition, Food Systems, Human Construct, and Well-being. Satisfying all six pillars can sound ambitious*,* however, the panel discussion "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" pieced everything for me.

Panellist Mr Satya Tripathi, Secretary-General, Global Alliance for a Sustainable Planet, shared about the community-managed natural farming project in Andhra Pradesh, India, which he helped structure. It is a transformation towards sustainable agriculture, with almost a million farmers already transitioned from chemical farming to natural farming (Sustainable India Finance Facility, n.d.).

Six Pillars of a Well-being Economy.

This project sounded incredibly ideal to me as it does not displace local communities in the name of sustainability, e.g. displacing the local community to make space for solar farms. It also demonstrates how the Six Pillars of the Well-being Economy could work together to produce well-being impact.

The Carbon Debate

In this panel discussion, the speakers seemed to be challenging one another more, reflecting their diverse opinions and expertise. The main debate was on carbon credits—whether it represents the future and the way forward.

From what I have learnt in my course, carbon disclosures and management, carbon credits and the carbon market are related to the idea of carbon neutrality and carbon offsetting. The panel delved deeply into this topic, highlighting the cons of confusing standards, a lack of benchmarking, and carbon as an alternative currency. On the other hand, the value of carbon has jumped from US$5 per tonne to around US$20 per tonne over 10 years, noted Mr Tripathi.

Another panellist, Dr Bo Bai, Executive Chairman & Founder, Asia Green Fund (AGF), opined that although carbon is not mainstream, it has been turned into something similar to a foreign exchange instrument. In my view, while carbon is viewed as an alternative currency, it provides purpose for the carbon market beyond carbon offsetting.

My take on carbon credits is that we do not give up on them. Yes, many systems are in place, and progress is needed to make it work even better. Carbon credits still have its value. One thing to note, however, is that carbon credits should not be the main focus of a carbon-centric industry. I believe that there are other ways to achieve similar goals, such as the Andhra Pradesh natural farming project.

In a previous media interview, Mr Tripathi (Balch, 2025) revealed that although the project faced initial difficulties in securing financial support, the programme's progress has attracted investments, such as those from KfW, a German development agency. What amazed me was the scale on which the project worked. This gave me inspiration on how these types of projects can truly work and create a great impact on people and the environment.

I believe then that the future of reducing carbon emissions, and quite possibly, the sustainability landscape, does not just rely on governments and large companies. Recalling my class lecture, greater corporate action is required. While thousands of global corporations have made net-zero commitments, we need more to do so. It is hard to just bank on large corporations as one of our main hopes for the shift. The future for sustainability will be driven by the

creativity, determination and entrepreneurial spirit of future generations as well. Just like in creating successful businesses, a strong vision and set of values are needed as a guide. If we want to shift into a sustainable future, sustainability needs to be a core value and not just a factor.

Application

I am inspired by Mr Tripathi's sharing about the restorative agricultural community in Andhra Pradesh, the panel discussion on growth in the blue economy, and discussions with my classmate Jeslyn.

Although I do not have all the specifics yet, the discussions have sparked the idea of my province becoming a model sustainable province in the Philippines, where sustainability entails the environment's well-being, social good and economic prosperity. It may sound like a pipe dream; however, I believe it is highly possible, especially considering the natural assets of Batangas. According to Maghirang et. al (2025), even as Batangas grew more prosperous with the industry and services as dominant economic drivers, the agricultural industry remained essential. Agribusiness innovations have supported rural development, food security and eco-tourism development. Meanwhile, its challenges included waste management, climate resilience, maintaining environmental sustainability and rapid urbanisation.

Leaders in Place

Further, Batangas could start a sustainability revolution in the Philippines, for its government has a history of improving livelihoods through attracting investments and projects such as industrial parks (Maghirang et. al, 2025).

I believe that a great place to start is Batangas' 1st District, where Mr Leandro Leviste, the young, budding Chief Executive Officer of Solar Philippines, is the district representative. He has created change not just for the province and district, but the Philippine power industry as a whole. Business-savvy, Mr Leviste has successfully made solar power a viable energy source, which, at the time of the company's inception in 2013, was seen as too costly for the Philippines. Through vertical integration, he enabled the company to competitively provide energy to the Philippines via solar power. He focused on making power sustainable at a good price, perceiving that the main cause of poverty in the Philippines is high electricity costs (CNA, n.d.).

Geographical Advantage

Furthermore, from a geographical standpoint, the Batangas 1st District is home to multiple power plants and some of its cities lie along the coast. This creates

the setting for an envisioned city that has space for renewable energy sources, an integrated blue economy and a sustainability-inclined leader in government. Like what Mr Leviste said in his interview (CNA, n.d.), those with resources must channel them towards something good, benefitting not just themselves but also improving the Philippines as a whole.

Focusing some areas of Batangas' 1st District on blue-green economies—like combining restorative aquaculture with existing solar initiatives—could boost the Philippines' carbon market and create sustainable, value-added products. In my undergraduate studies, our professor introduced us to a start-up by a group of Stanford students. They had developed coolers made of coconut husk, which would help Filipino fishermen in their transport of fish (Nutshell Coolers, n.d.). At the same time, it was also more environmentally friendly than conventional styrofoam coolers. Solutions like these are what I hope would become more common in the province of Batangas, but on a grander scale.

Reflection

IMPACT WEEK has brought diverse ideas. I greatly value my experience at IMPACT WEEK as diversity is what I seek when I decided to do a master's programme in Singapore.

I have always understood that with my privilege, I can do more. This is why the learnings from IMPACT WEEK are deeply engraved in me. I want to do good, especially for my home. My family's involvement in the Philippine power industry has made me aware of the industry's pollution issues, especially due to coal-fired power plants. Despite some business success, I often feel powerless, as government decisions can sway business direction. However, I believe that with the learnings from IMPACT WEEK, I can create great change that positively affects my community through economic and sustainable innovation. I have always well understood the need for a systemic change in the approach to sustainability, but I have previously undervalued how creative we can get in the approach.

Conclusion

From a sustainability student's standpoint, this learning journey has shown me the wide array of opportunities for sustainability. The conversations, such as those on carbon and carbon markets, or the blue economy, are just a few that are highly relevant to our world today. Our lens on sustainability should shift from one of compliance to something that we deeply care about. Especially from a business student standpoint, we need to have that curiosity to find business opportunities amidst sustainability.

Regarding the growing blue economy and carbon developments, the overarching message I gained is the need to further the conversation. It is through discourse that we can learn more and collaborate on new solutions that change the next 50 years.

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Oceans: The Forgotten Frontier

Joshua CHANG

IMPACT WEEK, held in September 2025 at Suntec Convention Centre, Singapore, had many highlights. From delicious plant-based burgers to talks by leading sustainability experts, the experience was engaging and impactful. Among all, the showcase by OceanX, an ocean exploration non-profit, was a hidden pearl in a sea of learning.

It all started when Professor Lawrence Loh, Director, Centre for Governance and Sustainability at the National University of Singapore Business School, graciously invited his students to participate in IMPACT WEEK, a conference that was also attended by global leaders in sustainable development. After I perused the event schedule, one particular exhibit caught my eye. I was immediately drawn to the OceanX exhibit as they intended to livestream an expedition in the deep waters of my country, Indonesia.

A childhood photo of the author admiring marine life in an aquarium.

It Began from the Oceans

Growing up in Indonesia, I wasn't a stranger to oceans and the deep sea. In fact, my parents had regularly taken me to Bali to swim in the open ocean since I was a young boy. A love for the oceans has been ingrained in me. As such, I was genuinely looking

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

forward to the IMPACT WEEK experience, which would allow me to take a deeper look at the oceans surrounding Indonesia.

Before making my way to the talk, I stopped by the OceanX exhibit to learn more about the company and what drives them forward. I was greeted by OceanX's Creative Technical Lead Mr Lionel Taillens who talked about his experience with the company and the passion that their founder Mr Mark Dalio had for exploring the world's oceans.

Part of the OceanX exhibit at IMPACT WEEK.

OceanX gamified sphere.

Passion and Education

The exhibit itself was visually striking. While the images were derived and reconstructed from live footage captured by OceanX's research vessel, you could feel that it was constructed with great love and passion for the world's oceans. Having spoken to Mr Taillens, I discovered that he was one of the world's leading 3D animators, with experience on projects such as Aquaman and the Emmy Award-winning Marvel immersive story "What If". The passion he had for his work and what he said about the OceanX team truly led me to believe that they wanted to raise awareness about the world's oceans for the next generation through gamified experiences.

The ocean-inspired educational game was still in development, but the team intended to collect live data from the vessel OceanXplorer to faithfully recreate some of the underwater flora and fauna.

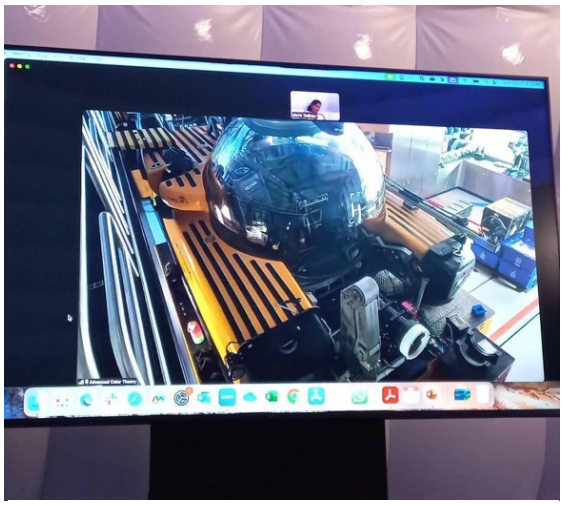
As someone who loves the oceans and is passionate about education, I marvelled at how far games had developed over the years. Growing up, my interest in the world's oceans was also piqued by an educational computer game called "JumpStart Animal Adventures". The premise of the game asked children to take photos of animals in rendered environments and play mini-games to learn

about the behaviour of animals in specific terrains in order to collect printable stickers. I loved it, and my first-hand experience tells me that what OceanX is doing will make a difference in the lives of children who will come to love the ocean because of the work they're doing.

Beneath the Waves

Next, I headed down to the Impact Lab session to see the science and business at play to understand how the magic was being made. I was especially looking forward to the livestream event, as it brought a dimension of authenticity that brought the whole event closer to home. I was informed that the livestream was made possible due to internet connectivity established by Starlink, which even reached the depths of my home's ocean floor, and I was ecstatic to learn more about my country's oceans in real time.

The Impact Lab session itself was extremely insightful. The OceanX team displayed the OceanXplorer's inner workings and did a full walkthrough of the vessel. A notable personal highlight was the remotely-operated vehicle (ROV) they had onboard. The unmanned ROV was able to dive up to 6,000 meters, allowing them access to 90% of the world's oceans. Interestingly, these unmanned vehicles were controlled through gamified control systems.



OceanX Remotely Operated Vehicle (ROV).

OceanX Control System Prototype.

After the session, I raised a query on the risks of exploring the forgotten frontier, indicating that increased awareness of this forgotten frontier might lead to increased exploration. Sadly, the presenter agreed that this was a tangible risk, and that taking care of the world's oceans is first and foremost a fight to be fought on the battleground of society's mind. The impact trade-off that experts in the field face, is that increased awareness without increased responsibility

leads to increased exploitation for profit instead of sustainability. As such, the burden falls to everyday citizens to prioritise the importance of sustainability, reject exploitative business practices and raise awareness of today's sustainability issues.

Let the Future Generations Enjoy the Oceans

Overall, the conference reminded me of the world's forgotten frontier and the steps we can take to keep it safe for future generations. It reminded me of my childhood, and the joy I felt swimming in the ocean's unpolluted waters with my family by the beach.

The oceans are undoubtedly home to important natural resources that are yet to be discovered, and there is validity in preserving the oceans for scientific, moral or economic reasons. However, while these underlying variables are important and relevant, nothing really beats a beach holiday. So, if I can afford that privilege, it's my responsibility to ensure that other kids can play by the beach too. As such, this piece asks you, dear reader, to think of the kids, the ones here today, and the ones that will be here long after we're gone. All we're asking is for room to play by the beach and the opportunity to explore the beautiful forgotten frontier, the oceans.

Shifting Lenses: Moving Beyond Carbon Tunnel Vision

Niranjana NARAYAN

Introduction

"What if 5 days could change the next 50 years?" This was the first of many thought-provoking questions I encountered during IMPACT WEEK 2025. I was an attendee at IMPACT WEEK 2025, conducted in Suntec Convention Centre as a part of my course module Strategic Sustainability. It was a rare opportunity to see the amalgamation of opinions on sustainability from thought leaders across academia, finance, industry and civil society. I had the unique privilege to step into an environment that complemented and reassessed all that I had studied during my course, thus broadening my horizon of what I thought I once knew.

Attending "At One IMPACT WEEK" cemented in me how the subject matter moves beyond a linear goal to an all-encompassing mindset that should be the core of every thought, decision and action.

Overview of Panel Discussions Attended

The panel discussion, "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies", detailed how the ASEAN region has the potential to move beyond carbon reduction targets to a more regenerative, coherent, and inclusive climate economy.

IMPACT WEEK Entrance.

This panel discussion was moderated by Mr Bradford

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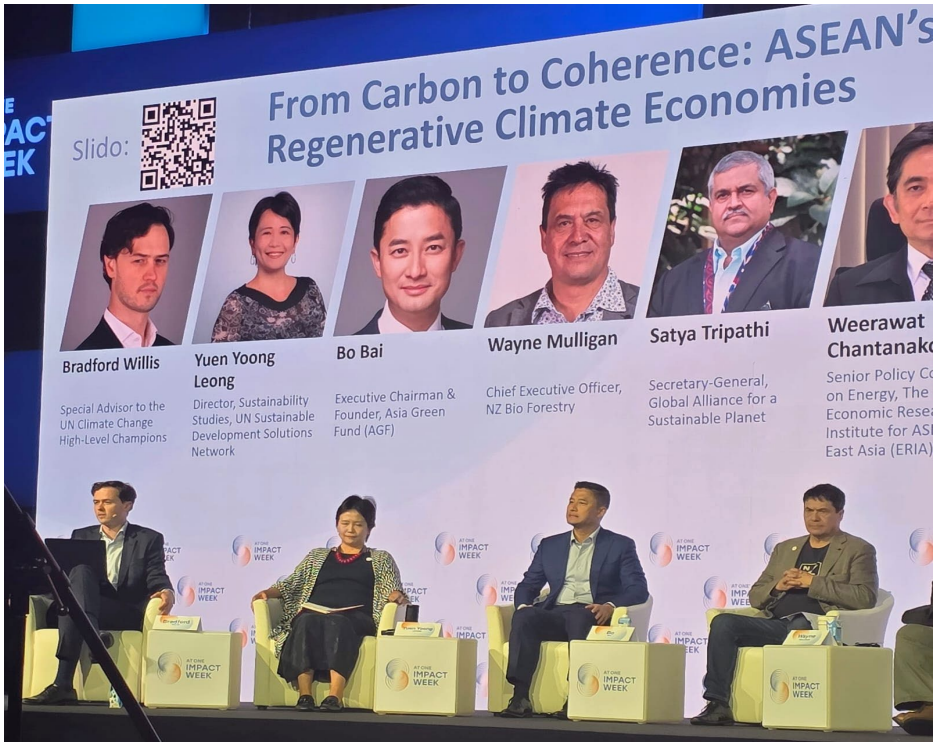
Willis, who belongs to the Columbia Centre on Sustainable Investment. This session weaved together the opinions of experts from finance, policy, academia, and industry to put carbon finance under a microscope. Market mechanisms, carbon infrastructure and technology were examined as key levers that can support sustainable development, as opposed to these factors driving narrow emissions accounting.

The speakers underscored the need to combine low-carbon pathways with nature and communities. The forum also highlighted the importance of a proper structure for carbon markets, which will help them become a powerful instrument for ecosystem restoration, social inclusion and regional resilience. The necessity for stronger governance, faster verification systems and flexible yet standardised benchmarks was also discussed in line with ways to attract new capital and scale nature-based solutions. This panel urged that ASEAN's transition must go beyond compliance and embrace a balance between energy, land, water and community. The speakers believed that by reframing carbon from a burden to a tool for regeneration, ASEAN can turn climate risk into economic renewal and prosperity.



"From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" Panel.

The second discussion attended was titled "Extraction to Regeneration: Reimagining the Green and Blue Economies". This discussion investigated how

traditional sectors such as agriculture, shipping and forestry can play a role in supporting ecological restoration and help in building more resilient communities. This panel emphasised that prioritising green and blue economies is no longer optional but key for planetary survival. The key themes touched upon included looking beyond financial returns, having more science-backed approaches to sustainability, helping local communities become environmental stewards and lastly, the importance of having innovative governance structures and investment models that increase the capacity of regenerative practices. For the above topics, the panellists talked about policy reform, innovation and creating accountability among governments, companies and citizens. The concluding sentiments echoed the need for embracing ecological responsibility and social inclusion as a mindset more than a metric.

"Extraction to Regeneration: Reimagining the Green and Blue Economies" Panel.

Key Learnings & Personal Reflections

Carbon Tunnel Vision

One of the central themes of the panel discussions was "carbon tunnel vision". I learnt that keeping the sole focus only on carbon emissions can undermine other sustainability goals like social inclusion, biodiversity conservation and building ecosystem resilience. This understanding was heavily complemented by learnings from classes in Strategic Sustainability, where we analysed why a holistic framework is important while laying the groundwork for sustainable policies.

Recarbonisation

Professor Yuen Yoong Leong, Director of Sustainability Studies at the United Nations Sustainable Development Solutions Network, has her take on systems design which is highly relevant in this area. She emphasised that while decarbonising technical systems, we must simultaneously work towards "recarbonising" ecosystems. This concept weighed in on the need to restore

forests, soil and waters that have been affected by the effects of decarbonisation and degradation. What resonated with me was the thought that, rather than looking at sustainability through the subtraction lens of elements like carbon, it can also be viewed as the addition of life, diversity and coherence back to the ecosystem.

Under this context, she also highlighted the difference between the lifespans of sustainable tools and real infrastructure. The former has a life span of roughly 25 years, and the latter has a life span of almost 150 years. On the same pulse, Dr Weerawat Chantanakome, the Senior Policy Counsel on Energy at the Economic Research Institute for ASEAN and East Asia (ERIA), drew attention to shared infrastructure being designed for resilience rather than mere power trading. His talk also alluded to connections between ASEAN's just transition mechanism and local communities and infrastructure for equitable benefit sharing.

"I am the river and the river is me" was the way Mr Wayne Mulligan, Chief Executive Officer of NZ Bio Forestry, reframed carbon. This meant looking at carbon as a life-giving molecule that circulates within different spheres of living systems rather than a pollutant. His main emphasis was on converting lignocellulosic biomass like wood into chemicals, materials and energy, thus displacing fossil-based products. Mr Mulligan's bio-industrial model was truly inspirational for me as a concept since it made me mull over the linkages between carbon, community and circular economy.

My resounding understanding from this was, firstly, that nature should be treated as living infrastructure and not just a resource. Secondly, tools for sustainability must be designed with longer life spans that have interconnected benefits and the flexibility to cater to multiple aspects, other than just providing fixes for short-term goals.

Local Empowerment through Inclusion and Social Justice

A perspective that resonated with me was Mr Satya Tripathi's narrative, which highlighted that climate action must uplift the communities it impacts, not displace them. I believe that this is the by-product of viewing ecosystems as commodities to be traded rather than communities to be nurtured. Mr Tripathi is Secretary-General, Global Alliance for a Sustainable Planet. During the session, he talked about examples from India and Indonesia that held people at the centre of climate action. This helped illustrate to me how carbon can be used as a value anchor that can create more livelihoods and accelerate sustainable development.

This was a sentiment I noticed that was echoed by Dr Ashley Brooks, Asia Director, Re:wild, whose take led back to empowering local communities by

introducing performance-based mechanisms and community-led verification systems. My observation on the matter was that sustainable initiatives cannot succeed without recognising the rights, wisdom and stewardship of the communities they directly impact.

Professor Leong also touched on this during her statements in a different capacity by listing empathic listening, unfreezing emotions and transcendent thinking as prerequisites for coherence. In my opinion, quite often, sustainability and sustainable education are looked upon as means to an end rather than achievable goals for our world that can be reached through emotional intelligence and shared meaning.

Finance and Governance

To me, Mr Ed Peng, Co-Founder and Partner at Canopy Generations Fund, and Mr Mulligan brought a different spin to systemic coherence by looking at it through the lens of finance and economic benefits. My key takeaway on the topic was the understanding that financing mechanisms, like carbon markets and green investments, can drive regeneration if they consider the ecosystem above all else. The main challenge highlighted in this topic lies in the verification and governance of carbon finance.

Dr Guoyong Liang, Senior Economist at the United Nations Trade and Development (UNCTAD), looked at another facet of governance by spotlighting the need to have policy innovation that is flexible to link to technological and process advances through a foundation of strong institutional frameworks. The Asia Green Fund's Executive Chairman Dr Bo Bai's idea of a "carbon-backed digital currency", which was mentioned later, was particularly interesting to me under this subject since it was a great example of how financial innovation can be a method of channelling global capital into credible carbon projects. From my perspective, these conversations also allude to the necessity of any investment flowing into the space being backed by technology, people and strong governance. So, in the long run, costs for green solutions can be lowered and performance standards can be set for credibility.

Dr Chantanakome's proposal for ASEAN's just transition mechanism was a way to ensure that smaller economies like Laos or Cambodia in the ASEAN region do not get left behind and can benefit from regional power trade. This helped broaden my view on the necessity for regional collaboration. It helped me arrive at the consensus that maybe ASEAN's coherence challenge is not purely technological; it is also political and ethical. Coherence requires planning and transparency in governance because it is a symbiosis between physical and moral architecture.

Upon reflection, I see governance as the unseen framework of regeneration. The absence of clear rules and regulation makes even the best policies and financial tools at the risk of failure and misuse. Through the presence of strong governance, lasting value can be created and the interplay between capital and justice can flourish.

The Earth and Myself (Conclusion)

"I am the mountain; the mountain is me. I am the river, the river is me."

When Mr Mulligan uttered these words, it woke something up inside me that was long dormant. I grew up in Kerala (a state in India), where nature seems endlessly alive. I was flanked by the rhythmic beats of the monsoon rains; the stillness of the backwaters and stories rooted with nature at its centre. I was always taught to respect my surroundings and give back to the earth. As I moved into bigger cities and global spaces, learning about sustainability seemed separate from the ideals I grew up with. I saw sustainable goals being pursued as a checkbox list rather than as the whole foundation upon which companies should function. Though Mr Mulligan was referring to carbon as a life source, for me, it was a resounding reminder that I am just a fraction of the beautiful world we enjoy today. Sustainability as a concept echoes far beyond company goals; it is the stories we grew up with, the landscapes we come from and the very fabric that connects us all as humans.

Niranjana Narayan at IMPACT WEEK 2025.

Sustainability Starts from Within

Balqis Azizah PRADANA

IMPACT WEEK at Suntec Convention Centre, Singapore.

Introduction

On the third week of September 2025, our cohort (NUS MSc Strategic Analysis and Innovation) had the chance to experience an on-site live learning journey at the IMPACT WEEK Well-being Economic Conference and Festival held at the Suntec Convention Centre. The five-day event hosted more than 4,000 cross-sectoral leaders who came together to support this year's slogan, "At One", meaning they share aligned minds, hearts and actions to build a better future.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

The event, co-organised by TPC (Tsao Pao Chee) and NO.17 Foundation, launched coalitions and initiatives such as Asia's largest ocean fund and the social transformation project in Fengshan (IMPACT WEEK, 2025). Six main pillars shaped the topics for each activity and conference talk: Climate & Nature, Circular Economy, Energy Transition, Food Systems, Human Construct, and Well-being.

My journey through IMPACT WEEK started with an invitation from Professor Lawrence Loh in his Strategic Sustainability class, where he invited his students to participate in the conference event. As the event day approached, I was excited to explore more content on the IMPACT WEEK mobile application and to book the talks I wanted to attend.

It did not take long for me to find a session that interested me; what was once a quick pick became a moment of deep reflection. One session that ignited my curiosity was "Extraction to Regeneration: Reimagining the Green and Blue Economies", which discussed climate and nature restoration.

A Personal Connection to the Blue Economy

As someone from Indonesia's South Sulawesi, a beautiful island where life heavily revolves around the ocean and its ecosystem, the idea of regenerating blue economies became personal to me.

I grew up listening to my father's childhood memories about how the sea brought life to his family and community. However, there is a growing threat of ocean pollution, such as in Indonesia's Kabaena Island, which saw its waters contaminated by nickel mining. This led the residing Bajau sea tribe to suffer from skin diseases and respiratory problems. Their abilities to swim and fish in the sea were also hindered as the once-clear blue

The author (first from left) attending IMPACT WEEK with friends from the NUS MSc Strategic Innovation and Analysis programme.

waters turned red (Mongabay, 2025). This topic of regenerative blue economies prompted me to reflect on how I could give back to my community.

On the day of the event, I arrived at Suntec full of excitement to witness how leaders from diverse backgrounds, such as finance, philanthropy, education, technology and nature restoration, approach sustainability issues.

Since the conference session I signed up for started at 4.30 pm, my friends and I decided to come earlier, around 2.00 pm, to explore the venue before joining the session.

The Ambience

Entering the venue, the first thing I noticed was how the space was designed to represent elements of nature, from the plant decorations to various installations showcasing the beauty of the natural world. One conference area intrigued me because there were rooms shaped like igloos, with the perfect blue lighting symbolising cold weather.

Since we still had some time to explore before our session, we visited an interesting booth that displayed a range of local cuisines. The booth, called "The Table That Connects Us", highlighted how food can bring people traditions, and generations together to create joy and connection (IMPACT WEEK, 2025).

The table setting reminded me of home, where my family used to host

Igloo-shaped conference rooms.

Plant installations.

An installation "The Table That Connects Us".

gatherings with a variety of dishes for everyone to share. It was also an interactive booth; we could scan the menu to see how each dish was prepared and learn about the ingredients used to create the plant-based and carbon-free versions of the meals.

Light bites at IMPACT WEEK.

After that, we took turns enjoying the coffee and light bites provided. A conversation between my friend and the coffee barista caught my attention. The barista, who is the owner, shared her journey of running a sustainable business by choosing eco-friendly materials for cups, straws, and even the coffee beans she sourced. She strived to be environmentally conscious in every aspect of her operations.

After savouring a cup of coffee, we moved to the light bites station, where vegetarian meals were served. The dishes were flavourful and portioned perfectly to avoid waste, and the containers were recyclable, reflecting the event's dedication to sustainability.

Interactive Section

Furthermore, while enjoying my time at the venue, I came across an interesting spinning wheel displaying the Six Pillars of IMPACT WEEK: Climate and Nature, Circular Economy, Energy Transition, Food Systems, Human Construct, and Well-being. The Circular Economy section stood out to me, likely because my team presented on its importance and business cases in Professor Lawrence Loh's sustainability class.

Continuing my experience at the venue, I discovered a very engaging interactive booth hosted by OceanX. As I recalled, the booth functioned as an augmented reality simulation of a submarine inside Malaysian waters. The booth featured a touch-screen controller and a large, curved screen, with the main objective of giving visitors the perspective of being inside a submarine. Various species, such as Bigeye Trevally and Hammer Sharks, appeared on the screen when we zoomed in (Video 1).

OceanX Submarine AR technology.

While testing out the device, I spoke with the OceanX team. From our conversation, I gained insights into how this technology can raise awareness about the importance of saving the ocean and marine life. In addition to sharing the benefits of the technology, the team discussed their challenges, including limited access to deep waters in other Southeast Asian countries, such as Indonesia, which have rich and diverse marine life they hope to explore and share with the world using this augmented reality technology.

For me, it was exciting to see how the OceanX team engaged us in the experience while emphasising their main goal of raising awareness and expanding our knowledge. This experience made me think of Sulawesi, with its beautiful waters and a culture that highlights the importance of the sea. I found it inspiring that technology like this exists, a tool that can truly help raise awareness of the need to preserve our oceans, transforming exploited seas into those that can be restored.

The Talk

The clock hit 4.20 pm, thus my friends and I headed for the Impact Forum, which is located near the OceanX booth, for our signed-up session. At 4.30 pm, the host welcomed the moderator and all the panellists for the discussion "Extraction to Regeneration: Reimagining the Green and Blue Economies".

Moderator:

- Ms Sadaf Hosseini, Global Head of Partnerships and Philanthropic Engagement, World Economic Forum

Attending the talk with my friend Azna.

Speakers:

- Mr Chandran Nair, Founder and Chief Executive Officer, Global Institute For Tomorrow (GIFT)
- Dr Ashley Brooks, Asia Director, Re:wild
- Professor Christine Loh, Chief Development Strategist, Institute for the Environment, Hong Kong University of Science and Technology
- Ms Melanie Ryan, Chief Executive Officer, Unearthodox
- Dr Guoyong Liang, Senior Economist at the United Nations Trade and Development (UNCTAD)

The talk focused on highlighting the importance of our willingness to shift our understanding and common practices from the current business model of extraction to one of regeneration. Moving towards regeneration is not only the responsibility of firms but also of governments and consumers. When profit-making remains the primary goal of a company, efforts to regenerate become less of a priority, especially if governance and regulations are not strictly enforced.

A photo of the panel discussion "Extraction to Regeneration: Reimagining the Green and Blue Economies", taken from the audience seats.

Ms Sadaf Hosseini: Change Levers and Regenerative Metrics Both Needed

Ms Hosseini began the discussion by asking whether we are bold enough to redesign the systems created over centuries to regenerate what we have depleted. The discussion was divided into two parts: the first focused on where change needs to occur, what solutions must be developed, and how these can translate into real-world change, including the levers for such change. The second part covered regenerative measurement, such as the new metrics, governance models and incentives needed to replace conventional businesses and scale viable green and blue economies.

Mr Chandran Nair: Problems Stemmed from Misplaced Narratives

The conversation began with Ms Hosseini asking Mr Nair about his perspective on the most important boundaries to address when shifting from extraction to regeneration, and how public sector and community partnerships can support and commit to implementing necessary changes. Mr Nair stated that the problem stemmed from misplaced narratives; those speaking about sustainability often come from investor or business roles, not scientists. Meanwhile, science provides critical knowledge supporting sustainability on topics such as biodiversity, carbon and calcification loss.

Moreover, he highlighted that sustainability cannot be pursued with high returns as the main focus. He then expanded on how the nine planetary boundaries are threatened by economic actors, including companies, investors and consumers. One statement that resonated deeply with me was his point that economic actors are the same people now trying to solve sustainability issues, and to do so, they must be willing to fundamentally change the economic model and how firms pursue profit. Lastly, he mentioned that economic actors need the power to price things differently, i.e. to price consumption appropriately.

Dr Ashley Brooks: Empowering Local Communities Through Simple Verification Methods and Performance-based Payments

The moderator then turned to Dr Brooks, asking how to empower local guardians for long-term transformation and transition. Based on his work, Dr Brooks highlighted that most of the local guardians have a disadvantaged background. He emphasised several strategies, including performance-based payments with simple verification systems managed by local communities and organisations. For example, through Re:wild, local communities are trained in monitoring and reporting using locally applicable, low-touch verification mechanisms for performance payments.

Dr Guoyong Liang: Improved policy frameworks, tailored solutions and incentives will boost sustainability

Next, the discussion shifted to Dr Liang, who was asked about the smartest policy measures governments can take to boost investor confidence in the regenerative industry. His surprisingly honest response was, "Sorry, but there are no smart solutions."

However, he outlined three key components of policy solutions: first, improving overall policy and institutional frameworks, including investment, trade, technology, innovation and fiscal policies; second, creating country- and region-specific solutions, as there is no one-size-fits-all approach; and third, providing incentives from local governments and regional organisations to encourage economic players and investors to focus on regeneration, defining specific goals, needed infrastructure and ecosystems to match investors' assets.

Prof Christine Loh: New Policy Narratives Needed to Align Economics and Sustainability

The moderator then explored Professor Loh's experience designing regulations for Hong Kong's ports and how she translated research into policy priorities. Professor Loh agreed with Mr Nair that current challenges stemmed partly from conflicts between scientific knowledge and economic practices. She questioned how governments can develop policies, incentives and financial systems to make sustainable business practices viable.

Sharing her background growing up in Hong Kong (a densely populated city) and observing similar characteristics in Singapore, she highlighted the importance of envisioning the kind of port needed by 2030, focusing not only on the port itself but also on the surrounding ecosystem, residents, buildings and seafarers who rely on the port. She emphasised that those benefiting from change must also bear its costs.

Professor Loh further discussed the reality of limited space for new buildings in high-density cities like Hong Kong and Singapore, emphasising retrofitting existing buildings for future use as part of the low-carbon and sustainable well-being revolution. She stressed the need for new policy narratives that align economics, finance and sustainability, sharing costs, benefits and risks fairly. This aligned with Dr Liang's point that specific narratives tailored to different audiences are essential, as no universal solution exists.

Ms Melanie Ryan: Aim for Clear, Measurable Sustainability Goals

Finally, Ms Ryan shared insights on how businesses can make a real impact by setting clear, measurable sustainability goals. She contrasted this with her

experience helping a business implement sustainability efforts that became merely a checkbox exercise in their reports, diminishing their real impact. She described a situation in which a company planted mangroves, then built a parking lot on the same site the next year, highlighting Mr. Nair's point that prioritising profit can lead to ongoing conflicts between sustainability and profitability.

Personal Reflections

Quoting Dr Liang: "When thinking about the objective of improvement, let us not confine ourselves to considering only economic gains but also the broader benefits in social, environmental and governance that such activities can generate."

As the discussion centred on redefining the fundamentals of how businesses operate, it prompted me to reflect on a reading from the Strategic Sustainability course. This reading emphasised the concept of a sustainable economy as an economic system that strives to maximise collective well-being while minimising resource use and environmental damage (Econation, n.d). What resonated most with me is the idea of deprioritising economic scalability in favour of business quality and purpose. This led me to question: What would the world look like if businesses focused more on awareness and accountability of their impact rather than fixating only on growth and profit?

All in all, I am deeply grateful to have participated in such an innovative event. Through this experience, I had the opportunity to meet and learn from global leaders who are actively striving to build a better future.

Therefore, to shift toward a more sustainable lifestyle, let us return to the concept of EESG, where economics, environmental, social, and governance are not merely frameworks but serve as guiding principles for how we, as consumers and participants in the consumption chain, can contribute to sustainable development.

Moreover, this experience has taught me that sustainability begins from within: with the willingness to be conscious of our consumption, to think not only of personal gain but also of the well-being of our communities, and, most importantly, to understand how our actions today can generate a positive impact for those in the future.

As Professor Lawrence Loh mentioned in class, sustainability is about meeting the needs of the present without compromising the ability of both current and future generations to lead sustainable lives.

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Tracing An Awakening from China's Industrial North to Lion City

LYU Yang

My Journey: From Industrial Past to Sustainable Future

Born in the northeastern part of China, I was nurtured by this black soil region, which serves as the backbone of China's industrial strength and currently has a relatively underdeveloped economy, for a full eighteen years. The year I came of age, I went south to Guangdong province alone to study and deeply realised the inequality in regional economic development. The economic take-off of the Pearl River Delta forms a sharp contrast with that of my hometown. Meanwhile, a question has sprouted in my heart: Does there exist a development model in this world that can alleviate the

A cover made by the author.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

inequality in regional development? At the same time, can we seek a balance among progress, humanity and the Earth?

The current academic path of the author.

With this question always on my mind, I came to the National University of Singapore to study and subsequently had the privilege of joining three lectures during IMPACT WEEK. From green transformation to the silver economy, and then to the booming development of the Greater Bay Area, I recognised what sustainable leadership could really mean.Implications of Green Transformation: A Systematic Revolution from "Taking" to "Regeneration"

The first moment that truly stayed with me during IMPACT WEEK was the lecture “Greening at Scale: China’s Green Economy in Action”. One of the speakers, an entrepreneur who had spent more than twenty years working on ecological restoration in northwest China, said something that completely changed how I saw sustainability. He remarked, almost casually, “We are not trying to save nature, we are rebuilding the very systems that support our own

At the scene of the panel discussion “Greening at Scale: China’s Green Economy in Action”.

lives. It can be considered as the most meaningful investment humanity can make."

When the image of the Kubuqi Desert transforming from a "sea of death" to an "oasis of life" appeared on the screen, what I saw was the revival of an ecosystem as well as the success of a large-scale systematic project. This transformation goes beyond Kubuqi's ecological characteristics, revealing its capacity for transforming environmental fragility into regenerative potential. In fact, Kubuqi's "systematic-ness" is to closely integrate ecological restoration, industrial participation and community activities. The governance structure of this project connects public incentives with private capital to form a long-term positive feedback loop. However, there exist some hidden dangers. Once any link in the system weakens, such as when policy support declines or when market demand for ecological products decreases, the development of the entire cycle may slow down.

It also evoked what we learnt in the course—the transformation from a linear economy to a circular economy. The operation process of a linear economy includes acquisition, production, and then disposal. While the process seems highly efficient, it is imperceptibly depleting the foundation on which one depends for survival. In contrast, the Kubuqi model is full of vitality. By interweaving ecological restoration, solar energy and green agriculture, a self-sufficient cycle is formed to integrate resources, energy and local communities.

Kubuqi Desert Restoration as a circular economy system.

"Double Materiality" can also be explained from this example. From the perspective of the environment, the project generates quantifiable benefits through carbon absorption. At the economic and social levels, it has opened new

paths for many related industries, letting local villagers become the direct stakeholders of the Kubuqi Desert. I began to understand that "green" can bring both a reduction in environmental emissions and a redefinition of how economic value is created. As a popular saying in China goes: "Green mountains and clear waters can be considered as mountains of gold and silver."

For me, this lecture is more than a story of ecological success. In the past, I always believed that sustainable development was a bonus to the foundation of economic development. Now, I suddenly realise that sustainability is also a means to achieve profits and a key factor for sustained growth. I can't help but re-examine my hometown. It is rich in heavy industrial resources, but the renewal is slow. In actuality, its true challenge might be how to change the way people view problems and how to change from a linear to circular economy thinking, rather than the issue of the factories' era. If my hometown can draw on the fundamental logic behind the Kubuqi model, perhaps those abandoned mining areas can be transformed into carbon development fields, while renewable energy and forestry can be rationally utilised, allowing farmers to become stakeholders of this black soil with their own hands. As the speaker said, "True greening is not about reducing harm, but about allowing everything to grow again."

The Reshaping of the Silver Economy: A Humanistic Return from "Burden" to "Value"

Carrying the thoughts I had about green transformation, I walked into another session, "Unlocking the Silver Economy: Asian Families Leading the Way". One of the speakers was a successor of a long-standing Japanese family business. Her opening line immediately caught my attention: "When we regard the elderly as a burden, it is us who are trapped, because we will be limited by the narrow perspective set in the traditional economy." Her words triggered deep thoughts in me. Perhaps the challenge we have been facing all along is not ageing itself, but how our systems and markets respond to ageing.

Then, she shared how Japanese family businesses and community enterprises have found a breakthrough in this difficult problem, enabling the elderly to once again realise their value as contributors. For instance, some long-established family businesses in Japan have senior artisans participate in production as mentors, passing on traditional skills through experience and light labour, while also maintaining employment and social connections in the community.

Her description brought to mind the content in "Doughnut Economics". A sustainable society should ensure that no one falls below the "social bottom line",

At the scene of "Unlocking the Silver Economy: Asian Families Leading the Way".

namely health, dignity, a sense of belonging and participation, nor should it push the economy beyond the "ecological upper limit". Combining ageing with community enterprises can indeed materialise sustainability, but it also faces practical challenges. Henderson et al. (2019) pointed out that many elderly care companies find it difficult to convert some indicators such as social integration into tangible results. Furthermore, while enterprises are pursuing sustainable profits, they may overly focus on financial indicators and neglect the humanistic care needs of the elderly.

Creating Shared Value

When the experiences of our predecessors can be fed back into society and people can choose their comfortable ways to continue contributing at different stages of life, the entire social system can achieve its maximum utility. In traditional economies, disadvantaged groups are often regarded as cost expenditures that need to be managed. However, "Creating Shared Value (CSV)" offers a different perspective, that is, what we generally consider as "social issues" can also create their due value. When the elderly are no longer regarded as a burden but as partners or stakeholders, society will take on a completely new look. By developing smart care, community projects and even senior art and cultural exchange centres, new economic returns and social impacts can be explored.

My thoughts once again returned to my contemplation on the development of my hometown. According to the National Bureau of Statistics of China (2021), the population aged 60 and above in the three northeastern provinces (Heilongjiang Province, Jilin Province, and Liaoning Province) has accounted for more than 20% of the total population, significantly higher than the national average. Such an age structure not only poses management challenges for northeast China but also makes it a potential testing ground for the innovative process of the silver economy. Based on concepts related to the silver economy, I think retired workers can join the maintenance of green infrastructure, while former educators can participate in the "senior university" in the community, and so on. These changes will transform care for the elderly into a mutually beneficial one, viewing ageing from a new perspective beyond discarding its value.

At the end of the lecture, one speaker said, "The silver economy, in the final analysis, is about rediscovering what is worth cherishing within us." The growth in this field is an increase in market opportunities as well as injecting a bit of warmth into the process of creating connections between humans and society. I am convinced that a sustainable future does not mean letting the young support the elderly solely, but having every generation join hands to create the present together.

The Wisdom of Bay Area Integration: The Art of Governance from "Competition" to "Symbiosis"

Leaving the heartwarming lecture on the silver economy, I rushed to the third lecture site without a moment's delay: "Greater Bay, Greater Purpose: Integrating China's Business Ecosystem with Global Impact". On the screens near the stage, the words "Greater Bay Area 2035 Vision" kept flashing. A speaker from Hong Kong walked up with calm and confidence. He said, "The Greater Bay Area is not the next Silicon Valley. It is more like a container brimming with chemical reactions. In this container, the values of the East and the West meet and collide with sustainable standards, thus generating new chemical outcomes."

In the Greater Bay Area, Hong Kong's financial industry is closely linked with Shenzhen's technology sector, while Zhuhai's advanced manufacturing industry also compensates for Macao's service-based economic structure. Every city has its unique advantages, but they are also gradually learning how to develop in a coordinated manner. The Constitutional and Mainland Affairs Bureau (n.d.) pointed out that as of 2024, the population in the Greater Bay Area exceeded 87 million while the total Gross Domestic Product (GDP) exceeded 14.5 trillion yuan, becoming one of the largest urban agglomerations in the world. Such a situation

An overview of the Greater Bay Area's population, GDP and city functions in 2024.

Source: Constitutional and Mainland Affairs Bureau, n.d.

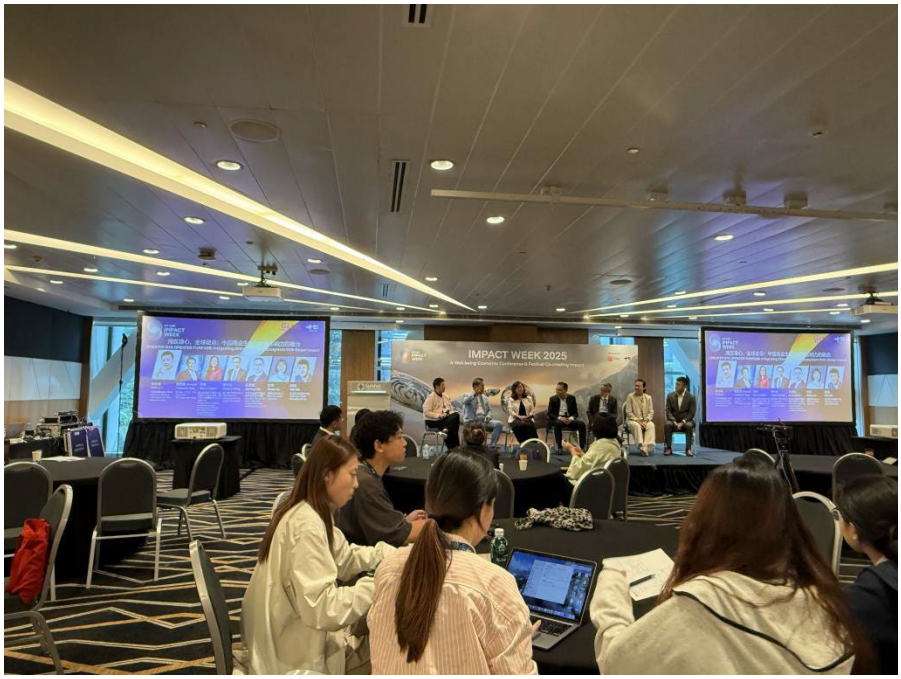
has made the Greater Bay Area a target testing ground for cross-border governance.

While there is attention on ESG in institutional investors' decision-making, the asymmetry of data information and the imperfect governance framework remain major barriers to achieving sustainable development goals. The successful cooperation cases in the Greater Bay Area, as a model of cross-regional governance, have endowed such coordination challenges on a global scale with reference value.

This governance approach in the Greater Bay Area perfectly embodies the concept of "1H - 3W". At the "why" level, the aim is to achieve common prosperity in the region. At the "how" level, a coordination mechanism is established through a cross-regional model. Moreover, the government and enterprises have taken on the role of "who", maintaining the effective operation of the system and clear responsibilities in terms of "what". Having clear concepts at every level can help the Greater Bay Area possess sustainable wisdom when facing complex issues.

In the second half of the speech, the speaker mainly focused on how to integrate green finance and ESG standards in the Greater Bay Area, which features "one country, two systems and three customs territories". In addition, he provided a detailed chart of the supply chain tracking system, from raw materials to the final product, with digital evidence at each stage of the process. These actions have triggered my thoughts on transparent and responsible supply chains. In such a process, data is the language of "governance". By interpreting data, the government, enterprises and communities can break the information asymmetry and thus re-establish trust. It is precisely for this reason that ESG is no longer merely a policy goal in corporate annual reports but has truly transformed into a part of daily practice.

From the perspective of enterprises, ESG also has a role beyond the compliance framework, which is a new way of strategic innovation. When ESG is engaged in business models, new sources of value will be stimulated, such as developing green finance, brand differentiation and so on. Enterprises that embed environmental data in their product designs can predict regulatory changes earlier, while those that invest in social capital (such as employee well-being and community engagement) usually have higher retention rates and consumer trust.



The scene of "Greater Bay, Greater Purpose: Integrating China's Business Ecosystem with Global Impact".

The Role of Collaborative Governance

After careful consideration, I consider that, rather than emphasising the economic take-off of the Greater Bay Area, it is more meaningful to discuss its attempt at collaborative governance. It made me understand that in the process of sustainable development, competition and cooperation can coexist and even complement each other. The underlying reason why a city cluster can achieve strong economic performance lies in its ability to balance different forces and enable mutual benefit among them.

During my four years of studying in Guangdong, I have countless times marvelled at the prosperity of the Greater Bay Area. As a popular saying describes it, "A bridge spans the north and south, turning a natural barrier into a thorough pass." I have been deeply impressed by the vigorous development of

emerging industries and the integration of different cultures, but I have overlooked the role of "governance" in this process. In the future, a company's success may no longer depend primarily on scale and capital, but rather on how effectively sustainable governance is integrated into every key decision while also creating lasting value.

My Integration and Progress: Building a Personal Sustainable Leadership Framework

It has been nearly a month since the end of IMPACT WEEK, but the contents of these three lectures are still deeply engraved in my mind, interwoven like a symphony. In the lecture on green transformation, I realised the importance of viewing the environment with a systems thinking approach. The silver economy session has taught me to "put people first", letting me understand that everyone can age with dignity, at the same time continue to contribute their own value. In the end, the integration of the Bay Area profoundly reflects how scattered efforts can be pooled together into a brand-new future. Each lecture has brought me new insights along with critical analysis, rebuilding the foundation of my sustainable leadership.

The world chess champion Emanuel Lasker once said, "Properly taught, a student can learn more in a few hours, than he would find out in ten years of untutored trial and error." For me, IMPACT WEEK was such a short but transformative moment. It allowed me to review the growth journey of my first 22 years in a brief period. All the doubts and thoughts in my heart turned into solid beliefs in an instant. Sustainability has moved beyond the "carbon emissions" disclosed in company reports and is gradually becoming a driving force for innovation today.

A leadership model created by the author.

From the vast expanse of ice and snow in northeast China, to the long summers in Guangdong, and then to the year-round summer-like climate in Singapore currently, I have been slowly seeking the meaning of development. In the future, I aim to persist in exploring sustainable innovation in the Asia-Pacific region and turn what I have learnt into the driving force for the renewal of my hometown, and if possible, even the world.

From a long-term perspective, I want to become someone who truly bridges sustainable finance closely with real social impact. Three places that have changed the journey of my life are so different yet great, nurturing my soul and the resilience to face difficulties without fear. I hope I can pass on this spirit and proceed to create a more balanced, diverse and dynamic future.

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Where Systemic Remedies and Real-World Action Converge

TRUONG Ngoc Huyen (Evelyn)

Introduction

"What if 5 days can shape the next 50 years?" That was the theme of the IMPACT WEEK organised by TPC and NO.17 Foundation at the Suntec Convention & Exhibition Centre. Stepping inside felt like walking into a place of crucial crossroads. There was a tangible sense that everyone, from the speakers to the attendees, was united by a single mission: to take immediate action for our shared future, starting from this very moment.

The discourse coverage ranges from diagnosing the core problems to regenerating a sustainable economic model for an "actionable remedy". In this event, I have attended two sessions: "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" and "Extraction to Regeneration: Reimagining the Green and Blue Economies". In addition to the discussions, my reflection was also realised through the experience at the conference as a whole: from the futuristic discussion pods, interactive booths, the coffee stall and the people. My report will guide you through the atmosphere of the event, analysis of the challenges, remedies and lessons learnt from this insightful event.

The Atmosphere at IMPACT WEEK

The entrance of the venue was not a brightly lit hall, but a dark and misty corridor illuminated by a deep blue light. It felt less like a conference but more like a portal—to reset our minds and prepare us for a different kind of thinking. It really felt like entering a space where new possibilities could be born and prepared me to be ready for a mindset change.

The next thing was a cinematic screen in the entrance hall. It really did feel like we were in the movie Interstellar and looking at a recap of Planet Earth. It wasn't displaying logos or speakers' schedules, but a breathtaking shot of ASEAN's

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Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

biodiversity—the coral reefs of the Philippines, the rainforests of Indonesia—blended with images of breathtaking urban life, before shifting to the devastating visuals of plastic-choked rivers and deforested landscapes. It was powerful, even without lengthy paragraphs that constantly reminded us what was at stake. It made me feel a sense of urgency, and the message was clear: this is our shared home, it's slowly deteriorating, and we are all implicated in its future.

A view near the entrance of the IMPACT WEEK venue.

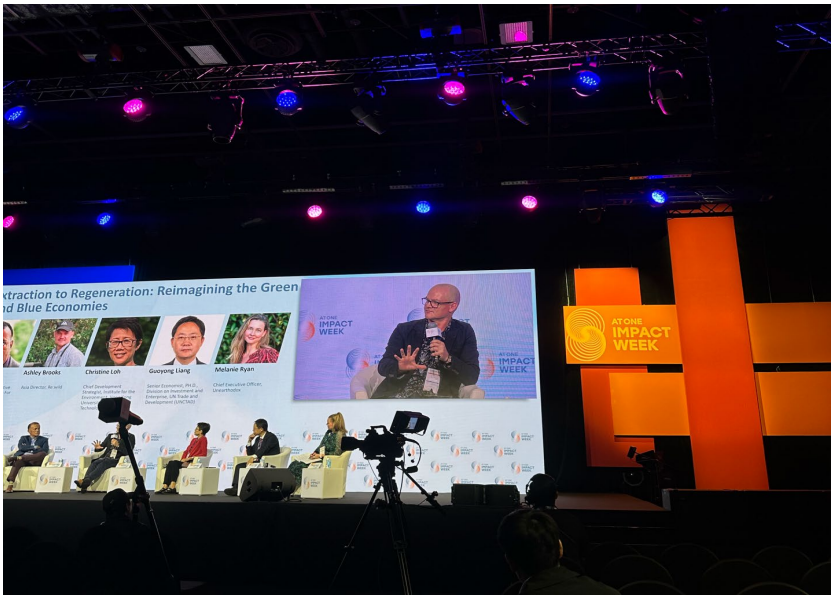
The main hall consisted of various vibrant ecosystem ideas. Futuristic white inflated balloon pods serve as intimate discussion spaces. Interactive displays by the World Economic Forum allowed you to play around with the simulations, visually demonstrating how a single policy change in carbon pricing could ripple through the entire economy. I found this tool to be truly valuable and have been using it consistently since then. For example, I have utilised this powerful tool to research a topic which I was not familiar with: "CO_2 Capture, Utilisation and Storage (CCUS): Carbon Supply Chains". And I have come up with some analysis based on the research: The CCUS industry broadly does not exist yet; to make carbon capture a reality, we need to build the crucial supply chains that can either transport captured CO_2 via pipelines for permanent underground storage or use it locally to create valuable products like green concrete.

Snapshots at IMPACT WEEK.

Systematic Challenge of an Extractive Economy

Flaws in Our Foundation

The panel "Extraction to Regeneration: Reimagining the Green and Blue Economies" was led by the frankness of Mr Chandran Nair, Founder and Chief Executive Officer of the Global Institute For Tomorrow (GIFT). He argued that our whole economic model is built on a lie: that we can have infinite growth on a finite



"Extraction to Regeneration: Reimagining the Green and Blue Economies" panel discussion.

planet by simply not paying the true price for what we consume. In another word, we have been having a wrong mindset when it comes to the relationship between nature and economy. One of his sharings was that business leaders often operate in a "3D age of denial, delusion and dysfunctional" thinking.

This has really made me reflect on the countless corporate sustainability reports I had read for my courses, so often filled with sophisticated language or even greenwashing narratives that, as Mr Nair implied, serve to "evade the key questions" about core business models. He argued that this often gives a "free pass" to intellectually dishonest arguments, particularly the idea that we can solve an existential crisis while demanding high financial returns from the solutions.

From my view, this critique is not isolated; it echoes the arguments of economist Kate Raworth (2017), whose "Doughnut Economics" framework challenges the global obsession with Gross Domestic Product (GDP) growth as the primary measure of success. The Doughnut Economics framework draws two boundary lines: a social foundation, ensuring everyone has access to life's essentials like food, clean water, and healthcare; and an ecological ceiling that must not be destabilised by humans, for the sake of all life on Earth. It really made me stop and think of the safe space for humanity: are we prepared to accept that a truly sustainable future means consuming less, not just finding "greener" ways to consume the same amount?

The Doughnut of social and planetary boundaries.

"Doughnut Economics" framework.

Searching for Regenerative Remedies—Carbon Market and Regenerative Model

"From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" panel discussion.

The second session, "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies", was a real eye-opener for me. It kicked off with the powerful hypothesis that if our economy is an engine driving us towards a cliff, our most urgent task is to build a completely new one. The discussion was focused on carbon finance, which is a system that's both critical and deeply flawed. The framework is still pretty much immature, the authentication process is expensive, and the market is struggling for credibility. It felt like everyone was talking about a perfect tool that no one could quite figure out how to use. This was proven by the drawbacks and fragmentation in the Paris Agreement's Article 6, which a speaker bluntly called a "bureaucratic nightmare". Where a carbon credit was once a standard global commodity, it is now tied to Nationally Determined Contributions (NDCs) (UNFCCC, n.d.), turning a path for green investment into a maze of paperwork that slows down capital.

Despite these intense frustrations, I was convinced that we must work with the tools available. The foundational first step is to build trust through standardisation, and it's promising to see organisations like the Integrity Council for the Voluntary Carbon Market (ICVCM) pushing for quality with their Core Carbon Principles (ICVCM, n.d.). But the most visionary idea that made me curious was transforming carbon into a mainstream financial asset, like treating it as a foreign exchange currency. Instead of building a separate "green

economy", the goal would be to embed our most valuable asset—our climate—into the core of the global financial system.

Additionally, Mr Wayne Mulligan, Chief Executive Officer of NZ Bio Forestry, shared an innovative point of view that left an impact on everyone. From the Māori worldview, he reminded us that a tree isn't just a place to store carbon but a source of molecular technology, that "everything made from petroleum can be made from trees". And I truly relate to his statement. For me, it wasn't only just about decarbonisation. It was about creating a truly regenerative bio-economy, a future where we can use renewable biomass to make plastics, chemicals, and materials our world relies on. In that vision, a healthy, biodiverse forest isn't just a passive carbon sink; it's a living, technology-driven, renewable factory. It makes me think of the regenerative agriculture programme in Andhra Pradesh, India (Andhra Pradesh Community Managed Natural Farming, n.d.). The chase is not after carbon credits. Instead, they are focused on what matters: making the whole agricultural system healthier and more resilient. By doing that, they're improving biodiversity and farmers' incomes, and as a natural bonus, they're capturing massive amounts of carbon.

The Lesson in a Coffee Cup

The coffee stall was run by Bettr Coffee, a local Singaporean enterprise. Bettr Coffee is a certified B Corporation, part of a global movement of companies with high standards of social and environmental performance, accountability and transparency (B Lab Global, n.d.). Their core mission is to empower marginalised women and youth by providing them with professional skills for the coffee industry. As I chatted with the barista, I noticed that their cup and lid were both from BioPak, a brand I know from my family's business as a high-quality biodegradable packaging company.

My family is in the sustainability business, so I immediately understood the significance of that decision. I know the cost, the pressure, and the arguments against choosing expensive biodegradable packaging when cheaper alternatives exist. So, I asked the barista how they justify the additional cost. Her response was, "Our founder, Pamela,

BETTR Coffee cup packaging.

believes that profit is the result of a good business, not the purpose of it. The impact we create is the purpose."

Bettr Coffee was a microcosm and an example of the conference. They were choosing sustainable packaging (internalising externalities), building their business around helping people (social regeneration), and holding themselves to a high, verifiable standard (B Corp certification).

Conclusion

This IMPACT WEEK experience crystallised three crucial learnings for me. First, value-driven leadership is the core for transition. Policy and finance are essential to scale impact; however, individual businesses are the ones on the ground proving it can be done. Second, we need to focus on both the mechanisms of carbon credits as well as nature-based solutions. Seeing the forest as a source of advanced materials, not just a carbon sink, is a critical reminder to ground our strategies in the physical world. Third, inspiration is a more powerful motivator than fear. As panellist Mr Satya Tripathi wisely noted, it is the "I have a dream" mentality that sparks action. In conclusion, I found the power of IMPACT WEEK in the space between two ideas: foundational framework and individual action. The frameworks are the necessary hardware, but they are useless without the software of human values to run them.

The experience merged the boundary between my academic life and my personal life. I left IMPACT WEEK feeling as if I was a steward or an ambassador, understanding that my job isn't just to analyse the system, but to take part in its regeneration, one conscious choice at a time, starting from this moment.

The author is thankful to Professor Lawrence Loh for the opportunity to attend IMPACT WEEK.

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A Journey for Transition

The move is on for shifting to cleaner energy sources. Carbon credits and capital form much of the carbon conversation. But more importantly, we need to transition from an extractive stance to a regenerative stance towards nature.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). Impact reimagined: Voices of the next generation for sustainability (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

Extraction to Regeneration: A Critical Analysis for Systemic Change

Georgius LEONARDO

For centuries, the global economy has been driven by extractive industries, including agriculture, forestry and shipping, which have created wealth but often at the expense of natural capital and long-term stability. At the same time, the green and blue economies are no longer an abstract vision; they have become an urgent necessity for planetary survival and long-term economic renewal. Through TPC (Tsao Pao Chee) and the NO.17 Foundation, leaders and sustainability experts have discussed the systemic barriers and potential pathways to transition from extraction to regenerative practices, which are known to foster sustainable economies.

The dialogue crystallised around three central challenges. First, we need to identify who is willing to invest their resources, influence and capital in a partnership. Secondly, we must consider how government regulation and policy make a regenerative green and blue economy viable at scale, using a full suite of fiscal and regulatory tools. Finally, how do we shift investment in nature capital, such as carbon conservation and community-based solutions, from a peripheral "nice to have" to a core driver of both ecological stability and financial returns?

Answering these questions required a fundamental reimagining of our economic models. Therefore, this report will move beyond analysis to identify a proposed integrated framework for navigating the transition from extraction to regeneration. This report will first diagnose the reasons why our economy remains locked in an extractive mode, followed by proposed solutions and a framework, as well as reimagining the application of the regeneration model in the real-world extractive industry.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

The session "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" in the IMPACT WEEK Conference (Impact Forum).

Diagnosing the Extractive Paradigm: A System in Crisis

The global economy's reliance on an extractive paradigm has led to systemic risks, accelerated climate change, collapsing biodiversity and entrenched social inequality. This is the result of the current economic operating system that focuses on financial profit, prioritising short-term goals over long-term ecological and social well-being. Terms such as "extraction" and "regeneration" were critically discussed in the IMPACT WEEK conference in Singapore, highlighting flawed designs in metrics, ideology and power structures.

The Flawed Metrics: Skipped Natural and Social Capital

The foundational flaw in the modern economic system is its reliance on a narrow set of financial indicators, such as the Gross Domestic Product (GDP), profit and Return on Investment (ROI), that systematically ignores the economy's dependence on nature and society. This creates a profound market failure. Ms Melanie Ryan, founder of Unearthodox, articulated that the mono-variable in the form of financial profit erases all the complexity of world value creation. Systemic value and ecosystem benefits provided by biodiversity, clean water and strong communities are often overlooked as negative externalities in the pursuit of cost reduction.

The systemic consequences are also well documented in both government and international organisations. The Dasgupta Review (Dasgupta, 2021), commissioned by the UK Government, identified a study on GDP growth

demanding more resources, leading to a net increase of biodiversity loss between 3-7% between 2000 and 2011. Similarly, the Asian Development Bank (2011) identified that developing countries in Asia and the Pacific experienced resource-intensive growth due to rapid urbanisation. The increasing middle-class consumption led to degraded natural ecosystems and increased water stress and hazardous waste. Hence, concrete actions are needed to protect fragile renewable resources and environmental quality.

Ms Ryan's example of a government-backed riverbank restoration project being destroyed for a car park is an illustration of the current systems. Its destruction for a revenue-generating car park is a direct consequence of the current system prioritising financial results. This creates the perspective that regenerative action is a "cost" rather than critical investment in long-term resilience and value creation. The example highlights the urgent need for a standard to integrate natural and social capital into future-looking value creation.

The Ideology: Infinite Growth on a Finite Planet

The extractive paradigm enables the destructive ideology of consumption-led growth. Mr Chandran Nair, a Malaysian businessman and Chief Executive Officer of independent think tank Global Institute For Tomorrow (GIFT), argued that the global economy operates under a dangerous "delusion", driven by the demand for infinite returns on a finite planet.

Some scientific frameworks, such as the nine planetary boundaries, have shown the interconnectivity of the Earth's support systems, encompassing economic actors such as companies and investors. There is an indication that we are already operating at the maximum operating limit. Similarly, the World Economic Forum (Bruce-Lockhart, 2022) argued that while the global economy has been growing for the past 200 years and created more money and opportunities, the question is whether economic growth can benefit the planet and become green growth.

As Mr Nair observed, a culture of denial, delusion and dysfunction persists. This comes upon the adoption of regeneration by corporate sustainability narratives, but without fundamental changes to the extractive business model. This corporate greenwashing was also pointed out in my Strategic Sustainability course at the National University of Singapore, representing an intellectual approach towards highlighting these issues.

Power, Complicity and the Governance Gap

The flaws in the narrow metrics and infinite growth ideologies arise from businesses and corporations exploiting loopholes in the power and governance structures, thereby creating a significant governance gap.

Professor Christine Loh, Chief Development Strategist at the Institute for the Environment, Hong Kong University of Science and Technology, highlighted the governance gap by introducing terms like "embarrassment for the rich" and "money talk" culture. This points to the power dynamic where financial capital becomes the dominant, and often sole, consideration in decision-making, overshadowing other forms of value and society. She also highlighted the distinction between making money, which focuses on abstract and limitless goals, and making a living, a concept rooted in community well-being. The policy challenge, therefore, involves creating a system to make the value of natural and societal ecosystems legible in the language of economics.

Mr Nair's reference to more than 1,000 illegal mining and plantations in Indonesia, often operated by powerful corporations that are included in the current global supply chain, exposes the hypocrisy of the system. It shows how actors can publicly contribute to sustainability while their business model operates under weak regulation and continues to extract from uncosted natural wealth. On a global level, a Centre of Strategic and International Studies commentary argued that Investor-State Dispute Settlement (ISDS) systems are increasingly being used to challenge governments' legitimate climate and environmental policies (Korn et al., 2024). For instance, Rockhopper, a UK-based oil exploration company, successfully sued the Italian government for over £210 million after Italy banned new offshore oil drilling (Neslen, 2022). Italy is part of an energy charter treaty which was incompatible with the Paris Agreement. This has created a powerful "regulatory chill", deterring governments from enacting necessary environmental protections for the fear of costly litigation.

Experts' viewpoints on the extractive paradigm have revealed three underlying reasons: flawed metrics, ideology of limitless growth through consumption, and entrenched power struggles. This has created a self-enforcing loop that makes extractive systems incredibly resilient and difficult to change. Mr Nair pointed out some solutions and concepts of limits through government regulations and austerity, which could be considered rational in doing business. Through this governance, companies should be able to move in a regenerative direction, focusing not only on consumption but also on restorative practices. The arguments align with the sustainability concepts explained in my course, where adequate government regulations prompt firms to develop a structure for

regulatory compliance. This will balance the principles of economic, environmental, social, and governance (EESG) by integrating these factors into consumption costs.

Pathways to a Regenerative Future: A Framework for Actions

Besides explaining the background of the extractive paradigm which fuels our current economic growth, the TPC conference discussions also surfaced some on-the-ground solutions and framework. It is important to identify three key stakeholders in implementing a regenerative future, such as the government, capital and the community.

The Role of Government: Creating the Enabler

The government, as a regulator, has its own power not only as a central planner but also as an enabler to create regenerative practices, making these practices a more logical and profitable choice for businesses. Mr Nair argued that firm regulation and austerity are required for businesses to keep to the ecological limit.

Based on these views, Dr Guoyong Liang, Senior Economist at the United Nations Trade and Development (UNCTAD), addressed three main pillars where the regulators could focus on. The first pillar is to improve the overall policy and institutional framework such that the country attracts investment and economic activities as well as benefits in terms of economic, social, environmental, and governance. Secondly, a country should have strategic targets for its policies to support the transition to a regenerative future. The government needs to proactively identify key regenerative sectors of interest, such as renewable energy, technology, circular economy or sustainable aquaculture, and support them through targeted research and development funding and public procurement. Lastly, Dr Liang advocated incentivising economic players and investors by providing the necessary infrastructure and ecosystems that align with investor interests.

Some on-the-ground examples were highlighted by Professor Christine Loh, where the Hong Kong government and society should prioritise retrofitting many of their existing buildings for future use, rather than constructing new ones. This could enhance energy efficiency, safety, and reduce carbon emissions. The recommended action for the government is to develop more compelling policy narratives that appeal to investors, ordinary people and asset owners, thereby highlighting the importance of cost-sharing. In addition to supporting

sustainable projects to foster net-zero emissions, some countries adopted Green Bond Principles (International Capital Market Association, 2025).

The Role of Capital: Mobilising Finance for Investment

Redefining private capital inflows for biodiversity is deemed crucial, as our planet cannot just depend on philanthropy. However, the main challenge is that the supply of capital (investors) cannot effectively connect with the demand (regenerative projects) due to missing essential infrastructure. Low bankability becomes the main issue when investors cannot fit sustainability projects into their standard financial models for measuring returns. Without standardised metrics, projects are deemed too risky or uninvestable due to certain reasons such as corruption tendency and improper implementation. Other than that, some argue that local communities may have an absorption capacity problem where they are unable to manage the large influx of capital without being overwhelmed.

The demand for biodiversity and environmental sustainability projects and funding has soared. This creates an opportunity for private capital to fill the funding gap, currently addressed by philanthropy. On the other hand, investors are complaining that there are no bankable projects with real metrics.

Panellist Dr Ashley Brooks, Asia Director, Re:wild, introduced a new concept of paying for proof, not for paperwork. This concept highlights that investors need verified outcomes for the investments, such as ecosystem health and species recovery. The proof would entail clear, scientifically credible, and auditable metrics for ecological and social impacts. A similar argument by Carboni (2024) in a Forbes article stated that corporate sustainability required more than well-crafted press releases or annual reports; it needs measurable impacts and rigorous accountability.

Exploring sustainability investment standards, Ms Ryan introduced a SCORE framework that investors could use as a due diligence tool to assess the regenerative potential of a project. SCORE stands for Scale, Co-creation, Open-minded, Recognise, and Experimentation. This framework shifts investor focus from a narrow assessment of financial forecasts to a holistic evaluation of a project's systemic health and long-term regenerative potential.

The Scale component explains how regenerative projects could align with what is needed for the ecosystems. The Co-creation component relates to how organisations should partner with the local community to build shared social value. An Open-minded approach would push organisations to innovate to provide non-financial metrics such as social and environmental returns. The

Recognise component stands for how sustainability should build upon existing value and recognise the social fabric and cultural assets of the community. Lastly, Experimentation would push organisations to learn, adapt and evolve, designing a project that is adaptive and resilient to change.

The Role of Community: Empowering Local Stewards

The current top-down conservation approach seems to prioritise professional and scientific expert knowledge, leading to an exclusive and paternalistic culture. This exclusionary conservation still marginalises indigenous people and local communities, leading to power imbalances and overlooking customary institutions and values of nature. In contrast, some non-governmental organisations are starting to understand the importance of local stewardship by implementing locally based solutions and community-based conservation (Sele & Mukundi, 2024).

In this paradigm shift, highlighted by Dr Brooks as regenerative partnerships, local communities are not problems to be solved nor passive beneficiaries. Instead, they provide effective solutions that integrate local knowledge, socio-cultural practices and participatory governance. This enhances biodiversity protection while strengthening communities socio-economically. The goal is to create a system which promotes local stewardship and their resilience and independence. However, despite its noble mission, regenerative partnerships face other issues, such as community readiness and verifiable metrics. In response, Dr Brooks proposed performance-based payment solutions and community-led verification. In this closed-loop system, community action generates verifiable data that unlocks performance-based payment, hence creating a model for economic justice and ecological effectiveness.

Enabling community-led verification could be one of the baselines for quantifiable, sustainable actions and local stewardships. This verification process replaces expensive, external auditors with simple, credible, locally managed technologies, creating bankable ecosystems. Benefitting from this, the local community needs to be trained and equipped with accessible technology to gather data of their own performance, such as using cameras as a proof of wildlife presence and diversity, acoustic sensors to monitor illegal logging or return of bird species, and mobile apps with GPS to allow time-stamped and geo-tagged patrols. Empowering the local community has benefits for both businesses and communities. First, this group will act not only as subjects of a report but also as their own actors who improve their ecological knowledge. Second, this process also focuses on credible and low-cost monitoring to provide

the proof points that the investors and donors need for their due diligence. Lastly, a data-based report will free these communities from overly long reports.

The community-led verification enabled performance-based payments for the local community. Dr Brooks sees this as a direct fee-for-service payment system where the communities are paid for their valuable services of ecosystem guardianship. The community could be in the form of a local NGO, village, indigenous council and other local entities. This payment system is directly tied to the pre-agreed and specific achievements of what an organsation wanted to do. Instead of a vague grant, the payment is triggered upon verified outcomes. This method has been adopted in some of the United Nations Development Programme-funded projects, such as the Floresta+ programme in Brazil which incentivises environmental services provided by smallholder farms, traditional communities and indigenous people in the Amazon (United Nations Development Programme, 2025).

In summary, synthesising a regenerative economy lies upon three fundamental aspects. Government policies act as the initial push, as highlighted by Dr Liang and Professor Loh. Governments need to establish clear rules, subsidies and incentives to build a stable and predictable landscape comfortable for investors. Second, driving private capital for sustainable projects is required to close the biodiversity funding gap. Ms Ryan introduced a SCORE due diligence framework which could be used by investors to channel their funds. Lastly, Dr Brooks highlighted local community empowerment as a regeneration engine for executing projects. They build upon their local knowledge and simple tools to record verified and credible on-the-ground impact-related data, which will be used to justify investments and lead to further scale-up of the project.

Building Market Infrastructure: Sustainability Reporting Standards

The frameworks proposed by the panellists above, covering governance and reporting, are not merely theoretical. In response to increasing investor demand for clarity, comparability and accountability, there are various global sustainability reporting standards to translate non-financial performance into the language of capital markets: the Global Reporting Initiative (GRI), the Task Force on Climate-related Financial Disclosures (TCFD) and the International Sustainability Standards Board (ISSB).

As the first sustainability reporting standard, GRI focuses on an inside-out perspective where it helps a company to understand and communicate its contributions to sustainable development. However, this standard seems to lack

a direct and consistent link to enterprise value. The need for a more investor-centric framework was later fulfilled by TCFD and ISSB reporting standards.

Task Force on Climate-related Financial Disclosures (TCFD)

TCFD was founded in response to the 2015 Paris Agreement to help identify the information needed by investors, lenders and insurance underwriters to access and price climate-related risks and opportunities. The TCFD creation by the Financial Stability Board was significant in bringing sustainability discussions to the boardrooms. It gives an outside-in perspective which frames climate change in the language of financial risk, and provides a direct link between sustainability and enterprise value. This is aligned with Dr Brooks' view to mobilise private capital for sustainable projects.

ISSB: The International Sustainability Standards Board

Sustainability governance becomes more extensive when the International Financial Reporting Standards (IFRS) Foundation created the ISSB, giving sustainability reporting the same legitimacy as financial reporting. The mission is to create a global set of standards for sustainability-related financial disclosure for the capital market, integrating sustainability in the financial accounting system. IFRS S1, which focuses on general requirements, acts as a foundational standard that requires organisations to disclose material information related to significant sustainability risks and opportunities. This report discloses sustainability issues beyond the environment, such as human capital which could affect company value, financial performance, cashflows and access to finance. IFRS S2 is designed to capture climate-related disclosures and plans to respond to climate-related risks and opportunities (Carroll, 2023).

Overcoming Barriers to Implementation: A Political-Economic Perspective

Moving from an extractive to a regenerative economy does not just face technical and financial challenges. Politics and people with vested interests often protect the current extractive paradigm. Also, some government institutions might have knowledge gaps that need to be addressed. Overcoming these barriers requires a strategic approach to managing political-economic change.

Addressing Politics and Vested Interests

Resistance from incumbent industries that benefit from the extractive business is the most significant barrier to adopting the regenerative paradigm. Oil companies, for example, could create some sort of regulatory chill through their litigation. They yield immense political and financial power to block or delay the policy changes, forming a dominant "money talks" culture coined by Professor

Loh. Two strategies could counter these issues. First, Mr Nair highlights rigid boundaries where a strong state is needed to impose non-negotiable ecological limits. However, this requires political courage to prioritise long-term national interests. Other than that, Professor Loh argued that a compelling policy narrative is needed where policymakers could build a broad social and political coalition to balance the influence of narrow vested interests.

Bridging the Institutional Capacity Gap

With a strong political will, other factors need to be considered. Government agencies, especially in the low- and middle-income countries, might face a lack of technical expertise in creating policies and project implementation. Dr Liang highlighted an investor concern about the local communities managing large-scale funding. Addressing these issues, he advocated strengthening state capacity through three pillars—improving, targeting and incentivising. In addition, he highlighted the importance of multilateral institutions, such as the World Bank and the World Economy Forum, and partnerships to improve the foundational framework. For instance, the Asian Development Bank (ADB) provides financial support and technical expertise to middle- and low-income countries, including Bangladesh, Cambodia, Pakistan and Vietnam, to participate in international carbon markets (Asian Development Bank, 2024).

Conclusion: Call for Regenerative Thinking

Our current economies are led mainly by extractive industries such as oil exploration, mineral extraction and consumer-driven business. As stated by Mr Nair, this creates systemic failure under the illusion of infinite growth on a finite planet. Moreover, Ms Ryan highlighted the investor focus on narrow financial-based metrics, which views regenerative practices as a cost instead of an investment for the future. Later, political power plays among those with vested interests added to the complexity, making the current system resistant to change. However, the panel discussion had also demonstrated some pathways to achieve a regenerative future, such as through a combination of strategic policies, innovative finance and community empowerment.

Looking to the future, the regenerative paradigm relies on the self and collective efforts in state policy, capital and communities. Governments, as the policy owner, need to have clear boundaries, smart incentives and transparent policies to create an environment that is deemed suitable for investment. This capital can be guided by holistic frameworks such as SCORE and the various reporting standards, hence, funding can be mobilised for proper regeneration. Local community mobilisation is needed to produce verifiable data, creating practices

based on the local culture and achieving a balance between economic, environmental, social, and governance.

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From Carbon to Coherence: The Quest for Interoperable Climate Economies in ASEAN

ZHANG Yiyang

IMPACT WEEK 2025, with the theme of a Well-being Economic Conference and Festival, was a critical meeting point of theory and practice. This learning journey log is based on the experience onsite, and, in particular, the panel discussion "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies". The session is applicable to the course objectives on sustainable development and strategic transformation for three reasons: first, it takes the discussion beyond the corporate level of ESG compliance to the systems level of change; second, it examines how finance is being reshaped from risk mitigation (carbon offsetting) to value creation (regeneration); and third, it tackles the tricky issue of governance at the multi-lateral level in Asia where the allocation of capital is being redefined in the face of the geopolitical changes. The case offers an abundant opportunity to discuss such concepts as blended finance, systemic innovation, and impact measurement.

Impact Problem Definition

The main issue that the ASEAN region faces is the coherence problem: how to coordinate the divergent economic, regulatory, and infrastructural interests of ten sovereign states to become a single, climate-resilient economic future (Dang, 2025). Presently, the required magnitude of climate investment is impeded by fragmented national policies and market mechanisms (OECD, 2025).

The panel discussion poses the issue as a change in capital: Will we spend carbon as the currency of our times on survival, or invest it in a regenerative future? This query frames the impact issue as a choice between maintaining high-cost, short-term carbon offsets or radically redesigning the economy to include ecological and social healing in regional development.

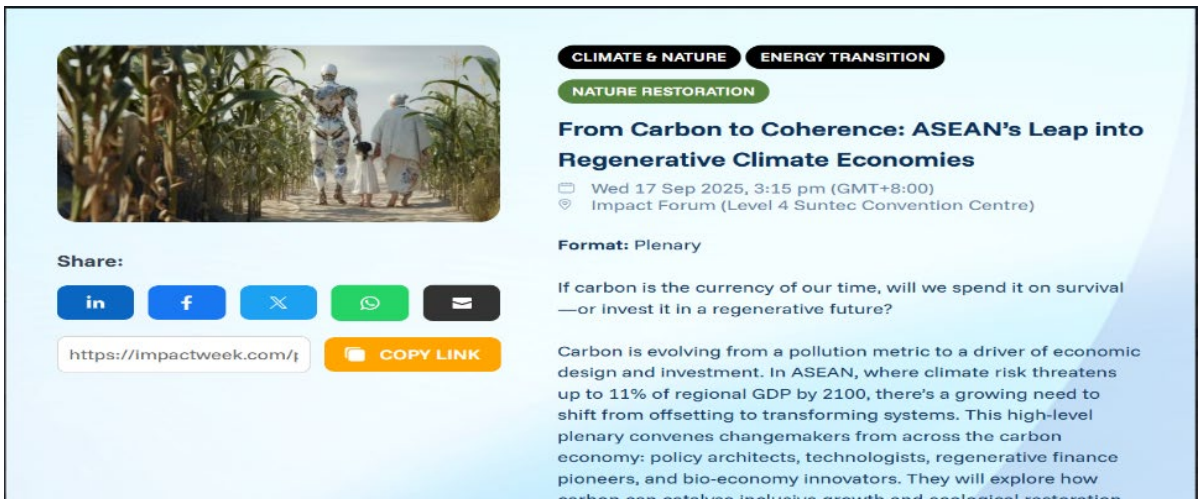
Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

Scope and Issues Framing

The debate focused on two fundamental pillars necessary for the regenerative leap of ASEAN: interoperable market mechanisms and the regenerative capital shift. In the first pillar, interoperable market mechanisms, research has shown that to scale sustainable investment in Southeast Asia, the deep issue of economic and policy fragmentation will have to be overcome (Dang, 2025). Dissimilar regulatory systems and ineffective infrastructure in the area have been restricting potential team success.

Interoperable market mechanisms

The panellists pointed out two dimensions in this challenge. The first is cross-border green grids (energy coherence), which involve the consolidation of national electricity grids to enable easy exchange of renewable energy. The region would have the potential to make its energy supply more stable and lower its collective carbon emissions, since some countries, such as Vietnam with its solar surplus or Indonesia with its geothermal potential, complement each other in terms of generation pattern. Achieving this vision, however, requires harmonised technical standards, transparent pricing mechanisms, and cross-border regulatory trust.



"From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" panel discussion.

Source: IMPACT WEEK, 2025

The second dimension, the interoperable carbon markets (price coherence), requires the development of connected or integrated carbon markets to create a uniform and predictable regional carbon price (Abiodun et al., 2024). This would assist in removing market perversion, motivating privately funded investments in decarbonisation technologies, and avoiding the scenario where industries

move to other jurisdictions with weaker carbon emission regulations (Abiodun et al., 2024). The lack of interoperability in both energy and carbon markets means that the ASEAN region will not be able to enjoy the economies of scale to make a successful transition to a low-carbon future.

Regenerative capital shift

The second pillar in ASEAN's regenerative leap is the regenerative capital shift. It calls on policymakers and investors to think differently about how the flow of capital is directed towards traditional green finance, which is primarily focused on minimising harm, and regenerative finance, which aims to deliver net-positive ecological and social impact (Andreucci et al., 2021).

This shift has two fundamental investment priorities that were discussed during the session. To begin with, there is "nature as infrastructure", which declares ecosystems like mangroves, forests and wetlands as vital economic resources that deliver quantifiable services like flood control and carbon capture. Protecting and restoring them is, hence, an ecological and financial necessity. Second, "bio-economy innovation" fosters investment in companies working on bio-based materials that are capable of substituting fossil fuel-based products in the construction, fashion and packaging industries. These inventions introduce regeneration right into supply chains, changing the model of consumption and production. Together, these two pillars provide ASEAN with a blueprint of the circular, resilient and inclusive economic transformation that is based on ecological balance and shared prosperity.

Learning Value and Course Linkage

The main lesson that I have gained from the IMPACT WEEK experience is that systemic innovation cannot be separated from governance reform. Although solutions are available through technology (green grids, biomaterials), ASEAN's capacity to implement them depends on underlying governance questions posed in the corresponding plenary session, "From Crisis to Reconstruction: Capital, Leadership & the Asian Future".

The course value of learning is high since it reinvents the investment case of sustainability. It demonstrates that the best returns, both financial and impact-wise, will be achieved from projects that resolve energy, nature and governance barriers. As our course name "Strategic Sustainability" implies, sustainability is a strategic imperative and not just a philanthropic activity.

Onsite Experience and Critical Reflection

The Plenary: Catalyst to Action

The panel discussion "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" created a sense of urgency about the peril of climate change and the promise of economic renewal. The Impact Forum was designed as a big amphitheatre-like area focusing on the high-level plenary. The panellists have backgrounds in ASEAN policies, regenerative finance innovation and bio-based materials.

They showed a step-by-step diagram of how the current carbon pricing initiatives in the region are fragmented, demonstrating a complex patchwork of national initiatives which act independently. The various countries have implemented different standards, tax systems and monitoring systems, and this rendered the cooperation among the states inefficient and expensive. Immediately after the presentation was a slide showing the possible economic savings, in the hundreds of billions of dollars per year, if a fully interoperable green grid were ever put in place across Southeast Asia. This kind of system would enable Vietnam to export their extra solar power to Singapore during peak demand and show how integrated infrastructure would increase energy security and sustainability in the area.

My main impression of the panel discussion was that cross-border cooperation is the only possible mechanism that can enable the economies of scale that are required in regenerative investments. Panellists highlighted that the financial implications of new technologies are prohibitive without regional coordination. A small and disjointed market cannot support the massive initial investment in high-tech innovations such as large-scale offshore wind farms, next-generation hydrogen hubs, or state-of-the-art bio-refineries (Harding et al., 2021). By pooling resources and harmonising policies, nations can share both risk and reward, enabling the transition towards a resilient and low-carbon economy.

Critical Analysis: Interoperability vs Sovereignty

The promise of interoperable markets is very enticing, but it clashes with geopolitical reality. Although the panellists had raised the encouraging vision of the ASEAN Power Grid, secondary research indicates the slow rate at which it is being implemented. The stalling of progress is not usually caused by unavailable capital, but by political hesitation towards signing long-term supply contracts that would put the energy independence of the country in question, or prioritise the generation assets of one country over the other (Rautakivi & Yolles, 2024). This supports the argument that it is within the framework of such mixed, stalling,

regional projects that the future of world finance, diplomacy and even civilisation itself is being determined.

The huge difference between the grandiose vision of "carbon to coherence" and the current state of politics shows that the main transition barrier is a governance one. The direct request of panellists to reimagine governance is not just a philosophical request, but an absolute requirement in opening the trillions of dollars of capital required to effect this global change. However, Rautakivi and Yolles (2024) noted that capital is still limited by fragmentation and policy uncertainty. A lack of a shared regional commitment will mean that the idea of coherence will continue to be a pipe dream against the background of parochial policies and contradictory rules.

Deep Dive: Regenerative Finance in Action

Arguably, the most radical component of the coherence agenda is the replacement of a traditional carbon-offsetting approach with a regenerative investment approach (OECD, 2025). In traditional sustainable finance, business is frequently conducted through the lens of exclusion, like not investing in high-carbon industries such as coal, or through mitigation, which is aimed at decreasing the intensity of emissions in a portfolio (Zhang et al., 2024). In contrast, the very essence of regenerative finance is driven by its desire to actively replenish natural capital, improve human well-being and achieve a financial pay-off at the same time, a concept promoted by organisations such as the United Nations Environment Programme (2023).

The difference can be well traced with the help of Nature-Based Solutions (NBS). Take a hypothetical case study of financing Mangrove Restoration in Mekong Delta. The conventional financial model would just treat the restoration effort as a sunk cost. Nevertheless, the regenerative model essentially redefines this project as a multi-asset infrastructure project. Such a reframing indicates the way in which nature could be turned into economically viable infrastructure that creates three different sources of revenue. Such streams comprise the selling of blue carbon credits (as a type of mitigation), enhanced sustainable aquaculture outputs (a source of direct economic value), and decreased expenditures in coastal protection (representing concrete infrastructure value).

The need for such innovative financial architecture is verified by supporting evidence of blended finance. According to research conducted by the Global Impact Investing Network (2025), to de-risk these complicated NBS projects, catalytic capital, including concessional debt or first-loss layers of investments, is necessary. The projects initially use patient capital, which can be contributed

by an entity such as a family office, before they become appealing enough for mainstream commercial institutional investors. Therefore, the design of financial products that effectively transform natural restoration into economically viable and strong infrastructure is a very important task of private organisations, which may also be labelled as "Impact Architects".

Technology integration is a central theme, placing technologists in important positions in the regenerative economy. Hard, objective evidence is required to confirm more complex regenerative assertions. The bioeconomy's economic viability through ecological restoration relies on the successful implementation of sophisticated technologies. They might be AI-based precision agriculture capable of tracking soil health (Mendes, 2023) or real-time satellite imagery that can be used to supply verifiable evidence of ecological restoration, e.g. the growth of mangroves. The transversal role of technology and AI, which is one of the pillars of sustainability highlighted in the general sustainability discussions, is a main enabler of coherence. It moves measurement beyond subjective reporting towards sound and objective systems-level validation. This provides data for financial models and increases confidence for investing in nature.

Conclusion

One of the most powerful lessons of IMPACT WEEK 2025 was the realisation that the disintegration of global systems requires a radical rebuilding of our economic models. The discussion on ASEAN's carbon to coherence journey gives ideas for the regional roadmap for this reconstruction. The ubiquitous application of financial innovation in this region is key to achieving ASEAN's ambitious economic leap. The approach could maximise capital flows, and the implementation of regenerative finance frameworks could transcend the previous approaches of mitigation. Natural capital and community health become valued as key economic outputs. These models have the potential to open new and combined sources of revenue through reimagining ecosystem health, e.g. mangrove restoration or sustainable agriculture as a multi-asset infrastructure.

A second factor of success is integrating technology with strategy. To make the new, regenerative economy effective and commercially investment-attractive, it must be scalable and verifiable, which can be facilitated by technology. AI can be used to optimise the distribution of resources and project management, whereas sophisticated, decentralised energy systems can be controlled by smart digital grids. Moreover, the inclusion of bioscience will ensure the ecological sustainability of nature-based solutions. These technologies collectively establish an infrastructure that is effective, transparent and auditable, enabling the

tracing of impact, management of complexity, and ultimately providing the trust and assurance required by major institutional investors.

Leadership courage is ultimately the key factor. Without ASEAN leaders' intention to prioritise change in the regional systems over short-term national interests, the coherence agenda is likely to fail. This intention is especially important in complicated spheres such as energy and carbon politics. The leaders must be committed to shared standards, infrastructures and resource pools to realise the actual integration of the region. It is this kind of unified, bold regional commitment that must be developed to realise financial innovation and technological integration.

Personal Synthesis

Even though this assignment is based on a trip to IMPACT WEEK and secondary sources, it has allowed me to redefine economic transformation. The question transforms radically from "What can we do to reduce harm and become more sustainable?" to "How can we redesign systems to create net-positive value to the planet and people?" This move requires an understanding that it is no longer sufficient to reduce the negative externalities (mitigation) for global crises, but rather, it is now time to design economic activities as regenerative.

The most important breakthrough would be the successful persuasion of the finance sector to move beyond conventional risk objectives and embrace the concept of blended finance. It means that revenues from blue carbon credits, increased sustainable yields, or the eliminated infrastructure costs ought to be regarded as legitimate economic goods. It is this audacious use of personal and concessional capital facilitated by Impact Architects that will fund the connective tissues of a new regenerative global economy.

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From Intent to Impact through Nature-Positive Strategies

FU Bin

Panellists shared how climate action and nature-based solutions can be scaled and deliver greater impact. From left: Mr Terence Tan, Director (Carbon Management), UN Global Compact Network Singapore; Dr Shailendra Mishra, Global Head of Sustainability (Food, Feed and Freight), Olam Agri; Ms Melissa Moi, Head of Sustainable Business, Group Corporate Sustainability Office, United Overseas Bank, and Mr Gabriel Tan, Chief Executive Officer, GUAVA International.

Introduction

This article reflects on discussions in a seminar, "Scaling Climate Action and Nature-based Solutions: From Intent to Impact", held during IMPACT WEEK. It brought business case studies together with concepts and policies, placing companies in a position to operate effectively, and with environmental accountability.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

It also discussed the approaches for natural capital and biodiversity in strategic decision-making, and the transition towards nature-positive businesses. This is relevant not only in the context of modern priorities such as sustainable development, but also in relation to corporate social responsibility, which has not always been given consistent attention.

Why Nature Positive Has Become a Business Imperative

Global Ecological Risks and Economic Linkages

In 2019, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) indicated that about one million plant and animal species globally are facing the risk of extinction and ecosystems are losing their health at a rate unprecedented in human history (IPBES, 2019). This harsh reality is not simply an environmental statistic; it is also seriously damaging the very foundation of the global economy. At the same time, businesses, financial institutions and governments are increasingly realising that the services provided by healthy natural ecosystems underpin economic activities, supply chain stability and product development. This dependency has concrete manifestations across three dimensions:

Input values: In crucial areas such as agriculture, fisheries and pharmaceuticals, the direct supply of bioresources is indispensable. The breaking down of ecosystems in turn boosts raw material costs, results in production swings, and even leads to supply chain interruptions.

Ensuring operational safety: Healthy ecosystems act as natural "green infrastructure". For instance, coral reefs and mangroves are very effective at preventing coastal erosion as tidal waves pound the shore, and wetlands provide flood protection. The loss of these green infrastructure will result in increased environmental dangers and financial losses to businesses.

Driving innovation and market opportunities: Profound changes in the field of biotechnology are even now inspiring new business models and products. For instance, a polymer research institute in China made resinous packaging film that can be fully biodegradable. Protecting natural capital is synonymous with safeguarding the sources of future innovation.

The Emergence of the Natural Capital Perspective

The term "natural capital" refers to the stock of natural assets from which mankind can derive material benefits. Classifying nature as capital requires businesses to recognise, quantify and incorporate its value into decision-making systems. Natural capital accounting gives private-sector companies the means

to measure their reliance on and impact upon natural systems, and thus to include that information in corporate strategy processes and reporting frameworks.

Policy Environment in Singapore

By way of an example, the "City in Nature" vision has become the main thread of land-starved Singapore's national development strategy. Through systematically promoting green finance, looking at natural capital accounting in the context of sustainability reports, and developing statutory instruments to support the growth of green assets, the Singapore government's message is clear: For future economic competitiveness, look after nature now.

To succeed in business today, entrepreneurs must not only think about their own interests but also care for the environment in particular. A system of business-friendly environmental regulations can help enterprises that are on the cusp of becoming nature positive. Beyond providing an institutional framework, the regulatory efforts can actively mould a market for green assets.

From a business angle, once a government begins to put a price on nature and bring liquidity to the market through policies and financial instruments, it changes corporate decision-making fundamentally. Nature conservation and restoration are no longer just cost centres. They will become quantifiable assets in the future, capable of generating income in their own right. This policy approach can lead to a clear route for companies to turn environmental leadership into long-term business value and a competitive edge.

The Corporate Path – Moving from Intention to Implementation

UOB: Banks as Financing Engines

Financial institutions now have a powerful role in conserving biodiversity, said Ms Melissa Moi, Head of Sustainable Business, Group Corporate Sustainability Office, United Overseas Bank. Where banks had previously only been concerned about financial returns, they will now have to incorporate corporate dependencies and impact on ecosystems in their primary risk management framework. UOB is working with Singapore's Sustainable Finance Association to create measurements that can assess natural risk; turning what was once a qualitative idea about nature into an objective financial data point. Most importantly, these would be adopted into the credit approval process where a firm's environmental record directly influences its cost of capital and availability. Banks have become allocators of capital.

UOB is further advocating the Taskforce on Nature-related Financial Disclosures (TNFD) framework, which will allow for the systematic identification of risks to nature across investment portfolios. This is a game-changing development: financial institutions are beginning to put a number on nature by embedding natural capital externalities into corporate financial results.

As businesses report on ecosystem impacts through TNFD, the information can be turned into financial risk metrics feeding into credit ratings and underlying financing costs. This shift will benefit green pioneers and disadvantage polluting companies, with financial institutions rising as great engines for the push towards a nature-positive future.

The message is clear: business leaders of tomorrow need to be fluent in this new language of finance that places a value on the relationship between business activities and natural capital.

Olam Agri: An Agricultural Enterprise Transforming for Nature

As an agricultural supply chain enterprise, Olam has supported over 500,000 smallholder farmers in Asia through sustainable agricultural training and soil restoration projects. Its low-carbon rice initiatives in India have saved over 90,000 tons of carbon dioxide emissions.

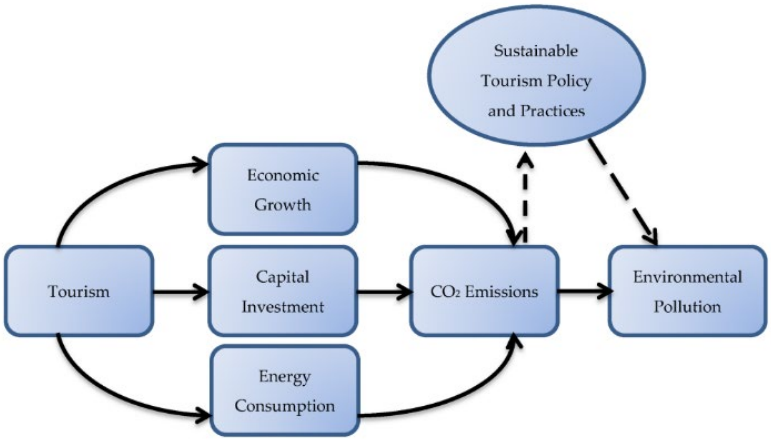
Dr Shailendra Mishra, Vice President, Global Head of Sustainability (Food, Feed and Freight), Olam Agri, pointed out that agriculture accounts for about 30% of global greenhouse gas emissions. The company therefore aims to bring about a triple positive effect through technological innovation: climate-positive, nature-positive and livelihood-positive. Such an approach shows that intentional measurement of sustainable agricultural transformation depends not on reducing production but on making it more resilient. Collaborations are also encouraged across different disciplines and geographic regions.

GUAVA International: Innovating for the Circular Economy

At GUAVA International, the circular economy is combined with ecotourism. By working with hotels, airlines, cruise lines and other industry partners, it marries resource efficiency to brand value through recycling efforts, energy conservation plans, green certification programmes and the quest for ecological experiences. It has also shown that "sustainability can be a business value" by designing green certification systems and customer incentive structures.

GUAVA's Chief Executive Officer, Mr Gabriel Tan, was conferred a SDG Pioneer for Circular Economy by the United Nations Global Compact. He opined that "sustainability is not a cost, but a competitive advantage". It has reframed my

definition of what it means to be in business: real, sustainable success comes from taking care of not just society, but also the environment. For service or tourism sectors, sustainability goals may become part of company values, enhancing customer loyalty and brand uniqueness.



Conceptual framework related to tourism, capital and pollution.

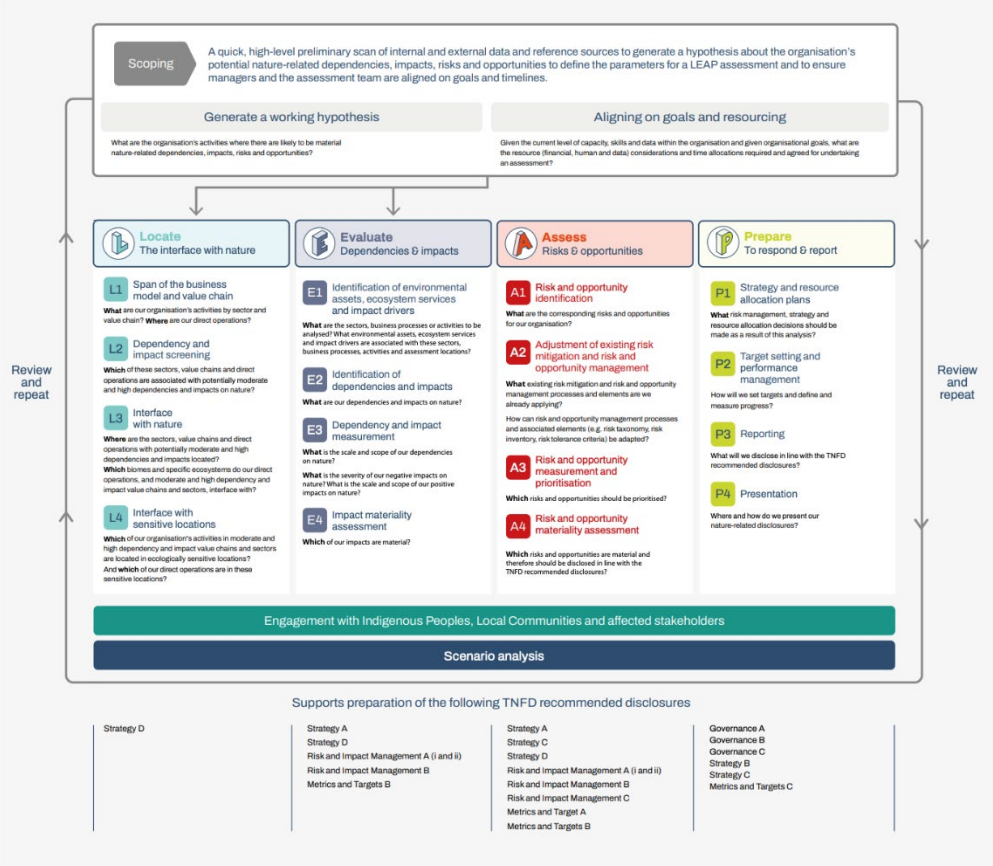
Source: Khan et al., 2020

Concepts on Nature Positive

Nature positive describes the position that a business or economic activity takes to go beyond doing no harm and providing a net gain in natural capital and a net positive contribution to biodiversity. This path entails the transition from passive mode to active repair, which includes setting and monitoring specific thresholds, as well as transparent disclosures. For example, the TNFD encourages companies to base their disclosures on four central pillars: governance, strategy, risk and impact management, and metrics and targets (TNFD, 2023).

TNFD also proposes the LEAP framework (Locate, Evaluate, Assess, Prepare) to guide corporations in translating their sustainability intentions to action and impact. Though the LEAP framework looks linear, it can be viewed as a cycle, where companies restart the cycle as markets, regulations and ecosystem conditions change.

Small and medium enterprises (SMEs) in developing countries may have difficulty adopting this framework as they tend to lack resources, data and capabilities. Developing a "lightweight" variant of the process for SMEs is a promising direction.



The TNFD LEAP framework.

Source: Taskforce on Nature-related Financial Disclosures, 2023

Challenges and Opportunities

In driving the nature-positive agenda, there are numerous barriers that businesses and financial institutions must address, including data management, financing and organisational capabilities.

One of the biggest challenges is related to the absence of comparable data and indicators. Unlike carbon emissions, which have universally recognised units of measurement, nature-related dependencies and impacts tend to be extremely local and context-dependent.

A second impediment is the funding and capacity gap. Most biodiversity or restoration projects generate long-term returns and may not be highly scalable. This contrasts with the short-term focus of traditional capital markets. Moreover, companies most often do not have the capabilities and cross-unit coordination that are required to incorporate nature-based thinking into routine business decision-making.

Still, there are nature-related opportunities to be leveraged, such as enhanced operational resilience, new growth drivers, fitting into regulatory and market trends, as well as brand and reputation advantages.

Conclusion

This panel discussion made me realise that corporate sustainability transformation is not just a matter of social responsibility; it is also needed for survival. Firms that ignore environmental risks would eventually face economic consequences. Humans are just as crucial for sustainable development: whether as consumers or investors, we can all respect nature in our daily decisions.

In the course of my lessons, I had learnt that natural capital is not just an abstract ecological concept. Instead, it is a real asset with deep connections to the economy. Banks such as UOB are rerouting capital flows with innovative credit structures; agribusinesses like Olam are empowering smallholders to adopt more sustainable practices; and tourism companies such as GUAVA are combining innovation with environmental stewardship. The role of action is crucial.

These cases collectively reveal that sustainability lies at the heart of future competitive advantage. Sustainable development is an evolution that needs strategies, mechanisms, joint support and innovative mindsets. It is a long journey for intent to materialise as impact, but businesses and individuals can contribute to this shared sustainability journey. Anyone or any organisation can be part of the change. May this reflection be not only a synthesis of learning, but also an inspiration for more to take action.

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From Load to Leverage in ASEAN's Digital and Energy Systems

LIU Xinyi

Introduction: New Energy Propositions Amidst the Digital Wave

On September 18 2025 during IMPACT WEEK, a panel discussion titled "From 'Load to Leverage': Aligning Digital Infrastructure with Energy System Transformation in ASEAN" was held in Impact Lab 3 at Suntec Convention Centre. The event brought together representatives from international organisations, technology companies, financial institutions and academia. Moderated by Mr Bradford Willis, Senior Associate at the Columbia Center on Sustainable Investment, the forum featured distinguished speakers including: Mr Spencer Low, Head of Regional Sustainability for Asia Pacific at Google; Ms Su Yin Anand, Head of Strategy and Transformation for ASEAN at IBM; Ms Mylene C. Capongcol, Undersecretary at the Philippines' Department of Energy; Mr Jeffrey Tan, Senior Operations Officer at the International Finance Corporation (IFC); and Professor Poh Seng Lee, Head of the Department of Mechanical Engineering and Executive Director of the Energy Studies Institute at the National University of Singapore (NUS).

The panel centred on a core question: Against the backdrop of ASEAN's rapidly developing digital economy and artificial intelligence (AI), how can the long-term stable load of digital infrastructure like data centres be leveraged as a catalyst for energy system transformation? This would drive the coordinated development of clean energy, energy storage, power grids and green investment across the region.

This discussion is not an abstract future outlook but addresses tangible issues concerning ASEAN's energy security, technological innovation and sustainable development. ASEAN is undergoing dual transformations in its energy structure

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and industrial composition, where digital infrastructure development and renewable energy expansion are mutually constrained and interdependent. As the moderator emphasised, we must ensure that the growth of data centres becomes a catalyst for energy system integration rather than a new source of pressure.

Context and Logic: Strategic Thinking from "Load" to "Leverage"

The digitalisation process and energy transition in the ASEAN region are deeply converging. The surge in AI, cloud computing, and cross-border data flows has transformed digital infrastructure into new energy load centres, while energy systems are shifting from fossil fuel dominance towards diversified, clean and intelligent structures. However, these two trends are not inherently aligned. The rapid expansion of data centres has heightened regional electricity demand, while green energy projects and transmission infrastructure face relatively long construction cycles.

This mismatch creates supply-demand imbalances and systemic risks. Against this backdrop, the panel introduced the new concept of "from load to leverage". This concept posits that the long-term, stable load of digital infrastructure—particularly data centres—serves as a crucial fulcrum for promoting clean energy investment and system coordination. Its logic lies in anchoring energy projects to stable electricity demand through long-term power purchase agreements (PPAs). This attracts commercial capital to green energy development, enabling energy systems to meet growth demand while achieving greater resilience and economic sustainability.

The significance of this concept lies in its departure from traditional supply-driven energy planning paradigms, instead proposing a regional transformation pathway centred on "demand guidance—financial leverage—system synergy. The continuous operation of data centres not only reflects the flourishing digital economy but also provides clean energy with stable market expectations and cash flow guarantees, thereby becoming a credit anchor for driving energy structure transformation. Through this mechanism, load shifts from being a passive variable in the energy system to an active driver of green investment.

The conference further emphasised that for "load" to truly function as a "lever", resonance among three parties—government, enterprises and financial institutions—is essential: governments must provide flexible, transparent policy and regulatory frameworks; enterprises must participate in system planning by signalling long-term demand; and the financial system must increase capital

inflows through structured financing and risk-sharing mechanisms. The ultimate goal is to enable mutual empowerment between the digital economy and energy transition, transforming data centres into catalysts for ASEAN's clean energy integration and sustainable growth.

Analysis of Panellist Perspectives

This panel discussion brought together representatives from government, industry, finance and academia. Despite differing viewpoints, a consensus emerged: only through the synergy of policy, market forces and technology can the growth of digital infrastructure serve as a "leveraging force" for regional energy transformation.

Mr Spencer Low: Technological Innovation Driving Energy Responsibility

Mr Spencer Low, Head of Regional Sustainability for Asia Pacific at Google, noted that the explosive growth of artificial intelligence (AI) and large models has caused global data centre energy demand to rise exponentially. Google has signed clean energy power purchase agreements (PPAs) globally and aims to operate on 24/7 carbon-free energy by 2030. This represents both an environmental commitment and a strategic response to the AI wave. AI demands significant computational power, and its underlying electricity consumption constitutes a critical cost factor in corporate competitiveness.

Energy efficiency breakthroughs and the "Jevons Paradox"

Mr Low highlighted Google's substantial progress in hardware energy efficiency. The latest generation of TPUs (Tensor Processing Units) achieves approximately 30 times the energy efficiency of the 2018 inaugural model, consuming an average of 0.241 watt-hours of electricity and 0.26 millilitres of water per AI prompt. Yet higher efficiency does not automatically translate to lower overall energy consumption. The Jevons Paradox illustrates that increased efficiency may spur greater usage. Therefore, only by integrating AI with clean energy can the overall environmental footprint be genuinely reduced.

Market transparency and regulatory flexibility

Google's primary obstacle in ASEAN is the lack of flexibility and transparency in electricity markets. The Single Buyer Model in purchasing electricity restricts companies' ability to secure long-term PPAs, while opaque transmission costs and tax structures increase investment uncertainty. Mr Low recommended that ASEAN governments reform regulatory frameworks to enable businesses to anchor clean energy investments in long-term load patterns, transforming tech industry growth into a stabilising force for regional energy systems.

Mr Jeffrey Tan: Early Engagement to Mitigate Systemic Risk

IFC Senior Operations Officer Mr Jeffrey Tan emphasised that ASEAN's clean energy financing challenges stem not from capital scarcity but from risk uncertainty. Unclear policies, non-standard contracts and opaque pricing undermine projects' "bankability". Capital is not the issue—risk structuring is key, he stressed.

Early policy engagement and structured design of solutions

IFC advocates for financial institutions to engage in policy design and structured financing solutions during a project's early stages to mitigate risks at their source. This pre-investment phase's involvement builds investor confidence by establishing clear cash flow projections and legal stability.

Blended finance and market transition

IFC promotes blended finance in Southeast Asia, combining concessional and commercial capital to support pioneering green projects. However, Mr Tan noted that such tools should "facilitate rather than replace the market". The tools' purpose is to validate commercial viability before attracting private capital to take over, thereby fostering a genuine market-driven green investment ecosystem.

Ms Mylene C. Capongcol: Policy Synergy to Foster Regional Trust-Building

The Philippine government launched the Green Energy Auction Program (GEAP), allowing renewable energy suppliers to bid for offering electricity. Concurrently, a "green lane" policy for strategic investments complements foreign equity participation in the renewable energy sector.

Information asymmetry and planning disconnect

Ms Mylene C. Capongcol, Undersecretary at the Philippines' Department of Energy, noted that the primary challenge ASEAN governments face in data centre deployment is the lack of transparency regarding corporate load information. She mentioned that governments cannot accurately gauge the power requirements and operational timelines of hyperscale data centres, leading to delayed energy planning and preventing infrastructure from being built in advance.

Regional coordination and information sharing

Ms Capongcol contended that achieving regional energy integration requires establishing cross-border trust mechanisms. "Power generation and transmission facilities cannot be built overnight; they require years of advance planning." She advocated for companies like Google and IBM to proactively share demand models and timelines, enabling governments to synchronise

planning efforts. During its ASEAN chairmanship in 2026, the Philippines will promote a unified cross-border power interconnection framework to implement the "From Load to Leverage" regional cooperation mechanism.

Prof Poh Seng Lee: Collaborative Intelligence Drives Systems

Professor Poh Seng Lee, Head of the Department of Mechanical Engineering and Executive Director of the Energy Studies Institute at NUS, noted from an academic perspective that AI is not only an energy consumer but also a tool for energy optimisation.

Incorporating AI into energy optimisation and governance

The integration of AI and Internet-of-Things (IoT) technologies enables dynamic load management and real-time energy efficiency optimisation in data centres. For instance, AI-driven intelligent power and thermal management systems can automatically adjust cooling and power supply based on server load and ambient temperature, maintaining optimal operational conditions in server rooms. He emphasised that ASEAN must incorporate AI into the governance framework of its energy systems to enhance energy utilisation efficiency.

System scalability and technological foresight

Professor Lee introduced Singapore's Jurong Island, where a "Low-Carbon Energy Island" demonstration project is underway. By integrating green hydrogen, bioenergy and fuel cells, it achieves synergistic utilisation of energy, water and land resources. He emphasised that future data centres must possess system scalability and technological foresight, reserving space during planning for emerging technologies like small modular reactors (SMRs) and long-duration energy storage. Professor Lee concluded that energy systems are no longer merely about supply and demand; they represent an evolution towards system-level collaboration. Governments, industries and academia must coordinate like a symphony orchestra.

Ms Su Yin Anand: Building an Inclusive Future through "Just Transition"

Ms Su Yin Anand, Head of Strategy and Transformation for ASEAN at IBM, emphasised that digital and energy transitions must prioritise social equity and inclusivity.

Integrate climate and social considerations into finance

She asserted, "Without finance, there is no transition; nor can it happen without talent." She noted that financial institutions currently evaluate green projects using traditional risk models, overlooking environmental and economic benefits, which prevents capital from flowing to the areas where it is most needed.

Therefore, a new risk assessment system must be established, integrating climate and social impacts into the core of capital decisions.

Joint investment for zero exclusion

She also called on businesses and governments to jointly invest in talent development and education systems, equipping the next generation of workers to participate in both the green and digital dual transitions. IBM is partnering with universities across ASEAN to promote AI and renewable energy curricula, aiming to bridge the "digital divide". She further proposed that carbon pricing, taxation, and incentive policies must ensure revenues flow back into energy efficiency improvements and social welfare sectors, thereby achieving a "just transition". She concluded that the goal of transformation is not merely zero carbon, but zero exclusion.

Four Key Constraints and Potential Breakthroughs

The interactive discussion also surfaced four core themes: construction cycle mismatches and transmission bottlenecks, private sector risk-sharing mechanisms, balancing speed and stability in energy transition, and future technological flexibility and system coordination. This section primarily examined the interplay among policy, finance and technology, revealing constraints and potential breakthroughs in ASEAN's journey towards energy integration.

Construction Cycle Mismatch and Transmission Bottlenecks

Mr Willis first highlighted significant disparities in the pace of digital infrastructure and power system development across ASEAN. While data centres typically require only about two years to complete, transmission and energy storage systems demand five to 10 years for implementation. This mismatched pace renders regional energy planning reactive. In response, Mr Tan from IFC proposed a pragmatic solution: leveraging digital technologies like Dynamic Line Rating (DLR) to monitor real-time data such as temperature and current, thereby increasing transmission line capacity by approximately 40% and alleviating short-term supply-demand conflicts. Participants widely agreed that such green capacity expansion technologies could serve as a bridge before traditional infrastructure construction, buying ASEAN valuable transition time.

Private Sector Participation and Risk Mitigation Mechanisms

The second focus revolved around who should bear the transition risks. Ms Anand from IBM noted that while companies are willing to invest, they will not shoulder unreasonable risks. She advocated for countries to establish standardised PPA contract templates, enhance market transparency, and permit Virtual Power Purchase Agreements (VPPA) between enterprises or

across regions. This would clarify revenue boundaries for capital, accelerating project implementation. Mr Tan added that policy stability and contractual clarity are paramount for attracting commercial capital. The key to risk mitigation lies not in financial ingenuity, but in institutional maturity.

Pace of Energy Transition and Structural Balance

Google's Mr Low emphasised: Speed is desired, but stability is essential. ASEAN should prioritise system resilience and long-term stability while expanding renewables, as dispatchable energy sources like storage, geothermal and biomass remain critical for achieving 24/7 zero-carbon electricity. He emphasised that policy, financing and talent development must advance in tandem; otherwise, rapid growth in data loads could paradoxically weaken the system. Panellists broadly agreed that short-term acceleration must not compromise long-term sustainability.

Future Technology Flexibility and System Synergy

Professor Lee from NUS elevated the discussion to a long-term strategic level. He proposed that ASEAN's future energy system must maintain high collaboration and technological openness, reserving space for emerging technologies like small modular reactors, long-duration energy storage, green hydrogen and AI-driven energy management. He described this as a "concerto of system evolution", requiring coordinated advancement and phased implementation by governments, industry and academia.

In his concluding remarks, moderator Mr Willis encapsulated the shared consensus, "No transmission, no transition; no finance, no transition; and no people, no transition."

Overall, this panel discussion offers a key insight: in an era where digitalisation and energy transition run parallel, ASEAN must harness data to drive energy, leverage finance to support innovation, and foster collaboration to shape the future. When load is truly viewed as a lever, ASEAN could emerge as a new hub connecting technology, capital and sustainable development on the global energy transition landscape.

Global Energy Inequality and Future Implications

YANG Yingxin

Introduction

At the entrance to the IMPACT WEEK venue, there was an image depicting a world built upon the harmonious coexistence of humanity, technology and nature. This beautiful image sparks an imagination of the wonderful future that people long for.

However, if people wish to live in such an ideal utopian world, they must overcome numerous challenges, such as the various forms of inequality within society, including disparities in income, access to energy and social justice etc. Among all these issues, one question is worth pondering: if a portion of the world's population still faces energy shortages, can the utopian vision be realised?

In the panel session "From Crisis to Reconstruction: Capital, Leadership & the Asian Future", speaker Mr Ravi Menon, Board Chairman, ImpactSG, noted that one of the world's greatest inequalities in modern society is not income, wealth or social status, but per capita energy consumption. Mr Menon also highlighted a startling fact: people living in sub-Saharan Africa today consume less energy than the French or Germans did in 1850. This comparison spanning centuries further highlighted how people from different countries and regions still experience entirely different lives. Many people have lived in environments of material comfort since birth and are not particularly aware of the living conditions of people in other parts of the world, especially when they themselves have no shortage of energy resources.

Significance: Energy and Sustainable Development

The relationship between energy inequality and sustainable development is inextricably linked. Sustainable development was first defined in the 1987 Brundtland Report (United Nations, 1987), as development that meets the needs

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Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

of the present without compromising the ability of future generations to meet their own needs. Yet, in today's society, the burden of climate impacts and the distribution of benefits are unequally borne. Industrialised and developed nations consume more energy and emit more pollutants, while developing countries shoulder a disproportionate share of the consequences.

From the developmental dimension, this gap will become wider as energy inequality between industrialised and developing countries grows, since energy is the foundation and core of basic economic and social activities. Energy is the cornerstone of numerous sectors in people's normal social lives, such as access to basic education and to healthcare, communications, manufacturing and clean water supply. Developed nations have long reaped the benefits of industrialisation, yet many developing regions in underdeveloped areas remain plagued by energy poverty. This energy deficit and inequality perpetuate developmental disparities among nations.

"From Crisis to Reconstruction: Capital, Leadership & the Asian Future" panel discussion.

From the environmental dimension, the entire world is now calling for the use of renewable energy to conserve non-renewable resources and safeguard the future for our descendants. However, renewable energy technologies are highly costly, posing an excessive economic burden for developing nations; simultaneously, there is also a shortage of capital for renewable energy. Thus, this approach is not highly feasible for developing countries. As a result, only

developed nations are reaping the benefits of the green transition. Their economic strength provides them with the capital and technology to adopt renewable resources. Meanwhile, developing countries are frequently required to reduce harmful emissions and shoulder the burden of emission cuts. Yet, they currently lack the capacity to make this transition.

From the moral dimension, energy equality is the prerequisite for equal opportunities and human dignity. It is not merely an economic resource, but the very foundation upon which people can have the same access to equal rights. Without electricity, many schoolchildren cannot do their homework at night, clinics cannot store children's vaccines, and people cannot run competitive businesses. Energy inequality is not merely a numerical indicator; it is the moral foundation of sustainable development and justice.

Thesis Statement

This paper examines the issue of global energy inequality and its future implications from a sustainability perspective, focusing primarily on the economic and fiscal barriers that contribute to energy gaps and disparities. It analyses the application, potential and impact of the 3P (Public-Private-Philanthropic) model, discussed during the IMPACT WEEK session. Ultimately, this paper argues that narrowing or bridging the gap in global energy inequality is crucial to realising a vision of human development and prosperity in the future.

Problem Definition—The Global Energy Divide

Historical Perspective

Mr Menon mentioned the fact that the French or Germans in 1850 consumed more energy than people in sub-Saharan Africa today. Over the past two centuries, Western Europe has experienced the most pronounced growth in energy consumption among all regions worldwide. The primary driver of this growth was the Industrial Revolution, which originated in Britain and subsequently spread across the entire Europe continent. The rapid development and widespread application of coal and steam power fundamentally transformed the economies of Britain and other European nations, ushering them into an era of mass production and technological leaps. Statistics showed a significant gap between Europe and Africa (Martin-Amouroux, 2022). Western Europe's total energy consumption in 2000 was 1,361 million tonnes of oil equivalent (Mtoe), and Africa's total energy consumption in 2000 was only 480 Mtoe. There was also a significant gap in the consumption of electricity between the two regions; the number was 126,925 ktoe for Western Europe and only 7,998 ktoe for Africa.

Facts

According to the World Bank (2025), nearly 92% of the global population has basic access to electricity in 2025, but approximately 666 million people still lack access to power. Its report indicates that regional disparities in energy access persist, particularly in developing countries. However, within developing countries themselves, this gap also varies significantly. In sub-Saharan Africa, per capita installed capacity stands at just 40 watts, which is only one-eighth the average of other developing regions. This region is home to 85% of the world's population without access to electricity, and the number of people lacking access to clean cooking services in the area is increasing by 14 million annually (World Bank, 2025). Energy poverty is not merely about having access to electricity; it is more fundamentally about whether electricity can be reliably used and whether it can meet the daily needs of an individual or household.

"Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All" is the seventh goal among the United Nations' 17 Sustainable Development Goals (SDG), which is sufficient to demonstrate its importance. According to the United Nations (n.d.), the world is making steady progress towards sustainable energy goals. However, at the current pace, about 645 million people will still lack access to electricity by 2030, and 1.8 billion people will continue to rely on polluting fuels for cooking. If the target is not achieved by 2030, nearly 22% of the global population—primarily women and children—will remain exposed to harmful household air pollution. Therefore, it is imperative to ensure universal access to energy resources by 2030.

Economic and Structural Barriers

Fiscal and Monetary Constraints in Developing Countries

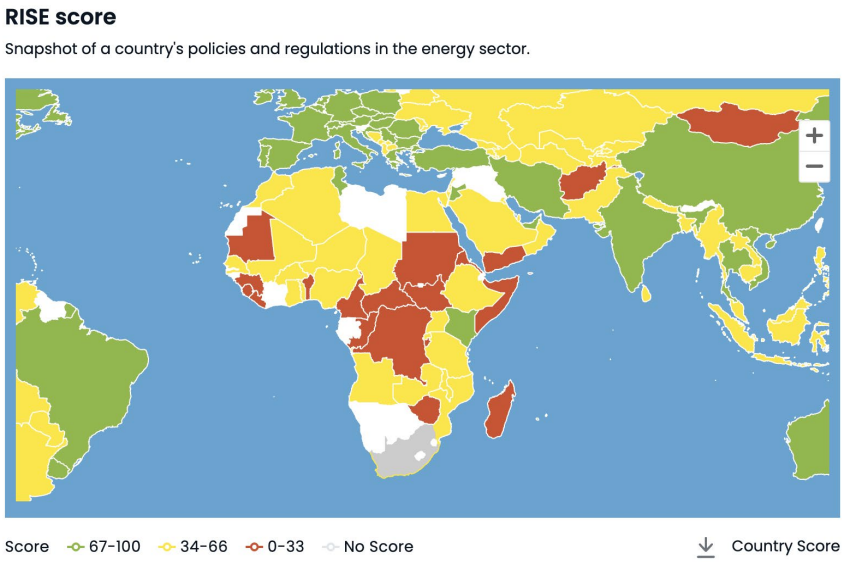
In developing countries, particularly those in sub-Saharan Africa, one of the reasons for their limited access to energy is economic barriers. For national economies, insufficient public revenue prevents them from investing in large-scale clean energy resources. According to the International Energy Agency (2025a), achieving universal electricity access in Africa by 2035 will require US$15 billion in investment annually over the next ten years. However, the committed funding for new electricity projects in sub-Saharan Africa in 2023 was only US$2.5 billion, which was far below the amount needed to achieve universal electricity access within a decade.

Meanwhile, domestic budgetary pressures in African countries continue to mount, and the share of development assistance has recently declined. Data presented in the report indicates that 80% of the unelectrified population resides in rural areas of Africa, with current investment and financing preferences

skewed towards urban regions (International Energy Agency, 2025b). Furthermore, funding allocation exhibits geographical bias, with half of all financing directed towards just six countries (International Energy Agency, 2025b). Given that sub-Saharan Africa comprises nearly fifty nations, this demonstrates that resources are not equitably distributed among all countries, which potentially widens disparities.

Structural and Institutional Challenges

Institutional and systemic challenges in sub-Saharan Africa also pose a major obstacle to their access to energy. The Regulatory Indicators for Sustainable Energy (RISE) by the Energy Sector Management Assistance Program under the World Bank (n.d.) reflects a country's policies and regulations in the energy sector, including electricity access, clean cooking, renewable energy and energy efficiency. A snapshot for the year 2023 shows the overall colour distribution for the African region as yellow and red, indicating the lowest scores compared to other continents. This is particularly evident in renewable energy and energy efficiency factors, where the scores reflect a lack of robust energy policies and regulations in Africa, especially long-term and stable energy policies. Stable policies are one of the key factors in attracting investors. Without these policies, investor confidence would be significantly diminished, as capital may not be utilised to its fullest potential.



RISE score distribution for the year 2023.

Source: Energy Sector Management Assistance Program, n.d.

Meanwhile, corruption remains rampant across Africa. According to Transparency International's Corruption Perceptions Index 2024, most African nations rank near the bottom, scoring the lowest on the corruption perception

scale. This stems largely from their prolonged state of conflict, restricted freedoms and weak democratic institutions—factors that also contribute significantly to their energy resource scarcity. Investors are unlikely to choose a politically unstable location for investment, as projects can be destroyed at any moment due to political issues, posing significant risks for investors. Energy contracts can also be affected by political interference. Outdated infrastructure also poses a crucial barrier, as existing power grid systems will not be fully optimised for energy efficiency and may lack timely upgrades. Under these governance and corruption bottlenecks, the role of capital is greatly diminished in bringing access to energy resources.

The 3P Financing Model (Public - Private - Philanthropic): Pathway to a Sustainable Transition

Concept Overview

In the session "From Crisis to Reconstruction: Capital, Leadership & the Asian Future", Mr Menon mentioned a concept that the path forward will be a combination of public, private and philanthropic capital. Governments are now willing to invest, but this is far from sufficient, as global public debt is at historic highs. To shoulder this debt, governments would need to raise taxes significantly, which is clearly impractical at present. Therefore, private capital is crucial to filling the gap, but participation remains sluggish. Therefore, in the current global context, only by combining public, private and philanthropic capital can we effectively address energy inequality.

Public Sector – Government's Role

Data from the report "Financing Electricity Access in Africa" (International Energy Agency, 2025a) shows that funding commitments for new electricity access in sub-Saharan Africa in 2023 were only US$2.5 billion. This funding figure encompassed multiple components, including expenditures on market support and ecosystem development from international public and private sectors. There was a decline in 2020 due to the pandemic, but funding began growing at an annual rate of 5% starting in 2021, indicating an overall positive trend.

The government plays a crucial role in financing electricity, and it can formulate long-term energy strategies and regulatory frameworks to govern electricity financing and usage. Among all energy sources, electricity financing accounts for 35% of the energy budgets in 23 sub-Saharan African countries (International Energy Agency, 2025a). Public utilities rank among the most heavily indebted state-owned enterprises in sub-Saharan Africa, as low profit margins leave them unable to implement projects. In this context, the government plays a crucial role by allocating domestic public revenue to provide resources for consumers and

absorb deficits. The budget allocated to electricity across 23 sub-Saharan African countries has also shown a year-on-year increase, rising from US$1.1 billion in 2024 to US$1.9 billion in 2025.

Private Sector - Innovation and Risk

Although the government is making an effort to assist and support energy financing, there remains a significant gap in public investment. The Sustainable Africa Scenario vision requires energy investment in Africa to double in the future, but bridging the energy investment gap and driving innovation remain major challenges (International Energy Agency, 2023). Blended finance and mobilising private capital have become core objectives. Blended finance is key to attracting capital, as it ensures innovation while adjusting project risk-return ratios and allows other international institutions to share responsibility. This model presents lower risks and higher transparency for private investors.

Beyond private investment, private equity and venture capital also play a crucial role. The report "Financing Clean Energy in Africa" (International Energy Agency, 2023) provides a detailed analysis of private equity and venture capital investments in Africa's clean energy sector. From a global perspective, the worldwide clean energy transition has significantly expanded. By 2050, Africa's economic growth rate is projected to surpass that of all other regions except India. This indicates that Africa possesses substantial development potential, particularly in the energy sector. However, the amount of investment secured by companies in Africa's energy sector remains minimal, totalling just US$130 million in 2022. This represents a mere 0.3% of global energy venture capital, and the share for African energy startup companies has been steadily declining (International Energy Agency, 2023).

Philanthropic Sector - Grants and Concessional Funding

Historically, funds have been allocated to developers based on outcomes, but payments are not disbursed immediately. This leads to lengthy funding processes or funding gaps, creating additional financing pressures for businesses. To address the issue of final fund allocation, the report "Financing Clean Energy in Africa" (International Energy Agency, 2023) advocated for collaboration with the private sector.

Charitable funds must be systematically allocated instead of being randomly distributed to several sectors. Philanthropic capital serves as a catalyst for social justice, as energy inequality is not merely a policy issue, but also raises profound moral questions for society. It compels greater societal attention to intersecting challenges stemming from energy inequality, such as gender and healthcare disparities and educational access.

Philanthropic capital holds boundless potential to reshape global energy distribution, bridge energy inequalities, drive industrial innovation, and empower vulnerable communities to access adequate resources. As Mr Menon emphasised during IMPACT WEEK, closing the energy gap requires simultaneously harnessing the power of all three "Ps"—public, private and philanthropic sectors—making it far more challenging to build a fair and sustainable future otherwise.

Future Implications, Reflection and Learning

Global Implications

Energy inequality is not a problem confined to any specific region; resolving this issue requires global cooperation. The energy gap will not narrow automatically over time, necessitating cross-sector cooperation between public agencies and non-governmental organisations. The issue of energy inequality, first and foremost, prevents people in Africa, especially sub-Saharan Africa, from enjoying a normal life. Imagine what life would be like in a society without sufficient electricity and clean water resources. When faced with problems that threaten human survival, education, work and social development cease to be priorities. The normal functioning of society is built upon the foundation of energy sufficiency. Energy scarcity and economic backwardness are mutually reinforcing, creating a vicious cycle. Economic development struggles in energy-deprived regions, while economically underdeveloped areas struggle to secure basic energy supplies. Energy supply determines education, employment, healthcare and a nation's level of development.

The 3P model mentioned by Mr Menon will become the primary financing framework for African countries. Blended finance offers a method to combine both public and private capital, enabling private investment to flow into emerging and frontier markets. Capital can be directed towards socially beneficial projects, such as grid construction and clean water initiatives, while ensuring investors receive stable financial returns.

Conclusion, Personal Reflection and Learning

The reason I chose this topic was hearing Mr Menon mention that people in sub-Saharan Africa currently consume less energy than the French and Germans did in 1850. At the time, I was shocked, but later, while I was doing research about this topic, I felt deeply saddened. Inequality in energy access is not merely an economic issue, but also a social issue and an ethical issue. Financial support is the most fundamental and central approach to addressing energy access inequality, but deeper reflection leads me to believe that it is also a matter of systems, values and shared human prosperity. Due to energy inequality, people

in different regions lead vastly different lives—some enjoy the benefits of industrialisation from two centuries ago, while others still suffer from a lack of clean water and sufficient electricity. Energy access and social modernisation also directly influence each other.

Developed and developing countries should shoulder distinct responsibilities within the global energy system. Developed nations should take the lead in advancing climate justice and sustainable development goals, while developing countries should prioritise their right to national development rather than focusing solely on the current global push for emission reductions. Emission reduction and development are not mutually exclusive; they should be pursued concurrently.

"Welcome to Impact City" entrance display panel.

Ultimately, as the display panel located at the entrance of the IMPACT WEEK Venue showed, through the joint effort and collaboration of all nations, humanity will surely achieve a prosperous future where nature, humanity and technology coexist in harmony.

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How ASEAN Can Move Capital for ESG

ZOU Wenxuan

Rise of ESG and Its Direction in Southeast Asia

In the past decade, Environmental, Social and Governance (ESG) has shifted from a voluntary ideal in corporations to a global mainstream strategic issue, profoundly shaping how companies, investors and governments operate. However, despite abundant initiatives and conferences, the translation from policy ambition to actual financing remains limited—a phenomenon described by one IMPACT WEEK panellist as "a sea of ESG activities without real money moving".

In Southeast Asia, it is climate vulnerability, supply chain pressures and the need to attract green investment and sustainable finance that bring the rapid development of ESG. Countries like Singapore, Malaysia, Thailand and Indonesia have introduced systematic policy architecture, including national green plans, carbon pricing frameworks and disclosure standards, to align corporate behaviours with long-term sustainability goals.

Meanwhile, ASEAN has also been developing regional financing mechanisms to facilitate capital towards low-carbon and inclusive projects. Key initiatives include the ASEAN Green Bond Standards (ASEAN Capital Markets Forum, 2018), the ASEAN Taxonomy for Sustainable Finance (ASEAN Taxonomy Board, 2021) and Singapore's Green Finance Action Plan led by the Monetary Authority of Singapore (MAS) (2022). These frameworks not only standardise ESG investment evaluation criteria at the regional level but also effectively mobilise private capital flows to sustainable areas through tools like blended finance, green sovereign bonds and impact investment funds. In this context, IMPACT WEEK serves as an important platform for policymakers, financial institutions and innovators to transform ASEAN's ESG policies and financial frameworks into tangible and scalable solutions for sustainable development.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

Yet, policy sophistication does not necessarily translate into financial realisation. This paradox becomes particularly visible when examining how these frameworks operate in practice, especially in Singapore's Green Economy initiative.

From Global Goals to Local Action: The Case of Singapore

United Nations' Sustainable Development Goals (SDGs) 7, 8, 9, 13, and 17.

Source: Singapore Green Plan 2030, n.d.

While the United Nations' Sustainable Development Goals (SDGs) provide a clear direction, the real key lies in how to translate these goals into implementation policies and promotion mechanisms at the national level. Singapore is leading the way in this regard. Under the Green Economy pillar of the Singapore Green Plan 2030, the government aims to guide existing industries to decarbonise and improve energy and carbon efficiency, as well as foster new sectors to support sustainable growth (Singapore Green Plan 2030, n.d.). Specifically, the government, through Enterprise Singapore, has launched the Enterprise Sustainability Programme to support the development of sustainability capabilities, including coaching, product development, certification and financing support. It has also launched the Resource Efficiency Grant for Energy through the Economic Development Board (EDB) to help manufacturing companies reduce emissions.

However, although the policy is complete, there is a glaring contradiction in ESG practices: enthusiasm is high, but the funding is insufficient. Governments and businesses are actively responding to the call for sustainable development, but the actual investment in specific ESG projects is still far from the ideal level. Some companies' ESG operations are still at the level of information disclosure or branding, and have not yet formed long-term capital investment and structural transformation. This phenomenon of "hot ideas and cold funds" reveals institutional bottlenecks in regional sustainable ecology. This also highlights the important role of platforms like IMPACT WEEK in translating

policy visions into actionable financial operations through policy interpretation, cross-field collaboration and impact investing.

The ESG Paradox: Activities Without Capital Flow

Despite the continuous introduction of new ESG policies, activities and collaborations in Southeast Asia, there is an obvious paradox: the ESG buzz has not translated into realised financing. During IMPACT WEEK, one of the panellists stated pointedly that "more and more people are attending ESG congresses, but no money is moving into real decarbonisation projects". This remark epitomises the policy–finance gap in ASEAN's ESG landscape: an abundance of policy signalling, but limited capital deployment, exposing a structural disconnect between moral aspiration and market incentives.

There are three reasons for stagnation. First, ESG is still on the stage of "policy signal" and "public narrative" and has not become an investable asset class. Second, the sustainable finance ecosystem is too fragmented—Verra, Gold Standard, Carbon Climate Registry (cCR), and other standards are parallel and lack unification, which makes carbon credits and green bonds difficult to verify and price. Third, the high cost and complexity of ESG performance measurements discourage private investors, who lack confidence in long-term profit and data transparency.

Therefore, many ESG projects remain on paper. Enterprises are more likely to achieve ESG requirements through information disclosure or brand promotion, but are hesitant to invest in low-yield, high-risk structural transformations. This disconnect between ambition and execution not only slows down the regional decarbonisation process but also risks ESG becoming a "symbolic economy" with reputational returns and insufficient realised investment.

To overcome this dilemma, Southeast Asia needs to shift its attitude towards ESG from a moral obligation to an economic opportunity. As the Financial Times reported, the Asian Development Bank has warned that Asia faces an "enormous shortfall" of climate-adaptation funds, revealing that financing gaps remain the biggest barrier to sustainable transformation (White, 2024). Hence, only by building a mechanism for policy and financial synergy and using public governance to amplify private capital can we truly realise the investment and feasibility of the SDGs.

Policy–Finance Gap and Regional Challenges

The policy-financing gap has become the most imperative challenge in ASEAN's sustainable transformation. Regional blueprints such as the ASEAN Taxonomy on Sustainable Finance and the ASEAN Green Bond Standards provide an

institutional foundation. However, advancing sustainable finance, in general, can be challenged by regulatory inertia, inconsistent execution and inadequate cross-border coordination (Faruq & Huq, 2024).

Firstly, governance fragmentation weakens capital efficiency. The definition of "green" activities varies widely across countries, increasing investor uncertainty and limiting the scale of ESG funds. Second, the incompleteness of measurement and verification mechanisms continues to reduce market trust. As mentioned during the session, "ESG is extremely difficult to measure, and we don't have a unified metric like the Internal Rate of Return (IRR) or Return on Investment (ROI)."

Third, the slow progress of the Article 6 framework of the Paris Agreement has hindered the liquidity of international carbon credit markets. The Financial Times reported that after years of stalemate, global negotiators have only recently agreed on a basic framework for carbon markets (Bryan & Mooney, 2024), indicating that the carbon trading system is still in an immature and uncertain stage. In the absence of standardised mechanisms, carbon credits remain a

"From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" panel discussion.

"moral commodity" rather than a tradable financial asset, further undermining the confidence of institutional investors.

This problem is particularly prominent in ASEAN's emerging economies, which have shallow domestic capital markets and limited financial capacity. In contrast, Singapore has emerged as a policy innovator in the region. The MAS and the People's Bank of China (PBC) have strengthened cooperation to jointly promote the construction of cross-border green finance corridors (Monetary Authority of Singapore, 2025). The collaboration aims to enhance the transparency and liquidity of sustainable investment in the region, providing a model for international ESG financing.

This difference highlights the structural imbalance in ASEAN's ESG ecosystem, with innovation at the centre but weakness at the edge. Singapore has achieved policy and market innovation in the field of sustainable finance through international cooperation, while neighbouring economies generally lack institutional capacity, market depth and investor trust, forming a "two-speed development pattern". Financial centres are accelerating green transformation, while smaller markets are still subject to a scarcity of funds and a lack of execution.

Discussion: Bridging the Policy–Finance Gap

To bridge the growing "policy-finance gap" in Southeast Asia's ESG space, it is essential to redefine what ESG means. It should not be seen as just a compliance burden or ethical narrative, but as a vision to capital flows that requires new coordination mechanisms between public governance, private sector incentives and regional financial infrastructure.

First, the government should become a catalytic investor, providing risk mitigation for early-stage ESG projects through public funds, attracting private capital participation. The Asia-Pacific region may have a climate finance gap of up to US$80 billion per year (Basu & Lim, 2024), which is difficult to be solved by public policy alone. Through mechanisms such as the ASEAN Catalytic Green Finance Facility (ACGF), member countries can support green infrastructure development through concessional loans while attracting private investment (Asian Development Bank, n.d.).

Second, we should promote the capitalisation of ESG results. Transforming sustainable outcomes such as carbon reduction, renewable energy installed capacity and biodiversity indicators into quantifiable and tradable assets will help ESG enter mainstream capital markets. For instance, the ASEAN Green Bond Standards aim to improve market transparency and investor confidence

through unified issuance standards and information disclosure rules (ASEAN Capital Markets Forum, 2018). Singapore's Green Finance Action Plan also promotes the transformation of environmental performance into investable financial products with market building and technology empowerment as its core pillars (Monetary Authority of Singapore, 2022).

Third, data transparency and digital verification are keys to ESG credibility. Establishing a unified ASEAN ESG Data Registry, standardising disclosure formats, and introducing digital verification technology can significantly enhance investor trust. Without transparency, the issue of greenwashing will continue to erode trust in capital.

Lastly, regional cooperation is indispensable. Although Singapore is a leader in policy and market innovation, neighbouring countries have huge potential for carbon reduction. By establishing transnational green corridors, such as joint renewable energy projects or dual-currency carbon markets, complementary advantages and risk sharing can be achieved. An example is the low-carbon electricity and carbon capture and storage projects between Singapore and Indonesia (Reuters, 2025). This collaboration demonstrates how Southeast Asia can transform natural capital into investable financial assets, enabling an effective transition from environmental outcomes to market liquidity.

Policy Recommendations

Based on the above analysis, five policy recommendations are proposed to promote the financial realisation of ESG in ASEAN:

1. Create a Regional ESG Financing Platform

Establish an ASEAN Green Finance Hub to integrate public funds, multilateral development banks and private capital to form a shared financing pool for sustainable infrastructure and innovation projects. Blended finance and regional pooling mechanisms can mobilise large-scale private investment towards climate goals, reducing project-level risks and transaction costs.

2. Standardise ESG Taxonomy and Certification System

Harmonise definitions and verification standards among member countries to enhance investor confidence and reduce transaction costs. The effectiveness of the ASEAN Green Bond Standards and ASEAN Taxonomy for Sustainable Finance underscores the importance of consistent frameworks and transparent reporting. As the OECD (2025) highlights, the absence of harmonised ESG disclosure and verification systems remains a structural bottleneck for sustainable capital market integration across Asia.

3. Incentivise Private Participation through Fiscal Instruments

Provide tax credits, low-interest loans and government guarantees for certified ESG projects to lower the entry barriers for private investment. According to the review by the United Nations, Economic and Social Commission for Asia and the Pacific and the United Nations Environment Programme (2024), Asia-Pacific efforts to scale up climate finance still face structural bottlenecks in mobilising private capital, highlighting the need for enhanced fiscal incentives and risk-sharing mechanisms to close the financing gap.

4. Embed Digital Transparency in ESG Governance

Build a carbon emission and social impact tracking system based on blockchain or artificial intelligence to achieve real-time verification and prevent greenwashing. Data gaps and validation delays are factors that could erode investor trust. The establishment of a unified ASEAN ESG data registration system will help improve cross-border data comparability and the credibility of financial products.

5. Strengthen Cross-Border Policy Coordination

Build intergovernmental working groups to design interoperable carbon markets and facilitate the circulation of dual-currency green bonds (e.g. SGD–RMB, THB–USD), enhancing market depth and liquidity.

For example, in June 2025, Singapore and Indonesia signed three Memoranda of Understanding covering cross-border electricity trade, carbon capture and storage (CCS), and a sustainable industrial zone, signalling deeper regional collaboration in low-carbon infrastructure and finance (Ministry of Trade and Industry, Singapore, 2025).

Conclusion

In conclusion, the rise of ESG in Southeast Asia marks a profound shift in the sustainable growth model for governments and markets. Over the past decade, ASEAN has laid the foundation for decarbonisation and inclusive development through institutional frameworks such as the ASEAN Taxonomy for Sustainable Finance and the ASEAN Green Bond Standards. However, as pointed out in this article, the popularity of ESG is still higher than the actual allocation of funds. There is a widespread “policy-finance gap” in the region, where policies and initiatives abound, but the capital mobilisation and verification systems are still weak.

Singapore’s experience shows that even with a sound policy system, it is still difficult to achieve large-scale implementation with a lack of uniform standards, insufficient private capital and high costs. To bridge this gap, governments

should shift their role from policymakers to "catalytic investors" and attract capital through blended financing, risk-sharing and data transparency. At the same time, regional synergy is crucial—the cooperation between Singapore and Indonesia in the fields of cross-border electricity, carbon capture, and sustainable industrial parks demonstrates the potential of policy coordination to unlock liquidity and promote green finance.

Ultimately, Southeast Asia's sustainable transition depends on transforming ESG from a moral responsibility to an economic opportunity. Only by integrating policy, finance and technology can ASEAN exert a substantive impact on global climate and development goals.

Snapshots at IMPACT WEEK.

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Igniting ESG Transformation in the Age of Planetary Boundaries

WU Jiaqian

Introduction

My attendance at the panel discussion "Extraction to Regeneration: Reimagining the Green and Blue Economies" during IMPACT WEEK on 17 September 2025 yielded critical insights that informed my subsequent analysis of sustainability transitions. The panel discussion provided a comprehensive platform to examine the shift from entrenched extractive economic models to regenerative approaches. The discussion focused on sustainability and ESG frameworks.

A group photo of panellists from the panel discussion "Extraction to Regeneration: Reimagining the Green and Blue Economies".

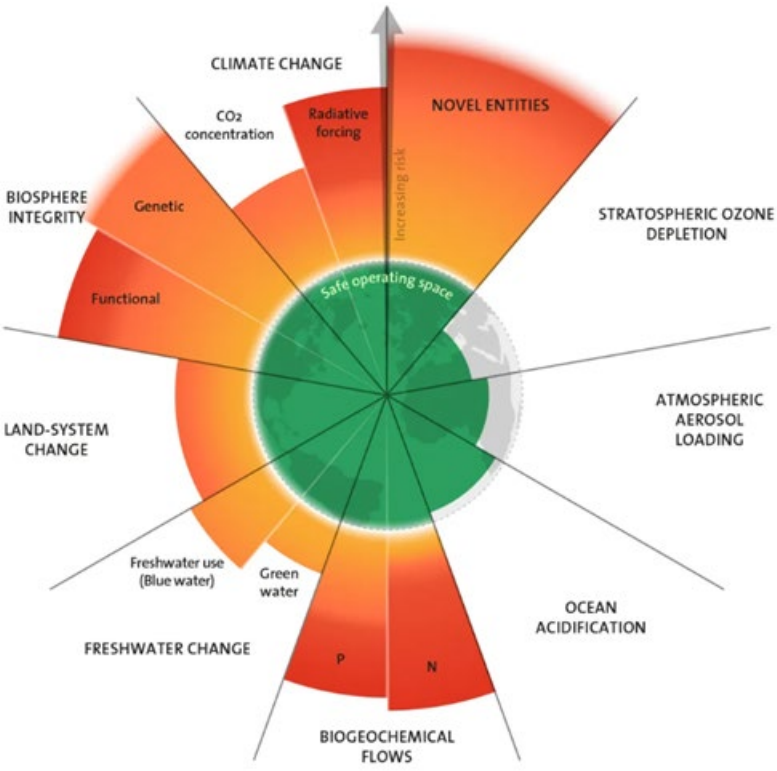
Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

Speakers argued that business models must evolve from ecosystem-damaging practices like mining, logging and shipping. These models, which externalise costs, need to shift towards restoring natural capital, respecting ecological limits, and achieving positive social outcomes. Achieving large-scale transformation requires strict policy boundaries, innovative financial tools, credible measurement, and redesigned governance. This essay critically analyses these claims using emerging evidence and offers conclusions and actionable recommendations for organisations, regulators and investors to operationalise the transition.

The Science of Ecological Limits

The science of ecological limits provides a fundamental starting point. The panel discussion introduced a key concept to help us understand this issue.

The planetary boundaries framework identifies nine critical Earth-system processes that define a "safe operating space" for humanity, including biodiversity integrity, land-system change, biogeochemical flows, and freshwater use (Stockholm Resilience Centre, 2023). The latest assessment shows that six of the nine boundaries have been exceeded, indicating that



Planetary Boundaries Framework.

Source: Stockholm Resilience Centre, 2023

extractive business models threaten system stability as well as raise moral concerns (Stockholm Resilience Centre, 2023). One session speaker emphasised that growth without ecological limits is unsustainable. Therefore, any transition to regeneration must explicitly integrate non-negotiable ecological boundaries into business strategy and Environmental, Social and Governance (ESG) metrics.

Corporate Levers for Regeneration

The panel highlighted three main levers for shifting to regenerative business: empowering local communities through performance-based incentives, mobilising private and public investment via new finance mechanisms, and redefining success through metrics that include ecological and social value, not just profit. Each of these is supported by evidence, but each faces challenges in practical application.

First, local stewardship aligns with the concept of payments for ecosystem services (PES). In PES, local communities manage land or ocean systems and receive payments for outcomes such as species abundance, forest cover, and reef health. The panel suggested “light-touch verification”, using camera traps and acoustic sensors as monitoring tools. These technologies are cost-effective ways to measure ecological change and link payments to results. However, governance and benefit-sharing design are critical. Unless local stakeholders are genuinely empowered and included in decision-making, which requires transparency and consent, payments may simply reproduce old power imbalances and fail to build resilience.

Second, blended finance and regenerative “hubs” or connectors are increasingly emphasised in nature-finance literature. The global biodiversity finance gap may reach US$700 billion per year by 2030 (Likhachova et al., 2024). Investor toolkits highlight the need to de-risk private capital by using concessionary funding, guarantees, and performance-linked returns (Likhachova et al., 2024; International Finance Corporation, 2023). The panel’s idea of "scalable containers" at the local level fits this context. Still, the challenge is to align incentives, avoid locking in low-value projects, and ensure robust monitoring and reporting. Capital flows must produce real ecological outcomes and social co-benefits.

Third, shifting metrics beyond finance to include natural, social and human capital is timely and essential. The business case is clear. Financial institutions that ignore biodiversity, land-system change, water stress, or ecosystem collapse face material risks (Triodos Bank, 2023; BCG, 2023). Yet, operationalising this shift is difficult. Science-based standards are emerging, but disclosure

frameworks are patchy. Outcome metrics are inconsistent, and many organisations still focus on short-term financial materiality. The session's call to "rewrite the scorecard" is crucial. However, implementing it requires cooperation among standard setters, regulators, investors and corporates.

Challenges in Implementation

The IMPACT WEEK panel revealed several structural challenges for moving regeneration from rhetoric to reality. One is the tension between voluntary and mandatory sustainability. Voluntary commitments and blended finance can help mobilise early action. However, they cannot substitute for formal regulation, according to evidence. The speakers stressed the need for science-based regulatory boundaries to secure real transformation. Empirical studies support this. Major financial flows often go beyond planetary boundaries (Triodos Bank, 2023). Nature-related disclosures are inadequate without regulatory enforcement (International Monetary Fund, 2024). Voluntary ESG initiatives risk remaining incremental, producing symbolic, rather than systemic, change without legal requirements.

A second challenge is measurement, verification and credibility. The panel proposed "light-touch" systems such as camera traps and acoustic sensors to support performance-based payments. Still, large-scale implementation is underdeveloped. Measuring biodiversity outcomes still lags behind carbon accounting, which leaves investors and policymakers without comparable data. As a result, ecological risks may be mispriced. Without rigorous, standardised methods and third-party auditing, greenwashing and project duplication are real risks. The financing might go to projects that would likely proceed regardless.

The third issue relates to governance, equity and community ownership. The shift to regenerative economies raises questions about power and benefit-sharing. While the panel recognised the importance of co-creation and local stewardship, it gave little detail on how governance, revenue and rights would be managed. Sustainability research shows that weak participatory frameworks can sustain old extractive relationships, undermining legitimacy and social license (EY, 2021). Regeneration needs ecological restoration plus institutional reform. Communities should co-author economic change rather than just receive its results.

A fourth complexity is sectoral transitions. The session discussed shipping, port management and coastal ecosystems as sectors moving towards low-carbon, regenerative models. The International Maritime Organization offers a useful example by regulating shipping through mandatory greenhouse gas standards

and carbon pricing (DNV, n.d.). This step realigns incentives in a traditionally carbon-intensive sector. Yet, even here, implementation is difficult. Targets are often delayed, enforcement is inconsistent, and compliance costs are high. Transforming sectors requires coordinated progress in regulation, finance, infrastructure, and innovation, all shaped by human behaviour and institutions.

In summary, these challenges show that the shift from extraction to regeneration is a deep systemic reconfiguration. It affects markets, governance and our collective mindset. This change is not just technical. Each barrier—regulatory, financial, or social—demonstrates the interdependence required for meaningful progress. To address these limits, several new solutions are suggested to make regenerative transformation credible, inclusive and effective. Recommendations include integrating scientific boundaries into strategy, strengthening governance, and securing finance that prioritises measurable impact over symbolic compliance.

Proposed Solutions and Pathways Forward

To address the regulatory deficit, governments and international organisations should embed planetary boundaries within legal and economic frameworks, translating ecological limits into enforceable standards for corporate operations. At the same time, corporations must internalise these boundaries in their strategic planning and reporting systems, treating environmental thresholds as constraints rather than externalities. Equally important is the establishment of transparent and standardised measurement systems that integrate ecological and social indicators with financial performance metrics. Such systems would improve investor confidence and accountability while curbing the risks of greenwashing. The expansion of blended finance initiatives could further accelerate regeneration by de-risking investments and aligning public and private incentives. However, these mechanisms must include strong conditionalities, independent verification, and clear benefit-sharing models to ensure integrity and inclusivity.

Finally, governance reform is central to realising equitable regeneration. Institutional arrangements should prioritise participatory decision-making, enabling local communities to co-design, manage and benefit from regenerative projects. Only through equitable governance can regeneration achieve both ecological restoration and social justice.

Conclusion

In conclusion, the move from extraction to regeneration represents a necessary evolution in sustainability practice. The IMPACT WEEK panel presented a

compelling vision, but implementation requires aligning policy, finance and governance mechanisms under a shared commitment to scientific integrity and ethical accountability. The future of ESG depends not on expanding disclosure alone but on reimagining the economic system itself so that regeneration becomes the defining measure of success.

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Learning from IMPACT WEEK 2025 on Building a Regenerative Future

HUANG Zisheng

Introduction

In September 2025, Singapore hosted IMPACT WEEK with the slogan: "What if five days can shape the next fifty years?" Here, a range of changemakers, investors and policymakers converged to co-create new models of sustainability and system transformation. This year's sessions were arguably to pivot sustainability thinking from narrow sustainability to regenerative systems thinking—forcing participants to reimagine finance, policy and value creation through a lens of planetary boundaries and social equity.

As part of my Strategic Sustainability course, I had the pleasure of attending IMPACT WEEK, engaging directly with practitioners driving the shift to regenerative economies. In this event, I chose to attend four panel discussions on different themes: "Financing the Blue Shift: From Pledges to Regenerative Capital", "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies", "Extraction to Regeneration: Reimagining the Green and Blue Economies", and "The Green Leap Forward: How China is Reinventing Prosperity for a Sustainable World". The common thread that emerged from these discussions is that there is a need to move beyond linear, extractive systems of growth towards circular, regenerative paradigms that restore ecosystems, empower communities, and redefine prosperity.

We are witnessing a convergence of views that sustainability cannot be an add-on or a corporate slogan any longer. It must become the new master narrative of business, finance and governance. Regenerative capitalism (Elkington, 2020), doughnut economics (Raworth, 2018), and stakeholder capitalism (Schwab, K., & Vanham, P., 2021) are some of the new narrative drivers, where success is measured not by economic growth or shareholder returns but by the health of our ecological and social systems.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

Informed by the discussions at the event, academic theories and real-world examples, this paper argues how Asia (especially ASEAN and China) can lead the shift "from extraction to regeneration". Ultimately, this reflective essay argues that regeneration is not simply an environmental imperative but a necessity for long-term prosperity and global justice.

Event Overview

Financing the Blue Shift: From Pledges to Regenerative Capital

In this session, panellists discussed how to direct capital to the "blue economy"—the sustainable harvesting and use of ocean resources for economic prosperity and ocean health. They noted that although the global economy benefits from ocean-related sectors, only a small amount goes towards marine conservation. This was seen as a clear failure of global finance, one in which short-term returns continue to drive investment at the expense of long-term regenerative impact.

The panel discussion "Financing the Blue Shift: From Pledges to Regenerative Capital" brought together esteemed panellists to discuss the blue and regenerative economies.

One of the most compelling messages from this panel was the rise of "regenerative capital"—new models of financing in which capital restores and regenerates the health of the ocean while providing social and financial returns. As one speaker put it, "Capital must shift from a transactional tool to a transformational force." The panel also called for new mechanisms to de-risk blue finance through the use of blended instruments—public-private combinations, ocean bonds and insurance-linked impact funds—to turn sustainability pledges into measurable outcomes.

From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies

This panel posited that carbon was not a cost to be minimised, but instead, an opportunity for regional climate coherence. What we need is not a slew of national targets, but rather, we need to weave energy transition, carbon markets and regenerative agriculture together into a cohesive policy approach to help ASEAN gain a competitive advantage in a low-carbon economy.

Panellists pointed out that to achieve regenerative climate economies, the region's carbon pricing, renewable grids and green investment frameworks needed to be in coherence. Singapore's carbon services development and Malaysia's push for regenerative palm oil practices were cited as early examples of a coherent transition.

To sum up, the panel conveyed a clear message that carbon governance needed to shift from a compliance mindset to a creative one—from simply counting carbon emissions to cultivating ecosystems and community resilience. This aligns with Raworth's (2018) "doughnut economics" model, where economies operate within ecological ceilings and social foundations.

Panellists posited that coherence in policies and carbon pricing will help ASEAN transit towards regenerative economies.

Extraction to Regeneration: Reimagining the Green and Blue Economies

In this session, panellists including Mr Chandran Nair, Professor Christine Loh, Dr Ashley Brooks, Dr Guoyong Liang and Ms Melanie Ryan debated how extractive industries such as mining, shipping, and agriculture could be transformed into regenerative forces.

Mr Chandran Nair, Founder and Chief Executive Officer, Global Institute For Tomorrow (GIFT), delivered a critical argument: modern capitalism's relentless pursuit of high returns is the root cause of ecological destruction. He opined that we live in a 3D world of denial, delusion and dysfunction. Companies talk sustainability but act like extractive industries. His call for austerity through institutional strength challenged the Western liberal narrative that growth and democracy alone can ensure sustainability.

Professor Christine Loh, Chief Development Strategist, Institute for the Environment, Hong Kong University of Science and Technology, laid out policies and cost-sharing frameworks to retrofit existing ports, buildings and logistics infrastructures for a low-carbon future. Dr Ashley Brooks, Asia Director, Re:wild, focused on local stewardship, and suggested performance payments for indigenous peoples as local stewards of biodiversity. Dr Guoyong Liang, Senior Economist at the United Nations Trade and Development (UNCTAD), and Ms Melanie Ryan, Chief Executive Officer, Unearthodox, offered their respective "Three I's" of innovation, investment and inspiration, and the need to redefine success beyond return.

The panel discussion on reimagining the green and blue economies was illuminating.

From my perspective, this session illuminated the central theme of the week: regeneration requires the systemic redesign of markets, mindsets and metrics. We are not looking to offset damage, rather, we want to reprogramme how we measure value and sustain the planet.

The Green Leap Forward: How China is Reinventing Prosperity for a Sustainable World

This closing dialogue tied together the day's core themes of culture, capital and civilisation into a forward-looking vision for shared prosperity. It was also one of the most memorable moments of IMPACT WEEK for me. In this session,

panellists explored China's evolving sustainability model, the "Green Leap Forward". China's model shows us how state governance, technological innovation and cultural philosophy can all converge to support sustainable prosperity.

Also, China's domination of renewable manufacturing (solar, electric vehicles, batteries) and its focus on common prosperity are the two cornerstones of regenerative growth. China's approach is about harmonising values and forging pathways where economic vitality and ecological stewardship advance together, serving the well-being of all.

An inspiring speaker in this session was Gyatso Rinpoche, a spiritual thinker and practitioner who shared reflections on his life journey and philosophical insights from his trilogy, "Wisdom of Life", particularly its first volume, "Everything Is the Best Arrangement". His calm presence and contemplative perspective brought home a simple truth: sustainability is not just a question of technological innovation or economic reform; it is also a question of inner balance, purpose and harmony.

In my opinion, Gyatso Rinpoche's words resonated deeply with the theme of ecological civilisation, a concept rooted in Chinese philosophy that emphasises the coexistence between human and nature. He advocated for China's long-standing wisdom of balance and regeneration to be shared globally and integrated with collective knowledge. This call for mutual learning and collaboration encapsulated the essence of co-creation—the underlying idea that global sustainability emerges from cultural understanding and not competition.

As the session was about to conclude, participants were invited to join Rinpoche in a brief guided meditation. With eyes closed, I found myself reflecting on many

A photo with Gyatso Rinpoche (second from left).

moments, discussions and ideas from the week. The quiet meditation marked a symbolic closure to my experience at IMPACT WEEK, leaving a lasting impression that sustainability begins within the self before it can flourish across systems.

Key Learnings and Personal Reflection

As I look back on IMPACT WEEK, the most profound insight I gained can be distilled into one central idea: From extraction to regeneration, we need to rethink capital and systems for a regenerative future. Every session I attended underscored this theme, highlighting sustainability not just as a goal, but as a transformation in defining value, growth and human purpose. The future will depend on our ability to transform the systems of extraction that we have built into systems of regeneration.

Through this journey, I started to see regeneration as a holistic concept that covers economics, governance, culture and consciousness. Beyond repairing past damage or achieving net zero, it is about rethinking how capital, policy and communities can play a role in regeneration.

Finance can be a tool for regeneration, and capital must rise above being a measure of power to become a medium of healing.

Regeneration cannot be achieved without coherence and convergence across borders. A larger truth is that sustainability has to be a journey we undertake together, rather than a set of rules we comply with. Policy design and regional cooperation are creative pursuits that can give rise to ecosystems of trust and shared value.

When Mr Chandran Nair said "we must live within our limits", it made me realise the myth of infinite growth that often accompanies economic models. At the same time, when Professor Christine Loh spoke about cost-sharing policies and adaptive governance, it reminded me that transformation relies on structure, and that sustainability lies in the design of incentives that align private gain with public good. This balance between ethical conviction and pragmatic governance is key to systems thinking for regeneration.

When we move the focus away from economic growth, we could envision a world where nations collaborate to transform economies from extraction to regeneration, and from division to cooperation. What resonated most was the emphasis on harmony. Rinpoche said, "Much of human suffering stems from conflict, a kind of ignorance that blinds us. We must learn to embrace reconciliation."

Extending this philosophy, I believe such "reconciliation" is not only about harmonious coexistence between humans and nature, but also about fostering cooperation among people from different nations and cultures. This is also the vision of a "community with a shared future for humankind", where we all prosper together rather than compete. China's approach, rooted in diversity, dialogue and ecology, is one where sustainability is not a zero-sum game and where cooperation is the key to prosperity. Only through cooperation can we truly create global well-being, where our prosperity today does not come at the cost of our children's tomorrows.

In conclusion, my core takeaway from this remarkable journey is that regeneration is a new definition of progress—an integration of science and spirit, innovation and ethics, individual purpose and collective well-being. It is a mindset that sees growth not as accumulation, but as renewal; not as dominance, but as reciprocity. In this sense, "rethinking capital and systems for a regenerative future" is not only a professional aspiration, but a lifelong practice—an invitation to live, lead, and create in a way that allows both people and the planet to prosper.

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Lessons from the EU's CSRD and the ASEAN Transition

GAO Mengxuan

"From 'Load to Leverage': Aligning Digital Infrastructure with Energy System Transformation in ASEAN" panel discussion.

From Voluntary CSR to Compulsory Reporting

For many years, corporate sustainability reporting existed in a nebulous space. Many businesses produced glossy corporate social responsibility (CSR) reports on a primarily voluntary basis. These reports focused on philanthropy and brand perception rather than on clearly defined environmental commitments (Maignan & Ferrell, 2004; Primec & Belak, 2022). The majority highlighted passive charitable donations or community initiatives rather than quantitatively expressed values for energy usage, carbon intensity or climate risk in a holistic manner. The underlying logic was reputational: sustainability was presented as "doing good" and not a core operational responsibility.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

That logic is no longer defensible. The European Union (EU)'s Corporate Sustainability Reporting Directive (CSRD) turns sustainability disclosure into a legally binding duty, applying to tens of thousands of firms that operate in or sell into the EU market. The CSRD entered into force on 5 January 2023 and gradually applies from the 2024 financial year onward. It replaces the earlier Non-Financial Reporting Directive (NFRD). It extends mandatory sustainability disclosure from roughly 11,000 companies under the NFRD to an estimated 50,000 companies, including many non-EU multinationals with significant EU subsidiaries (Grant Thornton International Ltd, 2023). The stated purpose is to give investors, regulators, workers and communities consistent, comparable information about how a company affects people and the environment, and how environmental and social issues could affect the company's financial performance.

This "double materiality" lens is the conceptual core of the CSRD. Under financial (or "outside-in") materiality, a company must explain how climate change, energy shocks, carbon pricing or social disruption could hit its cash flows and enterprise value. Under impact (or "inside-out") materiality, it must also explain how its own activities, including energy sourcing, greenhouse gas emissions, water use, labour practices and community impact, create environmental and social externalities (Seidel et al., 2024). In other words, energy and carbon are no longer "nice to talk about"; they are reframed as quantifiable liabilities that firms must publicly own.

The IMPACT WEEK roundtable on digital infrastructure and clean energy in ASEAN made this shift concrete. Panellists, including those from hyperscale cloud and AI operators, described that large data centre customers increasingly act as "anchor buyers" of long-term renewable energy contracts lasting 15 to 20 years in some cases, because their own global reporting obligations require them to prove credible low-carbon electricity sourcing. This is precisely how disclosure pressure travels from Brussels to Singapore, Manila, or Jakarta. Once sustainability disclosure is regulated, clean energy procurement is no longer just marketing. It becomes part of risk management, compliance and capital access.

What the CSRD Actually Demands: Quantifying Energy, Carbon and Transition Plans

Table 1: Applicability Thresholds for CSRD Based on 2023 Information

Type of Company	Application Date	First Sustainability Report Due	Implications for ASEAN
Large EU/European Economic Area (EEA) Public Interest Entity ("PIE") with more than 500 employees* *These companies were also required to report under the NFRD	FY beginning in 2024	2025 / 2026	These firms must already disclose assured climate and energy data. When they build or source from ASEAN (e.g. data centres), they expect credible low-carbon electricity.
Large EU/EEA Company or EU/EEA Parent Company of a Large Group Large Company: Meets at least two of the following conditions: i. >250 employees; ii. >€40 million net turnover; iii. >€20 million total assets. Large Group: EU/EEA parent + subsidiaries (EU	FY beginning in 2025	2026 / 2027	ASEAN suppliers to these groups will increasingly be asked to provide energy or carbon data and show a decarbonisation plan to stay in their supply chain.

or non-EU) that meet the definition of a "Large Company" on a consolidated basis.			
EU-Listed Small- and Medium EU/EEA Enterprise ("SME")	FY beginning in 2026 (option to delay until FY beginning in 2028)	2027 / 2028 (if opted to delay: 2029 / 2030)	Pressure may extend to niche ASEAN suppliers slowly, because SMEs have a longer phase-in and possible delay.
Non-EU Parent Company With Significant Business in the EU/EEA	FY beginning in 2028	2029 / 2030	From 2028, certain non-EU multinationals must report under CSRD. Their ASEAN assets (e.g. data centres, high-load facilities) will be pulled into EU-facing carbon or energy disclosures.

Source: First three columns adapted from Covington & Burling LLP, 2023; last column from author

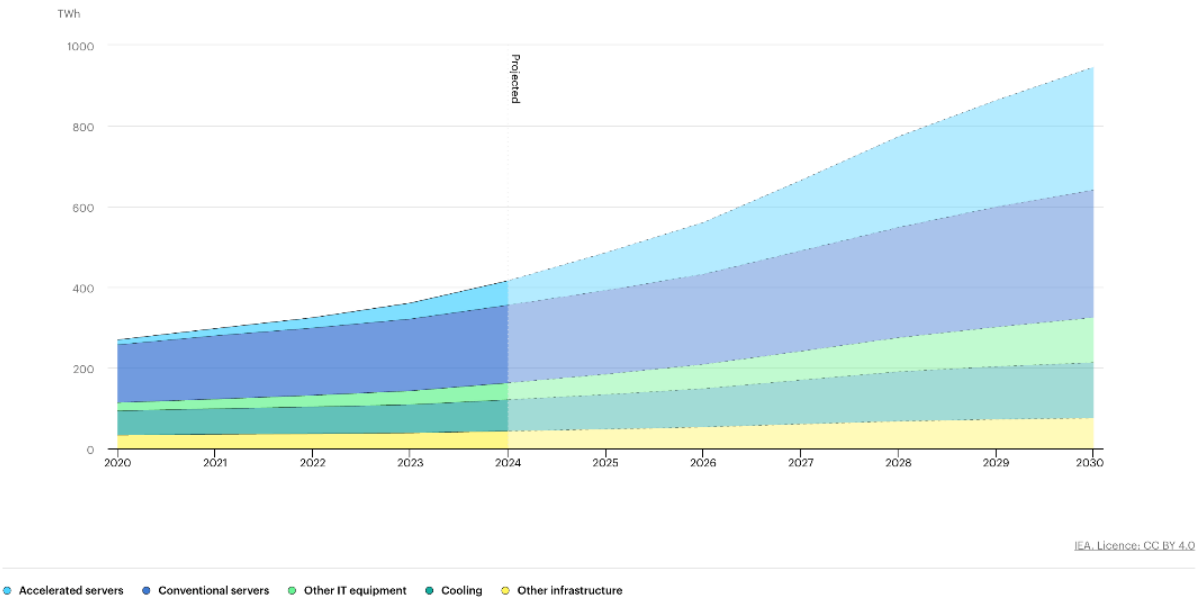
Several design features make these requirements unusually demanding:

First, energy and carbon data must be auditable. Under the CSRD, sustainability disclosures are subject to external assurance. Initially, this is "limited assurance", with a pathway towards "reasonable assurance", which moves sustainability data closer to the level of scrutiny applied to financial statements. In practice, this means that claims such as "our data centres run on 90% renewables" or "Scope 2 emissions fell 30% in Singapore" can no longer be casual marketing lines: they will face the same scrutiny from auditors, lenders and regulators as a revenue figure in an annual report.

Second, reporting is digital, machine-readable and comparable. Firms must submit sustainability data in a tagged electronic format (e.g. iXBRL in the European Single Electronic Format) so it can be scraped, benchmarked, and stress-tested by analysts and supervisors. This is designed to end the old problem where every company "told its story" in a different way. Under CSRD/ESRS, energy intensity per unit of output, exposure to carbon pricing, and progress towards renewable procurement become directly comparable metrics.

Third, transition plans become part of mainstream corporate strategy. Under the European Sustainability Reporting Standards (ESRS) E1, firms must publish climate transition plans that connect high-level targets ("net zero by 2040") to operational levers, such as Power Purchase Agreements (PPAs) for renewable energy, process electrification, grid efficiency investments, and supplier requirements. This is strategically important for energy-intensive digital infrastructure. In the IMPACT WEEK session, hyperscale operator panellists openly framed clean energy procurement as "the difference between a bankable project and a stalled one" in Southeast Asia. In other words, once a data centre contractually locks in long-term renewable demand, financiers are more willing to fund new solar, wind or geothermal generation because they see predictable cash flows. This is exactly the kind of forward-looking linkage between energy sourcing and capital allocation that ESRS E1 tries to force into the public record.

Fourth, the reach is extraterritorial. The CSRD applies not only to EU-incorporated companies but also to certain large non-EU companies with substantial EU activities, as well as to EU subsidiaries of global groups. That spillover effect matters for ASEAN.



Global data centre electricity consumption 2020-2030

Source: International Energy Agency, 2025

When a European or US technology firm builds AI data centres in the Philippines or Malaysia, it cannot ignore grid carbon intensity just because local regulations are any looser. Its EU-level disclosure will still need to cover Scope 2 electricity emissions and, in many cases, Scope 3's upstream and downstream emissions. This creates indirect pressure on host governments to authorise renewable PPAs, modernise grid interconnection rules and accelerate permitting for utility-scale clean power.

In short, the CSRD and ESRS take energy/carbon from "ESG storytelling" and relocate it inside an audited corporate strategy. That is why the panel repeatedly described AI-driven data centre growth as both a "transformative opportunity" for regional development and an immediate strain on power systems that are still dominated by fossil fuel generation. The disclosure regime makes that tension visible, quantifiable, and therefore actionable for financiers and regulators.

Supply Chain Reach and the New Clean Power Contract

A striking insight from the IMPACT WEEK roundtable was how sustainability disclosure changes the bargaining power in energy markets. Hyperscale data centre operators, described as "massive customers for clean energy", are now prepared to underwrite 15- to 20-year demand contracts in ASEAN, but only if governments make renewable power legally accessible to large buyers. Participants argued that without such long-term offtake, many renewable projects in the region are not considered "bankable" by lenders. The presence of an anchor buyer with global climate reporting obligations essentially derisks the project.

This is an important mechanism. CSRD/ESRS push large tech and industrial firms to prove that their electricity is decarbonising in real terms, not just through certificates. To do that, firms seek physical or virtual power purchase agreements that match new renewable energy capacity to their data centre load. In places like the EU or parts of the United States, PPA markets and wheeling rules are relatively mature. In Southeast Asia, by contrast, vertically integrated utilities, legacy fossil fuel contracts and regulatory uncertainty often block corporate access to clean power. The panellists framed this not as an environmental issue but as an infrastructure finance issue: without regulatory clarity, sustainable power for AI or data infrastructure cannot scale, even if corporate buyers are willing to pay a premium. In essence, regulations from Brussels are dictating the layout of Manila's electrical grid. This demonstrates the increasing significance of mandatory sustainability disclosures in fostering transnational governance. The European Union's sustainability reporting directive could affect ASEAN countries, as the initial condition of power buyers depends primarily on the energy grid layout.

Furthermore, there is a labour and social justice dimension. The panel warned that the energy transformation should not turn a blind eye to communities that depend on coal or older thermal resources. Increasingly, purchasing renewable energy through PPAs could trigger a massive capital exodus from coal unless alternative job-skills training or investment is pursued, resulting in a politically volatile "unjust transition". ESRS seeks to raise this question through social reporting metrics (for example, ESRS S1 to S4, which indicate affected communities and their jobs), prompting companies to discuss workforce impacts, community insights and mitigation strategies alongside climate data.

Strategically, this is a very strong move. Sustainability disclosures will rise above just carbon emissions. Executives will need to discuss more robustly about using data, responsibilities, addressing beneficiaries of decarbonisation and new digital infrastructures, and how this system will change over time.

Frictions, Capability Gaps, and Unintended Consequences

Despite its ambitions, the CSRD is not frictionless. Two structural tensions emerged in the literature and, indirectly, through the panel discussion.

Tension 1: Compliance Capacity and Cost

The CSRD assumes that companies can map emissions, energy sourcing, labour practices, biodiversity impacts etc, across complex supply chains and produce auditable data. That assumption is reasonable for a hyperscale with a global sustainability team and in-house energy market specialists. It is far less realistic for a mid-sized supplier or a Southeast Asian subcontractor. Small and medium-sized enterprises (SMEs) have warned that the CSRD imposes "serious shortcomings", including disproportionate costs, reporting fatigue and a shortage of qualified sustainability staff (SMEunited, 2023). This was why the European Commission in 2025 proposed an "Omnibus" simplification package that would sharply narrow the scope of mandatory reporting—for example, applying CSRD only to companies with more than 1,000 employees and certain revenue/asset thresholds, potentially cutting the number of directly affected firms from 50,000 to 10,000 (Consultancy EU, 2025).

The proposal reflects political pressure to reduce administrative burden and "restore competitiveness" in a weaker macroeconomic environment. From the perspective of sustainability governance, this poses a challenging question: if mid-sized companies can avoid mandatory disclosure, can we still trust the data large firms publish under the ESRS? Large companies are likely to continue reporting on their Scope 3 emissions and just transition plans. However, if the Tier 2 and Tier 3 suppliers to those companies can legally refuse to provide

information on carbon emissions or labour practices, the figures reported could be either selective or overly optimistic, as they may represent only the data they choose to provide, potentially modelled or estimated as needed. This diminishes the power of the supply chain accountability rationale that the CSRD was designed to enforce.

Tension 2: Guaranteed Energy versus Decarbonisation in Developing Markets

The IMPACT WEEK session featured a real-time crisis confronting ASEAN policymakers. AI infrastructure and data centres are touted as "transformational opportunities" for national digital competitiveness and industrial advancement. However, when these new facilities, which require a constant supply of electricity, are added, an upsurge in energy demand from their all-day, all-night operations could hike carbon emissions. If government regulators neglect to update PPA laws, keep coal and imported gas operating on the grid, and data centres suddenly see a spike in energy demand, grid operators or any energy sources are at risk of being crowded out altogether.

The pressure from CSRD flows in both directions. It can hasten the arrival of corporate buyers willing to enter long-term PPAs to fund new renewable energy generation, encouraging national development and attracting foreign investment. If grid access fails to improve, it can also persuade buyers to retreat from that market and concentrate efforts on those countries and regions that deliver credible renewable power.

Tension Three: Just Transitions

The panellists opined that simply producing numbers and statistics is irresponsible, as climate policies foster a just transition for geography. It understates who gets the jobs to install renewable energy infrastructure and which communities benefit most from the investment. The ESRS social tier requirement makes this official policy, mandating that corporations disclose how they will manage re-employment or community welfare when data centres are ever more needed, rather than displace whole communities.

Implications for Managers and Policymakers

(1) Sustainability disclosure is no longer simply disclosure, but also about financing. The CSRD/ESRS regime effectively transforms climate commitments into quasi-contracts with lenders and regulators, demanding credible devotion to securing renewable energy sources, redesigning operations, and managing potential resulting socioeconomic fallout in developing countries. The key

takeaway for corporate sustainability officers is that by issuing disclosures when making commitments, they are acting for financing.

(2) The EU social contract is becoming international. The CSRD is inherently EU, but internationally assertive. A non-EU organisation will still be compelled to produce data if it earns significant revenues in the EU. Even the Tier 1 and Tier 2 suppliers of the EU organisations cannot expect one-off reporting and will be asked for their usage of renewable energy and type of labour. The same concept applies to subsequent Tier 3-type suppliers, contractors and subcontractors.

(3) If that is the case, the just transition remains to be defined. The IMPACT WEEK panellists made it clear that simply promising vague platitudes about an "energy transition" that leaves the local labour force in coal communities stranded, or raising fossil fuel prices for low-income households in a coal-dependent economy, is politically naive. Eventually, no implementation of policies, even ESRS social standards, guarantees a sustainable solution—the disclosures simply spell out how the country of destination will be treated if a just transition occurs. This will indeed challenge regulators to carve out universally acceptable compensation, retraining and reinvestment mechanisms, directing this capital to communities in need.

Overall, mandatory disclosures are moving beyond their policy and regulatory roles and towards shaping market outcomes. These disclosures are pivotal in ensuring diligence in capital allocation and rely on host countries for the credibility of the stated impacts. Even when the sustainability report has passed reviews, how do we define a just transition and be sure that it has taken place? The answers will determine whether sustainability disclosures deliver genuine decarbonisation and social protection, or whether they become another compliance ritual that is gradually watered down.

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My Learning Journey on the Shift from Extraction to Regeneration

SU Yujie

Introduction

On 17 September 2025, I participated in the "IMPACT WEEK" held in Suntec Convention Centre. The event brought together global leaders, innovators and changemakers who are keen on building a sustainable future. Its goal is to explore new models of regeneration, cooperation and shared prosperity. Among all the sessions, the discussion entitled "Extraction to Regeneration: Reimagining the Green and Blue Economies" interested me the most. It concerned how traditional industries change from an exploitation to a regeneration model. In other words, how do they repair ecosystems instead of consuming more natural resources?

This theme is closely related to the concept of Environmental, Social and Governance (ESG). ESG principles emphasise sustainable resource utilisation, ethical business practices and long-term environmental responsibility. The session helped me understand how ESG strategies support environmental protection and business growth. It shows that sustainability is not only a moral responsibility but also a strategic advantage for future development.

Background

For decades, global economic growth has been driven by resource-mining industries such as agriculture, forestry, mining and shipping. These industries have created employment opportunities, trade and infrastructure, and have become the foundation of many countries' economies. However, this development model has also brought high environmental costs. For example, activities such as open-pit mining, underground drilling, blasting and transportation of ore and waste rock often produce a lot of dust. In dry and windy conditions, this may lead to sandstorms and serious air pollution in the surrounding areas (Sun et al., 2021). It is these systems that have created our

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Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

wealth and weakened the ecological foundation that supports life and future development.

In recent years, the concept of a green economy has emerged as a response to these challenges. A green economy is low-carbon, resource-efficient and socially inclusive, where growth is driven by investments that reduce pollution, enhance efficiency, and protect biodiversity (United Nations Environment Programme, 2018). It promotes economic growth and development while ensuring that natural resources are used responsibly and that environmental risks are minimised. Similarly, the blue economy focuses on using ocean resources sustainably to promote economic growth, create jobs and improve livelihoods while protecting marine ecosystems (OECD, n.d.). Together, these ideas emphasise that economic activities and environmental protection must no longer be seen as opposites but as parts of a shared goal of sustainability.

This session focuses on a deeper and more urgent problem: how can we go beyond the stage of reducing harm and truly realise the regeneration of lost resources? This shift from mining to recycling is not only related to the adoption of more environmentally friendly technologies, but also involves reshaping the economic model, redefining the success criteria and re-examining the core values guiding global development.

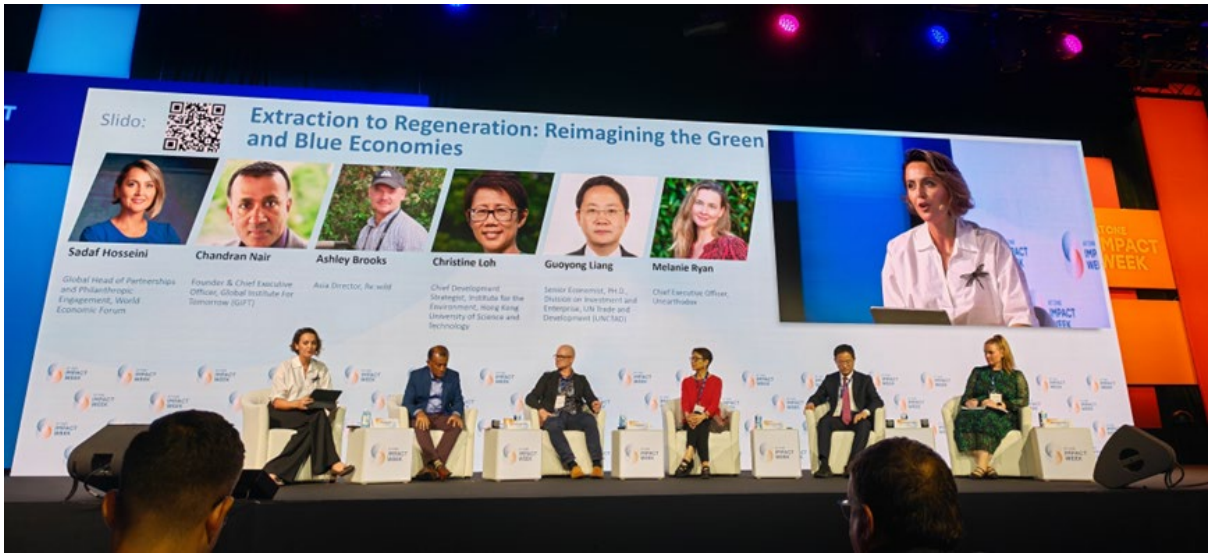
Insights from the Panel: Key Perspectives

Rethinking Growth and Profit

Mr Chandran Nair, founder and Chief Executive Officer of Global Institute For Tomorrow (GIFT), strongly criticised the current global economic model. He believes that sustainable consumption and the pursuit of high profits are unsustainable, because they will lead to ecological damage. A study by Rockström et al. (2009) on planetary boundaries validates Mr Nair's warning, that exceeding environmental thresholds threatens long-term prosperity, and the study emphasised that science has proved the existence of the Earth's limits. Mr Nair suggested that enterprises and policymakers should not ignore these limits in the name of growth; profit should be regarded as a social contract, not a right, and companies have the responsibility to make profits responsibly without exploiting nature. To ensure real sustainability, he called for austerity and strong supervision to encourage society to live within environmental restrictions instead of pursuing endless expansion.

Empowering People and Communities

From the perspective of conservation, Dr Ashley Brooks, Asia Director of Re:wild, stressed that regeneration must start from the people closest to nature. Many



"Extraction to Regeneration: Reimagining the Green and Blue Economies" panel discussion.

biodiversity-rich areas are home to poor and marginalised communities, who have protected their ecosystems for generations. However, these communities often lack resources and funds. Dr Brooks pointed out that there is a huge funding gap for biodiversity and local communities need support to manage their land in a sustainable way. His emphasis on community empowerment is supported by Ostrom's (2009) research, which shows that local governance is vital for sustainable resource management. Moreover, Dr Brooks proposed using light touch technology, such as camera traps and sound sensors, to monitor wildlife, and combining performance-based payment to reward the success of conservation. His key message is that these local "nature guardians" should not continue to be poor; as important managers of the Earth, they should be recognised and compensated. His view is supported by contemporary research into community-based conservation financing. For example, the BIOFIN initiative describes how forest brigades in Mexico are trained to use camera traps and other monitoring tools and participate in conservation finance mechanisms that link payment to results (BIOFIN, 2025).

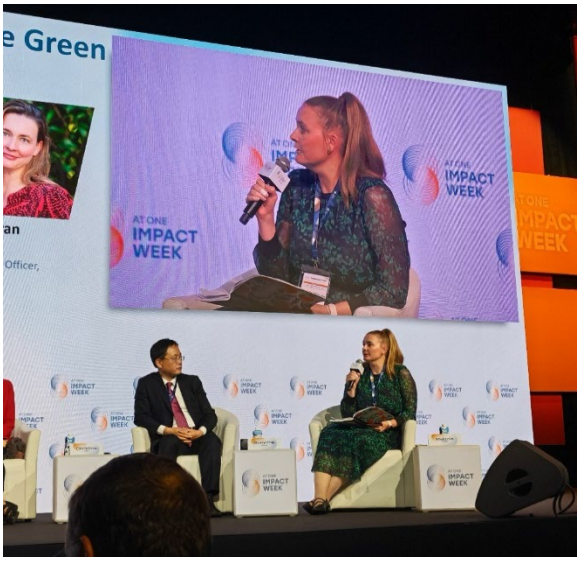
Policy and Governance for Change

Dr Guoyong Liang, Senior Economist at the United Nations Trade and Development (UNCTAD), provided an economic and policy perspective. He explained that there is no single perfect solution to realise the regenerative economy, but the government can create suitable conditions through three steps: improving the policy and institutional framework, setting clear national goals, and creating incentives to attract sustainable investment. Dr Liang emphasised that the green and blue economies need comprehensive policies in

investment, trade innovation and finance. He also stressed that countries should not only focus on attracting capital but also ensure that investment brings social and environmental benefits to their citizens.

Redefining Success and Value

Ms Melanie Ryan, Chief Executive Officer of Unearthodox, asked the audience to reconsider how to measure success. She believes that the current economic system only pays attention to financial returns and ignores other forms of capital, such as social, ecological, cultural and emotional well-being. This view is supported by the World Economic Forum (2020), which calls for measuring stakeholder value across economic, social and environmental dimensions. Ms Ryan shared her personal experience in environmental protection work in Australia, where environmental progress was undermined by profit-driven decision-making, showing the danger of putting money above everything else. Ms Ryan suggested developing multi-value systems to measure progress not only from the economic perspective, but also from the health of communities and ecosystems. She encourages supporting regeneration through networks and hubs that connect public, private and community actors.



Ms Melanie Ryan at IMPACT WEEK.

Practical Pathways and Shared Responsibility

Professor Christine Loh, Chief Development Strategist, Institute for the Environment, Hong Kong University of Science and Technology, put forward the practical idea of implementing a renewable energy policy. Based on her experience, she pointed out that it is often difficult for the government to take action because the existing system is deeply rooted in old economic assumptions. She called for policy innovation and a cost-sharing model, so that the government, investors and citizens can all contribute to sustainable development projects. Taking Hong Kong and Singapore as examples, Professor Loh suggested focusing on "obvious and achievable actions", such as transforming old buildings instead of building new ones, or making ports and shipping more sustainable through clean energy and carbon reduction. She also urged changing the narrative: from "making money" to "making a living", to create a more inclusive and humane vision of progress.

Together, the panellists agreed that the transition from mining to recycling requires not only technological changes, but also fundamental changes in social thinking, values and operation methods. Regeneration means reshaping the economy to serve mankind and the earth, making consumption, production and investment conform to ecological balance and social equity.

Key Learnings and Reflections

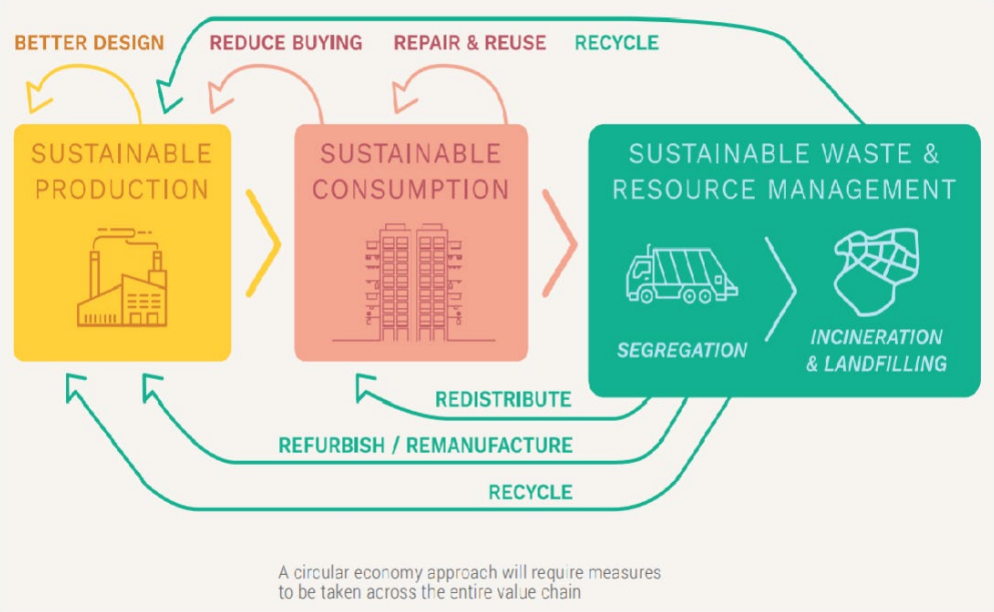
Before attending the session, I understood sustainability mainly as reducing environmental damage through cleaner production and recycling. To me, a "green economy" meant using renewable energy, cutting carbon emissions, and managing waste responsibly. I saw it as a process of improving existing systems so that they would cause less harm to the environment. My understanding was focused on efficiency and environmental protection, but I had not yet thought deeply about how the economic system itself might need to be redesigned.

Through this session, I gained a new perspective, that is, regeneration is not only to minimise damage, but to rebuild and restore the natural systems destroyed by our current growth model. I learnt that the green and blue economies do not only include greening industries, but also represent a change in the values that drive them. This discussion made me realise that regeneration requires us to question the concept of unlimited growth, and turn to living within ecological limits. It is not only about innovation or technology, but also about changing human behaviour, economic priorities and how we measure progress.

One point that truly surprised and inspired me was Mr Nair's argument that "profit should be treated as a social contract". His idea that companies must earn responsibly and accept limits to consumption made me reflect on how often we overlook the real environmental cost of economic success. I was also inspired by Dr Brooks' emphasis on empowering local communities as the guardians of biodiversity. His vision of providing fair rewards and simple technologies for local conservation efforts showed me that sustainability must be inclusive and human-centred, and not only policy-driven.

These insights strongly connect with what I learnt in my course "Strategic Sustainability". The model of sustainable production, consumption and waste management that we studied emphasises creating a circular economy, where resources are continually reused, refurbished, and recycled. It is an approach that aims to keep materials, products, and resources in use for as long as possible. Instead of following the traditional "take-make-dispose" linear model, the circular economy promotes reusing, refurbishing, remanufacturing, and

recycling resources to minimise waste and reduce pressure on natural ecosystems (Ellen MacArthur Foundation, 2021).



A circular economy model of sustainable production, consumption, and waste management.

Source: National Environment Agency, 2020

The panel discussion reinforced this idea but expanded it further. The speakers showed that true regeneration requires integrating this circular mindset across the entire system, from production design and responsible consumption to policy frameworks and community participation. This holistic connection between economic, social, and environmental dimensions reflected exactly what the circular model in my course represents.

Moving Forward: Applying the Learning

This session has changed my personal and professional outlook in a meaningful way. Personally, it made me more aware that my everyday choices as a consumer are connected to wider environmental and social systems. It reminded me that real change starts from individual awareness and responsibility. Professionally, as a business student in the Master of Science in Strategic Analysis and Innovation programme, the session encouraged me to think about how innovation and strategy can support both business growth and environmental regeneration. Now I see sustainability not as a separate goal but as a core element of long-term business success. The idea of regeneration has

inspired me to explore how innovative business models, technology and collaboration can work together to create solutions that are both profitable and sustainable.

Moving forward, I aim to apply these ideas in both my academic work and professional path. Whether through case studies, research projects or future roles in business strategy or sustainability consulting, I want to contribute to developing solutions that integrate economic performance with environmental regeneration. This session has inspired me to see business not only as a creator of profit but as a driver of systemic change—one that can shape a more resilient and regenerative future.

Attending IMPACT WEEK has brought lessons for the author.

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Reshaping Resource-Extractive Industries: The Importance and Approaches of Localised Transformation

YE Leshuang

Introduction

The loss of natural resources, pollution and climate change have become pressing issues that countries around the world are eager to address, especially since the United Nations (UN) proposed the 17 Sustainable Development Goals (SDGs) in 2015, which were established as a roadmap for creating a better future for people and the planet by 2030 (Sinay, 2022). However, the idealised vision of global consensus and commitment to this roadmap of sustainable development has met obstacles. For example, the International Maritime Organization's (IMO) efforts to establish a global carbon levy on shipping emissions have been opposed by the United States (Tunagur, 2025).

The shipping industry has long been recognised as a traditional and rigid resource-extractive industry. Redesigning this industry as part of the blue economy would constitute a major milestone in advancing global sustainable development. In this context, the IMO's decision regarding the carbon levy is of considerable significance.

Meanwhile, through the "Strategic Sustainability" course at the National University of Singapore, we were given the opportunity to participate in IMPACT WEEK, a platform for discussions on global sustainability issues. Among various sessions, one specifically focused on transforming resource-extractive industries and reshaping related economic systems. I did not hesitate to join. Notably, during this session, several scholars addressed the tension between the IMO and the US, underscoring the complexity and political dimensions of implementing sustainability measures in traditionally resource-dependent sectors.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

Although, in October 2025, under pressure from the US and Saudi Arabia, world leaders postponed a vote on cutting global shipping emissions until the next meeting in 2026 (Saueurs, 2025), it is still evident that the global commitment to reshaping resource-extractive industries continues to grow. Moreover, during the panel discussion at IMPACT WEEK, prominent scholars offered thought-provoking analyses of the importance of localised transformation in the process of reshaping resource-dependent industries. The following sections present related summaries and insights.

"Extraction to Regeneration: Reimagining the Green and Blue Economies" panel discussion.

Background

The Definition of Extractive Industries

In the context of this panel discussion, extractive industries can be defined as "a process that involves different activities that lead to the extraction of raw materials from the earth (such as oil, metals, minerals and aggregates), processing and utilisation by consumers" (Sigam & Garcia, 2012). As specifically discussed in the conference, extractive industries such as agriculture, forestry and shipping have driven economic growth for centuries, yet they are at the cost of ecological integrity and community well-being.

The Urgency of Transforming Extractive Industries

In resource-rich countries, the actual contribution of extractive industries to sustainable development has often been constrained by financial, economic, governance, social and environmental challenges, giving rise to the so-called "natural resource curse" (Addison, n.d.). In practice, abundant raw materials

have often led many developing countries to specialise in the export of primary commodities, creating obstacles to long-term economic development.

Among the 72 countries classified as low- or middle-income, 63 have increased their dependence on extractive industries' growth in the period from 1996 to 2012 (Roe & Dodd, 2016). Moreover, the severe impact of the pandemic on the global economy, particularly on resource-intensive extractive industries, has prompted profound reflection on the future of these industries. Many countries have called for the transformation of traditional extractive industries, not only to promote environmental and resource sustainability but also to build more sustainable, resilient, and inclusive economic systems that can benefit from the green transition (United Nations, 2021).

The Importance of Localised Transformation

At the conference, several scholars emphasised that in the process of transforming traditional extractive industries, green transition strategies should be tailored to local resource endowments, economic conditions, social structures and policy contexts, rather than applying a standardised approach. Localised transformation can enhance the adaptability of technologies and management practices, reduce the risks and costs associated with the transition, and improve the effectiveness of policy implementation.

Next, I will summarise the Q&A sessions from the conference and present my insights across three dimensions: the fundamental prerequisites for localised green transition, the key industries and sectors involved, and the challenges and potential solutions.

Key Preconditions for Localised Green Transitions

Revolutionary Ideas and Robust State Regulation

One panellist argued that the root cause of the ecological crisis lies in the very economic model upon which human survival depends, and that many corporations and investors who claim to "save the planet" are, in fact, contributors to this crisis. These actors often engage in greenwashing through charitable initiatives and public relations campaigns, while refusing to confront the fundamental transformations required in their business models.

Thus, genuine solutions do not consist of pursuing high-return investments but rather require revolutionary ideas and robust state regulation. Such measures would establish ecological boundaries for consumption and behaviour, thereby compelling profound changes in prevailing economic systems.

New Framework for Valuing Diversity

To break the current unsustainable business model, the foremost task is to move beyond evaluating success solely through financial returns. Such a narrow metric obscures the diverse values that truly matter, such as ecological integrity, community well-being and mutual trust.

One panellist cited a real-life case from Australia: an environmental initiative once supported by a local government was later undermined by another profit-driven project from the same authority. The result was not only ecological degradation but, more importantly, a loss of trust among the young participants. Hence, new rules for measuring diverse values must be established and embedded across all sectors of society. Only fair and enforceable frameworks can ensure a future worthy of public trust and intergenerational responsibility.

Overview

To build a green and regenerative economy, three key factors are essential. The first is innovation, which includes technological, production, and institutional policy innovations that aim to reduce costs and improve efficiency. The second is investment, which requires redirecting financial resources from the polluting traditional economies towards emerging green sectors. The third is incentives, which encourage motivation grounded in love and a shared sense of responsibility to care for both the planet and humanity.

Key Points in Localised Green Transitions

Integration and Shared Responsibility

Policymaking for localised green transitions often faces challenges such as sectoral fragmentation and conflicting interests. In response, one panellist proposed a solution framework centred on integration and shared responsibility.

First, it is essential to establish a systemic vision. For instance, developing a regenerative port should not focus solely on the docks but should consider the port as part of an integrated system, including the community, adjacent infrastructure and seafarers. This approach allows for coordinated responses to interconnected issues such as sea-level rise and the adoption of clean fuels.

Second, a cost-sharing mechanism must be developed. Given the high costs of transition, for instance, it is crucial for cargo owners, ship operators, property developers and governments to jointly share risks and distribute benefits.

Third, practical implementation tools should be created. Taking building retrofitting as an example, governments can use targeted incentives to

encourage a collaborative model involving contractors, investors, banks and property owners. This approach is more sustainable than new construction.

Collaborative Hub

Driving a green transition relies primarily on the creation of multi-stakeholder platforms or hubs, rather than merely replicating local projects. Efforts should focus on investing in and nurturing such networked organisations, enabling them to coordinate resources effectively across different regions and facilitate collaboration. This scalable collaborative hub model represents a central pathway for achieving regenerative development.

Challenges and Potential Solutions

Empowerment without Burden

In localised green transitions, local communities constitute a critical starting point. However, a core challenge lies in how to empower local ecological stewards in the simplest and most sustainable way, while avoiding the transfer of complexity and costs to them. This challenge is particularly pronounced in resource-rich regions, where local populations often face poverty alongside intense pressures from resource extraction. Despite existing funding gaps, these communities frequently struggle to absorb and manage external investments effectively.

One potential solution is to establish a community-centred support mechanism that links financial resources to measurable conservation outcomes, thereby ensuring that every investment yields clear ecological returns. Complementing this, residents can assume empowered and respected roles as ecological stewards through systematic training and equitable compensation, moving beyond passive participation to become active agents in conservation and sustainable development.

Funding Gap and Investment Pressures

Funding gaps and investment pressures constitute some of the central challenges in localised green transitions. Governments need to implement forward-looking policy measures to enhance investor confidence and direct capital towards the green economy. Although no single "optimal" solution exists, an effective policy framework should encompass several key dimensions.

First, it is necessary to strengthen the overall institutional foundation by establishing a coordinated mechanism that spans investment, trade, innovation and fiscal policies, thereby attracting capital while ensuring multiple benefits across economic, social, environmental and governance domains.

Second, precise targeting is essential. Different regions should define specific pathways and sectoral priorities for transitioning from a resource-extractive economy to a regenerative green economy based on their unique resource endowments and stage of development.

Finally, incentive mechanisms must be reinforced, with governments at all levels providing essential infrastructure and ecosystem services to align with investor needs and generate sustainable, endogenous development momentum.

Public Misunderstanding

For instance, governments can increase the cost of carbon emissions through carbon pricing mechanisms such as carbon taxes or emissions trading, to incentivise firms and individuals to reduce pollution. Such policies inevitably raise living costs in sectors like energy and transportation. A central challenge is how to allocate these increased costs fairly among citizens, ensuring that the public understands that these expenditures are not intended to impose austerity but represent necessary investments in building a more resilient future.

The panellist argued that the first step is to make people recognise that "restraint" is unavoidable and that humanity must learn to live within ecological limits. Strong social institutions and government authority are required to curb unrestrained consumption and environmental degradation.

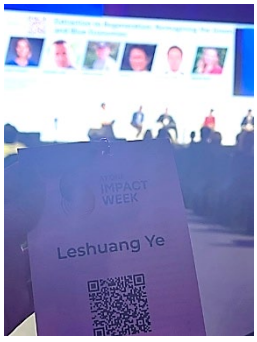
The second step is to reshape public economic thinking, emphasising that the green transition constitutes a social contract that entails shared social responsibility.

In sum, a genuine green economy does not lie in empty rhetoric but in the transformation of mindsets, coupled with decisive measures to end humanity's free exploitation of natural resources.

Conclusion

Attending this panel discussion allowed me to envision what the world could look like if today's resource-extractive industries were transformed into tomorrow's regenerative engines. From a governmental perspective, resource-saving policies would become more detailed and sophisticated, supported by effective communication platforms to facilitate and safeguard localised green transitions. At the societal level, citizens would develop a deeper understanding of and stronger recognition for the green economy, with the necessity and importance of localised green transitions becoming a shared social norm. Ultimately, the planet's ecological environment would be significantly improved.

At this conference, I had the opportunity to meet Dr Guoyong Liang from mainland China and Professor Christine Loh from Hong Kong, whose presentations provided valuable insights into the practical challenges of industrial transitions. After the panel, I also had the chance to engage with both of them in further discussions, sharing my perspectives and expectations of industrial transformation as a member of the younger generation. Both of them encouraged me to contribute as a form of soft power to influence and support industrial transitions not only in China but also globally.



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A Mission Across Fields

If you want to go far, go together. Climate action and nature restoration are a crucial mission that spans industries and disciplines. From businesses and financiers to inventors and storytellers, everyone has a part to play.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). Impact reimagined: Voices of the next generation for sustainability (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

A Reconsideration of Capital, Carbon and Coherence

ZHONG Qiwei

Introduction

During IMPACT WEEK 2025, I attended two highly inspiring panel discussions: "Financing the Blue Shift: From Pledges to Regenerative Capital" and "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies". I chose these sessions because they share a common theme, which is how the global financial system can transform from a transactional and predatory model to a regenerative and systemic one.

The first session was about how to convert capital from promise into systemic transformation and how to promote sustainable financial innovation and ocean economic transformation through the notion of regenerative capital. The second session was about how regional cooperation and a just transition mechanism can move the ASEAN climate economy towards a low-carbon and synergistic one, thereby achieving systemic transformation at the regional level.

After listening to both sessions, I understand that for finance to be a force for change towards sustainability, finance must move out of the linear logic of predation and into a circular logic of re-invention. There is a need for deep integration of ecological restoration and social regeneration.

These two topics are closely linked to the Economic, Environmental, Social and Governance (EESG) concept as well as the 3R model (Responsibility, Risk and Return). Sustainability moves from a responsibility-driven model to the next level, which is more about systemic value creation. This is in line with the concept of the economic dimension of sustainability, striking a balance between economy and ecology to create a circular economy. Both sessions have shown that sustainability is not a dimension but a holistic whole that needs to be integrated

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systemically across sectors. This shows that sustainable finance is becoming a major driver of global systemic change.

Blue Transformation and Regenerative Capital

The session started with an extremely inspiring sentence: "The true value of wealth lies not in its possession, but in how it is used to support people and nature. The future will be in cooperation, not competition; regeneration, not plunder."

A blue economy hopes to engage philanthropic capital, venture capital, family offices and institutional funds to create a symbiotic financial system to drive regenerative change. The "Blue Transformation" is more than just diversifying finance flows; it is about creating systemic cooperation and synergy within the capital system. It means transitioning from a finance system that focuses narrowly on returns to one that focuses on collectively creating economic, social and ecological value (Grantham Research Institute on Climate Change and the Environment, 2024). Meanwhile, systemic investment could boost the long-term restoration and resilience of ecological and social systems through a coordination mechanism.

One panellist also mentioned that "philanthropic capital is a catalyst". What this means is that philanthropic capital could absorb early pilot risks and open space for the next round of commercial capital (Schramm, 2024). On the other hand, Asia is important in terms of global shipping and fisheries. By setting up an "Asia Ocean Fund", people could facilitate the development of cross-border blue water governance. At the same time, experts emphasised that regulatory certainty and data transparency are important in increasing investor confidence and attract long-term capital to the renewable energy sector (Ocean Panel, 2025).

ASEAN: Towards a Regenerative Climate Economy

This second panel discussion broadened my view by introducing the macro perspective of the climate economy. One speaker began with an inspiring sentence, "Technological systems should decrease their carbon footprint while natural systems should increase their carbon footprint." This sentence reminded us that compared with the conventional understanding of carbon governance, a different view exists. Carbon reduction is not the final destination but a transitional station in the process of revitalising natural systems and ecological and climate cycles.

Although the carbon market is not perfect, carbon credits are currently the most accepted international system for evaluating environmental value. However, problems such as unstandardised verification systems, double counting of

carbon credits and fragmented data still exist (Haningrum, 2025). As a future vision, panellists considered establishing a "carbon stablecoin" and a digital system. Carbon trading and clearing can be promoted across borders, and more transparency and traceability can be achieved in the carbon market.

At the regional level, panellists raised the significance of the ASEAN Power Grid and a Just Transition Mechanism, which would facilitate multilateral cooperation, energy sharing and a standardised system to achieve energy equity.

"From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies" panel discussion.

Some speakers also warned against the so-called "carbon tunnel vision". Some people tend to adopt this vision, focusing on carbon reduction targets while ignoring social equity and ecological restoration, which may entrench a "carbon apartheid". Meanwhile, the transition process can be visualised as the "whale fall effect", where the fall of old economic systems brings nutrition for new ecological and economic forms.

Reflection and Integration

After attending these two sessions, I have a more comprehensive understanding of "systemic sustainable finance" and a deeper understanding of the 3R model and its application.

I notice that capital is not only responsible for ecological damage, but also for ecological regeneration and restoration. "Risk" is not only financial risk, but also

ecological and social risk. In addition, "Return" is not only profit, but also ecological sustainability in the long term, stakeholders' social reputation, brand trust, etc.

Both sessions discussed how an economy can change from a linear to a circular model. At the same time, capital's movement is evident in a circular or doughnut economy. Capital is like nutrients that help to achieve a new dynamic balance between the economy and nature.

Both sessions also focused on data and regulatory transparency. What impressed me the most was the attention paid to these two factors in a blue finance system. They will form the basis for attracting systemic investment.

As for carbon emissions disclosure and governance, the "recarbonisation" concept in ASEAN's sustainable development adds an ecological dimension to the net-zero pursuit, highlighting the leading position of natural carbon sinks and biological cycles in carbon governance.

Supply chain transparency is also reflected in the construction of ASEAN's transnational carbon market. Only through a shared responsibility, trust and data sharing can cooperation be established across regions.

Learning Value and Inspiration

From the two panel discussions, the biggest eye-opener for me is that sustainability is never a "must-comply" or a "should-do". Instead, it is always about the whole system. I used to think ESG is a kind of separate reporting unit, but now I see it as part of a whole symbiotic cycle. In this cycle, capital is no longer a bottleneck; it is the driving force. Ecological capital is also renewable.

As what one speaker said, "There will be change only when there is hope." To lead a sustainable future, there is a need to combine technical intelligence and narrative creativity to link the economy with biology.

As a student learning about the topic of sustainable strategy, I learnt from the two sessions that the mission of future businesses is not to cut emissions, but to rewire the connection between the economic system and nature. The interconnection in EESG and "system regeneration" are important in achieving a sustainable future.

These two sessions had also shifted my perspective from "corporate responsibility" to "system reconstruction". For example, the blue transition is the signature of a renewal in finance. On the other hand, I learnt more about

cooperation. It relates to the overall coordination and not just in one area, just like how the carbon to coherence transition integrates climate and society.

To summarise, true sustainable development is not about "less damage", but about the system that benefits collective well-being. The ultimate direction of the economy is not to be detached from nature, but to be re-integrated into the Earth's life cycle.

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Bridging Nature, Energy and Finance

ZHANG Zhaoyi

Introduction

The theme "Bridging Nature, Energy and Finance" for this article was chosen from the IMPACT WEEK session "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies". This session highlighted ASEAN's growing leadership in driving regional decarbonisation through innovation, collaboration, and inclusive governance.

During the session, the speakers illustrated how ASEAN nations are working to balance economic development with climate imperatives by leveraging carbon finance and regional energy interconnection. These efforts not only reflect strategic sustainability in practice but also demonstrate how nature-based solutions and financial mechanisms can jointly accelerate the region's path towards a low-carbon future.

Scope and Learning

The central impact issue discussed in the session concerned how ASEAN can achieve feasible decarbonisation while maintaining energy security, social inclusion and economic growth. The challenges lie in scaling carbon markets for credibility and ensuring that regional energy cooperation benefits local communities, especially youth and rural populations.

I summarised the following points:

- Systems integration: Decarbonisation cannot be pursued in isolation—it requires coordination across sectors such as land use, finance and energy.
- ature-based solutions: Protecting forests and soils can deliver nearly 30% of global mitigation potential, however, there are difficulties in its governance and effectiveness measurement.

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- Carbon as an economic asset: Transforming carbon into a mainstream financial instrument, similar to foreign exchange, can mobilise private capital for climate projects.
- Regional collaboration: The ASEAN Power Grid provides a potential powerful platform for shared responsibility, collective investment and regional resilience.

These insights deepen my understanding of strategic sustainability as an integrated practice rather than a series of disconnected initiatives.

Description and Reflection

First, the session emphasised nature's crucial role in global decarbonisation. Mr Bradford Willis, Senior Associate at the Columbia Center on Sustainable Investment, noted that 30% of mitigation potential lies in protecting land and soil resources, highlighting the importance of ecosystem preservation. Nowadays, nature-based solutions are employed, which include protecting existing ecosystems, restoring degraded peatlands and mangroves, and implementing sustainable land management and reforestation (Mercer, 2022). However, as Mr Ed Peng, Co-Founder and Partner at Canopy Generations Fund, and Mr Satya Tripathi, Secretary-General, Global Alliance for a Sustainable Planet, mentioned, nature-based investments are complex—multiple stakeholders, measurement difficulties and the need for "just transition" make implementation challenging.

Another important theme was the need to differentiate among mitigation, abatement and removal credits to enhance market credibility. NZ Bio Forestry Chief Executive Officer Mr Wayne Mulligan and Asia Green Fund Chairman Dr Bo Bai proposed some innovative financial mechanisms to solve this problem, such as treating carbon as a tradable asset class similar to currencies, thereby encouraging investment in verified projects. In this process, the concerted efforts of all countries are needed. At the same time, Mr Mulligan, as a representative of the Māori people in New Zealand, reminded everyone that sustainable development is not only an economic issue, but also related to cultural preservation, ecological integrity and human dignity.

This discussion revealed a critical conflict between market efficiency and ethical inclusivity. An effective decarbonisation must integrate economic incentives with respect for community rights and biodiversity. The ASEAN context, where developing economies rely on natural capital, demonstrates why governance and verification systems are essential for long-term success in carbon finance.

The second half of the session extended this conversation by focusing on energy systems, regional resilience and carbon finance. The ASEAN Power Grid (ASEAN

Centre for Energy, n.d.) was presented as a key asset for power stability and in case of energy emergencies. It could also create virtual reserves by managing demand.

The panel also mentioned the importance of integrated governance, which means integrating sustainability into all operational processes of an organisation. Under this kind of governance, energy planning is aligned with land, water and community systems. Such alignment ensures that decarbonisation remains socially inclusive, providing employment, community funds, and opportunities for smaller economies like Laos and Cambodia.

Speakers also presented success stories in real life: a US$400 million forest conservation project in Indonesia and a regenerative agriculture programme in Andhra Pradesh, India. Both cases demonstrate how private capital can serve public good when guided by clear governance frameworks and transparent carbon certification standards.

Reflection on these discussions reveals how ASEAN's regional cooperation could serve as a prototype for developing economies elsewhere. The notion of "coherence"—the alignment of carbon value with ecosystems, institutions and communities—resonates strongly with sustainability concepts. It indicates the triple bottom line principle of balancing profit, planet and people through systemic collaboration.

Key Takeaways and Implications

The session provides valuable lessons for sustainability strategists and policymakers:

Governance is the foundation of sustainability. Effective governance frameworks can ensure shared responsibility, fair distribution of benefits and transparent verification in both carbon and energy markets.

Finance is a catalyst for climate action. Transforming carbon into a mainstream asset can mobilise global liquidity for decarbonisation projects, making sustainability financially viable rather than purely philanthropic.

Regional cooperation amplifies resilience. The ASEAN Power Grid exemplifies how interconnected systems can enhance energy security and enable collective action against climate risks.

Inclusivity ensures legitimacy. Indigenous perspectives, community participation and youth engagement are crucial for long-term societal support and equitable energy transition.

Systems thinking bridges disciplines. Viewing sustainability through an integrated lens that links nature, finance and governance reveals that decarbonisation is not a single-sector endeavour but a shared strategic mission.

Peace and cooperation are vital. This learning comes from another session "The Green Leap Forward: How China is Reinventing Prosperity for a Sustainable World". Mr Chavalit Frederick Tsao, Chairman, TPC (Tsao Pao Chee), proposed that in an increasingly divided world, substantive cooperation around common goals (such as decarbonisation) is a powerful way to build trust and ease geopolitical tensions. The experience of ASEAN has shown that when countries form interdependent cooperation networks in energy, finance and nature conservation, it not only enhances regional climate resilience but also lays the foundation for lasting peace and stability.

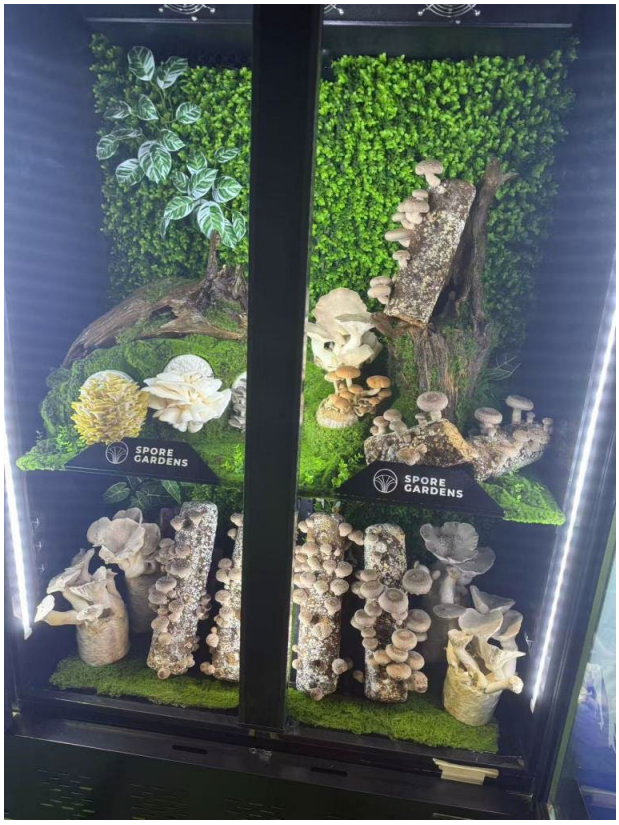
Mr Chavalit Frederick Tsao (2nd from left), Chairman, TPC (Tsao Pao Chee), presented his views on global collaboration.

In short, these insights highlight how ASEAN's approach to decarbonisation embodies the strategic sustainability principles emphasised in my course: adaptive leadership, cross-sectoral integration and innovation-driven governance.

Conclusion

IMPACT WEEK 2025 provided a rare opportunity for me to observe sustainability in motion—from philosophical reflections on the "flow of life" to financial proposals treating carbon as currency. The integration of carbon markets with

regional energy systems illustrates how complex sustainability challenges demand equally sophisticated solutions.



An artificial greenhouse displaying cultivated fungi at IMPACT WEEK 2025. This exhibit demonstrates how biotechnology and nature-based design can promote sustainable resource use and regenerative ecosystems.

For ASEAN, the pathway towards decarbonisation lies not only in deploying renewable technologies but also in building ecosystems of trust, finance and governance. The sessions collectively demonstrated that sustainable transformation depends on bridging nature, energy and finance through inclusive, regional and strategic cooperation.

From a strategic sustainability perspective, this experience reinforces a critical insight: true decarbonisation is as much about institutional imagination as technological innovation. The future of sustainability leadership will depend on the ability to design systems that are both economically productive and ecologically restorative.

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Climate Action, Healing and Leadership Transformation

YANG Enge

Introduction

This article is a reflection and evaluation with a focus on IMPACT WEEK panellists' thoughts on climate action, personal healing and the transformation of leadership in Asia and the world. The discussion covered the deep interconnectedness among environmental, psychological and societal challenges through diverse opinions, suggesting that genuine leadership arises from inner awareness, authenticity and a profound ability to connect both with others and the planet. The whole conversation surfaced five key themes below:

- Asia's pivotal role in advancing climate action.
- The urgency and psychological dimensions of environmental issues.
- Personal healing as the foundation of transformative leadership.
- Practical tools for self-care and inner growth.
- Stewardship as a model for fostering human connection and driving meaningful societal impact.

This report will examine the above ideas. Each section will unpack these themes in detail, offering critical reflections and further evaluations to deepen understanding and inspire continued inquiry into the relationship between inner transformation and collective sustainability.

Asia's Role in Climate Action

As a continent with a large population and a robust economy, Asia has a unique dual identity in relation to global climate challenges. It is both a major contributor to global carbon emissions and the main victim of climate change. However, even though Asia accounts for over half of the world's carbon emissions due to its fast industrialisation and urbanisation, it still has the potential capacity to take

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the first step in global sustainability. In other words, Asia has the chance to form a sustainable future and lead the global green development.

"From Within to World: Healing the Planet Starts by Healing Ourselves" panel discussion.

One panellist, Professor Poman Lo, Vice Chairman, Regal Hotels Group & Co-founder, One Earth Alliance, further explained why people in Asia are obviously victims of climate change. There had been many extreme weather events happening in Asia in the past few years, including but not limited to rising sea levels and ecological degradation. However, Asia can also seize this opportunity to proactively offer solutions. By utilising suitable policies, providing technical support and engaging in cross-border cooperation, Asia can have a leading position in global climate governance.

Professor Lo used Hong Kong and Singapore as examples of cross-border collaboration. Events such as Hong Kong Green Week and IMPACT WEEK provide chances for enterprises and institutions to exchange insights on sustainable practices. Moreover, the activities also show proactive regional leadership. The topics covered included green finance, low-carbon technologies and social impact investing, reflecting Asia's growing output and influence within the sustainable development sphere.

Indeed, many Asian countries are experiencing rapid urbanisation with large infrastructure demands. When governments actively promote green finance,

green infrastructure and green bonds, they generate significant investment opportunities. Among them, East Asia and India are holding global leadership positions in renewable energy industries, demonstrating emerging technological and scale advantages (Goh, 2021).

In practice, investors should not merely exclude companies with low ESG scores from their portfolios. Instead, they should engage with and collaborate with enterprises to enhance their ESG practices, thereby driving comprehensive transformation. Given Asia's rapid wealth accumulation and increasing policy support, the region may emerge as a "hotbed of opportunities" where it outperforms other regions in ESG investment. This shift occurs as ESG investing transitions from a "negative screening" approach towards a "proactive empowerment" model.

The Urgency of Climate Action and Its Psychological Dimension

Another panellist, Mr Stephen Lew, Founder and Chief Executive Officer, The School of Positive Psychology (TSPP), highlighted that environmental challenges are beyond ecological attributes. The psychological and emotional dimensions are also part of the problem. More people revealed that they are anxious about the future of society due to a harsher environment. Therefore, it is fair to say that addressing climate change requires not merely scientific or political interventions, but also attention to individuals' mental states and emotional well-being. Climate anxiety may affect their decision-making processes and reduce society's overall ability to respond to those environmental challenges. Consequently, it is vital for modern society to acknowledge this psychological burden.

One appealing idea is the thought of reconnecting with nature and holding gratitude. This mindset can play a crucial role in Asia's leadership transformation within ESG frameworks. By recognising humanity's interdependence with the world, individuals can balance ecological impact, social responsibility and the welfare of future generations. Sustainable leadership can achieve both internal and external equilibrium.

In short, this mindset reminds us that the challenge of climate change also imposes emotional strain upon individuals. Only by re-establishing our connection with nature, and having a heart of gratitude and responsibility, can we truly achieve meaningful, sustainable action at the personal, community and global levels.

Personal Healing and Leadership Transformation

Extending the discussion, Ms Anthea Ong, Chairperson, WorkWell Leaders; Former Nominated Member of Parliament in Singapore, shared her personal story of how, after experiencing depression, she developed a new philosophy of life through meditation. Through her reflections, I can see that she has innovated her leadership philosophy. I used to believe that leadership is all about strength and power, ignoring other factors such as authenticity, empathy and vulnerability. Ms Ong pointed out that pain had led her to see the vulnerable parts within herself. Only when shattered do we glimpse the deepest shackles within. Her insights on self-awareness and personal growth unveiled a more resilient definition of leadership.

Ms Ong has turned meditation into practical tools for people at work through her Silence movement and other mental health projects. She encourages others to accept what makes them different and to see their struggles not as weaknesses, but as sources of strength and resilience. Her "Healthy Leaders" programme shows this belief in action. It reflects her faith in the healing process as a real source of change. She believes that the capacity for self-healing is crucial to exceptional leadership. True leaders have the courage to face negative situations and show genuine care for others.

The reflection is that real leadership does not arise only from authority, expertise or strategy. It is vital to be honest with oneself and embrace one's emotions. For a leader, learning genuine self-acceptance and drawing strength from one's weaknesses is the true path to personal growth. Authenticity and empathy can become the core driving force propelling collective progress.

Tools for Self-Care and Inner Growth

Mr Diego Perez, a New York Times bestselling author (pen name Yung Pueblo) and Partner at Wisdom Ventures, shared how he gradually changed himself into a creative-thinking and warm person using meditation and journaling. He said he learnt how to face fears and anxieties, gradually changing them into incentives for growth. The things that had once terrified him proved far less frightening than initially imagined. This showed that people's perception of fear often far exceeds its actual intensity.

Overall, his experience demonstrates that confronting inner fears and challenges is not a weakness, but an opportunity for growth. By systematically cultivating self-awareness and emotional resilience, individuals can achieve higher levels of clarity, creativity and empathy in their personal and work lives, ultimately becoming stronger and more compassionate individuals.

Stewardship and Human Connection

Mr Rajeev Peshawaria, Chief Executive Officer, Stewardship Asia Centre, traced the roots of human conflict to disconnection—disconnection between individuals, between humans and nature, and between people and shared values. He criticised the traditional definition of leadership centred on domination and competition, instead proposing a "stewardship-based leadership" model grounded in service. He emphasised that true leadership should not focus solely on personal gain or the accumulation of power but rather be dedicated to serving others and advancing collective interests. Steward leadership, in a nutshell, is the core principle of a butler-style leadership, creating value for others and society while achieving personal goals.

It is noteworthy that sustained innovation does not stem from authority or power, but rather from humility and collective stewardship. This form of leadership can address social inequality and enhance ecological conservation, which in turn mitigates environmental crises and repairs fractured social bonds. As such, it builds a society that strengthens connections.

In social sustainability, good leaders are able to identify and manage the positive and negative influences they are exerting on their employees, customers and even the community (United Nations Global Compact, n.d.). By realising these interconnected relationships, one can truly build motivations beyond monetary terms. This leadership style is beneficial in ensuring inclusivity and mutual respect, therefore aligning with community development.

Overall, the true power of leadership is not focused on authority, but on building connections, taking responsibility, and driving positive change through service. Steward leadership provides a framework covered by empathy and shared values. By adopting this mindset, individuals can achieve personal success while generating benefits for society, the environment and future generations.

Conclusion

This session saw all panellists reflect the profound interconnection among personal growth, leadership and climate action. In addition, effective climate action and sustainable leadership both hinge upon the awakening of both individual and collective consciousness.

Understanding the relationships between the individual, the community and the natural world is the key to achieving substantive change. Consequently, the topic of healing becomes a fundamental requirement. Leaders must embrace their own emotional wounds, such as anxiety, fear or vulnerability, for these experiences can reshape decision-making approaches and build higher levels of

resilience. Self-awareness can also further enhance leaders' ability to guide teams and organisations effectively.

Gratitude towards nature is a simple yet strong concept. This positive mindset can incentivise people to take real actions for the environment, resulting in a greater awareness of green responsibility. Similarly, stewardship leadership is key to achieving ethical, sustainable progress. Leaders who can balance personal interests and consideration towards others may create a sustainable impact across social, environmental and organisational aspects.

The panel discussion ended by highlighting a big-picture vision of leadership and climate action. It showed the close link between personal growth and the Earth's environment. With this new definition of leadership, we can build a future characterised by both resilience and ecological responsibility.

One thing that should be further elaborated is that businesses should incorporate climate action into their strategic goals, rather than using ESG as a public relations objective. It is the leadership's responsibility to redefine the company in the long term, expanding towards sustainability matters (Lewis & MacGregor, 2023).

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Exploring the Depths through Storytelling

LI Liying

Attending IMPACT WEEK at Suntec Convention Centre.

During the IMPACT WEEK conference, I attended a workshop by Mr Mario Tadinac, a media and mixed reality technologist at OceanX, that profoundly reshaped how I understand sustainability communication. As part of the course "Strategic Sustainability", I initially attended IMPACT WEEK and approached the session expecting a technical demonstration of immersive media technologies. Instead, what I witnessed was a fresh, transformative model of environmental engagement, one that integrates rigorous scientific research, advanced storytelling and strategic communication to foster public understanding of planetary systems.

The presentation aboard the OceanXplorer research vessel, streamed through vivid visuals and immersive footage, was far more than an exploration of the deep ocean. It was a strategic exercise in sustainability education. Through technology and narrative, OceanX makes invisible ecosystems both visible and emotionally resonant, inspiring social action and policy change.

My central reflection from this experience is that sustainability requires not just scientific accuracy or technological innovation, but the strategic use of storytelling to translate complexity into empathy and accountability. OceanX, through its blending of media, science and partnerships, embodies an integrated sustainability framework encompassing environmental stewardship, social awareness, governance accountability and institutional innovation. In reflecting on this model, I explore how it connects with contemporary sustainability challenges such as carbon disclosure, net-zero commitments, and the ethical management of data transparency.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

From Acting to Activism: Storytelling as a Bridge Between Science and Society

Mr Tadinac's personal journey—from actor to media technologist—was both surprising and illuminating. He shared that his early career in acting, though seemingly distant from marine science, equipped him with a mastery of narrative construction and emotional engagement. These skills, he explained, became essential in transforming abstract environmental data into compelling, human-centred stories.

Listening to the workshop "Beneath the Waves: Catalytic Stewardship from the OceanXplorer" by Mr Mario Tadinac, a media and mixed reality technologist at OceanX.

This personal narrative resonated deeply with me because it demonstrated how sustainability communication requires more than facts—it needs storytelling that connects emotionally and socially. This connection represents the social dimension of sustainability, which focuses on people (Elkington, 1997), and extends to building public awareness, equity and participation in addressing global challenges.

I realised that one of the greatest challenges in sustainability is not a lack of information, but a lack of emotional connection. OceanX bridges this gap by using narrative to humanise data. When we hear the story of a researcher encountering a new coral species, accompanied by cinematic visuals, the issue of marine conservation becomes tangible and relatable. This emotional link transforms abstract concern into collective motivation—a phenomenon crucial for achieving broad societal support for sustainability transitions.

In business terms, this is a form of strategic storytelling: aligning organisational communication with social impact objectives. OceanX demonstrates how institutions can enhance legitimacy and influence by integrating authentic narratives of stakeholders into their sustainability strategies—a concept aligned

with the stakeholder theory (Freeman & McVea, 2001) and corporate social responsibility.

Projects of OceanX.

Immersive Media and the Emotional Dimension of Sustainability

The immersive technologies showcased by Mr Tadinac—360-degree video, virtual reality (VR), and mixed reality (MR)—offered a profound sense of presence. Experiencing the deep sea in VR, where bioluminescent organisms pulse in silence, was astonishing. It made me realise how psychological distance often limits our response to environmental crises. According to environmental psychology, people are less likely to act on distant, abstract risks like ocean acidification (Gifford, 2011). By virtually "diving" into these ecosystems, OceanX reduces this distance, allowing empathy to drive awareness.

This kind of experiential media communication connects to the social and educational dimensions of sustainability. It demonstrates how emerging technologies can be mobilised to shift public values and encourage responsible behaviour. In a world saturated with climate data and dire statistics, emotion becomes a strategic asset. For businesses, this signals that sustainability strategies should not only measure impact but also communicate impact effectively, translating Environmental, Social and Governance (ESG) goals into relatable human stories.

Personally, I found this realisation transformative. It challenged my initial perception that sustainability is a purely analytical discipline. Instead, I begin to see it as an interdisciplinary practice that depends on creativity, empathy and communication—qualities traditionally undervalued in technical or business contexts.

The OceanX team showcased their daily work and machines on live Zoom.

Integrating Sustainability with Institutions and Business Strategy

Beyond its storytelling power, OceanX operates as a sophisticated organisational model for sustainability integration. The OceanXplorer is both a research team and a media studio—an embodiment of cross-sector collaboration whose partners include Bloomberg Philanthropies, American Museum of Natural History, and various governments. These partnerships merge scientific expertise, financial support and media influence to amplify conservation goals.

From a business perspective, this represents strategic sustainability integration—embedding environmental and social objectives into the core functions of an organisation rather than treating them as peripheral Corporate Social Responsibility (CSR) activities. According to Dyllick and Muff (2014), such integration requires aligning profit generation with purpose creation. OceanX exemplifies this by using its media outputs to attract investment, policy engagement and public trust while advancing the UN Sustainable Development Goal (SDG) 14: Life Below Water.

What struck me was how OceanX redefines value creation. Instead of measuring success purely in terms of financial returns, it measures awareness, collaboration and impact. In this sense, OceanX can be viewed as a hybrid institution—bridging business, science and civil society. For me, this broadened

the concept of "business sustainability" beyond compliance or efficiency into a more relational and purpose-driven model.

Transparency and Carbon Disclosure: Lessons from the Deep Sea

While listening to Mr Tadinac, I drew an unexpected parallel between Ocean's radical transparency—sharing raw data and visuals from the deep sea—and the corporate practice of carbon disclosure. Both initiatives revolve around the same principle: what is made visible can be managed and improved.

In corporate sustainability, mechanisms such as CDP (formerly Carbon Disclosure Project) and compliance carbon markets encourage firms to report emissions, creating financial incentives to reduce them. Similarly, OceanX exposes the state of ocean ecosystems to public view, using data and visuals to raise awareness and drive accountability.

The similarities highlight a shared foundation between environmental governance and corporate accountability: visibility creates responsibility. By turning hidden ecological realities into public knowledge, both OceanX and carbon disclosure frameworks generate social and market pressures for change.

However, this connection also raised critical questions in my reflection. If transparency drives awareness, could it also risk exploitation? For instance, could revealing new marine locations attract commercial interests or tourism that endangers fragile ecosystems? This echoes criticisms of market-based carbon solutions, where offset mechanisms sometimes justify continued pollution rather than genuine reductions (Anderson & Peters, 2016).

From this perspective, I realised that transparency, while essential, is not a panacea. It must be coupled with ethical governance and clear reduction targets. Sustainability reporting—whether for oceans or corporations—should not merely expose data but contextualise it for responsible action. In both cases, reduction must precede offset, echoing the "planetary boundaries" concept proposed by Rockström et al. (2009).

Governance, Ethics and the Double-Edged Sword of Disclosure

One of the most insightful moments during the workshop came when an audience member asked Mr Tadinac, "Could exposing the ocean to the public trigger more exploitation?" This question perfectly encapsulated the governance dilemma in sustainability—the tension between openness and protection.

Mr Tadinac acknowledged this risk, emphasising that Ocean's strategy relies heavily on education and context. Scientific discoveries are always communicated alongside explanations of ecological vulnerability and the importance of conservation. This careful framing prevents scientific storytelling from being misinterpreted as resource advertising.

This exchange deepened my understanding of the governance dimension of sustainability. Governance is not only about formal regulations but also about the ethical management of knowledge and influence. OceanX's governance model demonstrates how communication itself can be a form of regulation—shaping norms, values and perceptions.

This concept resonates strongly with sustainability governance theories that advocate multi-actor collaboration (Meadowcroft, 2007). Effective governance emerges not solely from governments but from the interplay of public, private and civil sectors. OceanX functions as a connective actor, linking science, media and policy. Its documentaries and data visualisations serve as informal but powerful governance tools, informing citizens and influencing decision-makers.

I found this realisation particularly relevant to strategic sustainability in business. In a corporate context, transparent sustainability reports, stakeholder dialogues and visual impact storytelling can perform similar governance roles, driving ethical accountability and aligning behaviour with shared sustainability goals.

AI and Technology as The Next Frontier of Sustainable Strategy

Another dimension that fascinated me during the presentation was the role of artificial intelligence (AI) in OceanX's operations. Mr Tadinac described how AI algorithms process thousands of hours of underwater footage, identifying species, mapping biodiversity, and detecting early signs of ecological change. This automation not only accelerates scientific discovery but also minimises the environmental footprint of human exploration.

From a strategic sustainability standpoint, this exemplifies the concept of AI for sustainability—using intelligent technologies to optimise environmental outcomes (Vinuesa et al., 2020). AI enables predictive modelling for ecosystem management, helping scientists and policymakers anticipate the effects of climate change and design more resilient conservation strategies.

What impressed me most was how OceanX uses technology not for spectacle, but for understanding. The combination of AI-driven analysis and mixed reality visualisation transforms complex data into accessible knowledge. Policymakers,

educators and even business leaders can virtually "dive" into an ecosystem and witness environmental change firsthand.

This realisation connected back to business strategy. Just as AI helps OceanX interpret ecological systems, businesses can use AI to interpret and manage their carbon data, supply chains and sustainability performance. Intelligent analytics can expose inefficiencies, predict risk and support ethical decision-making. The key, however, is to use these technologies strategically—to balance exploration with conservation, innovation with responsibility.

Personal Reflection Connected to Sustainability

As a student of strategic sustainability, this presentation profoundly influenced how I think about leadership and communication. Before attending, I tended to view sustainability through the lens of frameworks and policies—carbon accounting, SDGs and ESG metrics. OceanX revealed another dimension: sustainability as an act of connection.

I left the session not only informed but emotionally moved. Seeing deep-sea life illuminated by submersibles made the concept of biodiversity loss personal. It reminded me that sustainability begins with empathy—a sense of belonging to a shared planet.

Reflecting on Mr Tadinac's approach, I recognised that every sustainability strategy, whether in business or science, ultimately depends on human behaviour. Data and technology can guide decisions, but only empathy and narrative can mobilise action. This realisation redefined my understanding of "strategic sustainability" as both a rational and emotional endeavour.

It also made me consider my future professional path. In any business role, communicating sustainability effectively will be as important as implementing it. Whether through annual reports, stakeholder engagement, or digital storytelling, leaders must make sustainability visible, relatable, and inspiring. OceanX's example showed me that success in this field requires strategic empathy—the ability to connect people's hearts with the planet's realities.

Media as a Strategic Force for Sustainability

Reflecting on the OceanX case has reinforced my belief that sustainability, at its core, is a strategic integration of science, storytelling and ethics. OceanX's model merges exploration, communication, and institutional partnerships, offering a blueprint for 21st-century sustainability practice.

From an environmental perspective, OceanX advances marine research and conservation through cutting-edge technology. From a social perspective, it

inspires public awareness and shared responsibility. From a governance perspective, it promotes transparency, accountability and collaboration across sectors.

For business strategists, the key takeaway is that sustainability cannot remain a back-office function. It must be communicated, experienced and emotionally understood. Transparency, whether through carbon disclosure or immersive storytelling, serves as both a moral obligation and a strategic advantage. However, it must always be guided by ethics, ensuring that visibility leads to stewardship rather than exploitation.

Ultimately, OceanX embodies the principle that sustainability is not only about protecting resources—it is about transforming relationships: between humans and nature, between science and society, and between knowledge and emotion. As I reflect on my own learning journey, I see a clear mandate for future sustainability leaders—to use technology and media not as tools of consumption, but as instruments of connection and change.

In an era where the greatest threats to the planet stem from misunderstanding and indifference, our task is to make the invisible visible and the intangible unforgettable. OceanX demonstrates that when storytelling meets science, sustainability becomes more than a strategy; it becomes a shared human narrative and mission of hope, responsibility and renewal.

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From Carbon to Consciousness

ZHEN Jinhua

"What if five days could shape the next fifty years?" Those were the bold opening words of IMPACT WEEK 2025, in which more than 4,000 leaders of business, finance, science and community met to work together to build a well-being economy that is grounded in regeneration, not extraction. Before attending the event, I wondered how a five-day event could create lasting change. But after participating in four sessions, I saw how collaboration across sectors can redefine value creation and unite markets, governance and culture towards a shared purpose.

This essay reflects on my learning journey during IMPACT WEEK, drawing connections between the sessions and the frameworks in my course "Strategic Sustainability". Through this reflection, I will explore how theories of adaptive governance, systems integration, and moral leadership were brought to life in real-world contexts, showing how sustainability moves from abstract principles to concrete practice.

A mushroom farm.

As soon as I entered the door, a device caught my attention: a refrigerator filled with mushrooms. After asking the staff, I learned that this is a nano mushroom farm, a compact system that can cultivate mushrooms with low-light conditions and very little water and energy. This simple innovation perfectly interprets the core economic concept of our classroom discussion: Green growth stems from the redesign of the production system, achieving maximum efficiency while minimising land and resource consumption to the greatest extent. It was also a good reminder for me of how sustainability usually starts with small, tangible actions, and

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when scaled up, can turn into big impact moves that shift the entire value chain.

Session 1: Scaling Climate Action and Nature-Based Solutions: From Intent to Impact

(From left) Panellists comprised Mr Terence Tan, Director (Carbon Management), UN Global Compact Network Singapore; Dr Shailendra Mishra, Global Head of Sustainability (Food, Feed and Freight), Olam Agri; Ms Melissa Moi, Head of Sustainable Business, Group Corporate Sustainability Office, United Overseas Bank; and Mr Gabriel Tan, Chief Executive Officer, GUAVA International.

The first session I attended was a thoughtful and practical look at how businesses can translate climate ambition into measurable results. It was appealing not just in the range of sectors discussed, such as agriculture, finance and entrepreneurship, but also how there was the same focus: the management of natural capital is no longer an environmental issue; it's now a question of governance and corporate strategy.

Mr Terence Tan, Director (Carbon Management), UN Global Compact Network Singapore

Dr Shailendra
, Vice President, C
Sustainability (Fo
Freight), Olam Ag

Dr Shailendra Mishra from Olam Agri opened the panel discussion with a striking truth: one-third of global food is wasted, and a quarter of biodiversity has already been lost. These numbers are more than numbers; they expose how vulnerable our value chains are when resource depletion is considered an externality. To address this, Olam has repositioned sustainability as risk management, involving half a million farmers in climate-positive agriculture. This reminded me of our class discussion on the move away from a compliance-based system to an

adaptive governance model, where resilience emerges as a measurable end result.

This idea of engineering systems was elaborated further by Mr Gabriel Tan of GUAVA International. He described collaboration as "the new currency of advantage", arguing that future-ready firms thrive through ecosystems rather than hierarchies. His vision of "suppliers becoming customers, and customers becoming suppliers" illustrated how sustainability is no longer linear but circular. It reminded me of the governance model of interdependence, where value is created, not transferred. Mr Tan's emphasis on modular and scalable solutions captured IMPACT WEEK's own theme of "moving from carbon to coherence": starting small but designing to grow.

Lastly, Ms Melissa Moi from UOB pointed out that regulation, investor pressure and consumer expectations still drive most corporate action, but biodiversity projects remain "local and hard to quantify". This mirrors the information measurement challenge in sustainability, which happens when companies struggle to use common metrics and balance internal indicators with external stakeholder expectations. Hence, it raises a deeper question: can markets learn to price resilience instead of only growth? Her critique suggests that without redefining value itself, nature-based solutions risk being marginalised within corporate Environmental, Social and Governance (ESG) portfolios. This connects to the broader debate on sustainability accounting, whether the future of reporting should privilege comparability or context.

Listening to these speakers, I realised that sustainability was not a technical puzzle but a governance puzzle. It means aligning policies, incentives and culture to create one broad vision, with environmental health and economic continuity inseparable. Dr Mishra's comment that "the client is watching" perfectly captured today's accountability reality, which is that stakeholders now discipline corporate behaviour more effectively than regulation.

The panel's message was clear: scaling climate action requires coherence, not just ambition. Singapore's BCA Green Mark, cited by Ms Moi, exemplifies how governments can embed biodiversity and material efficiency directly in market mechanisms. In my opinion, external certification programmes such as the Green Mark help resolve market challenges related to green building adoption, while Olam demonstrates that companies can also address environmental issues from within through farmer engagement. By the end of the session, I understood that leadership in the climate age means governing complexity: balancing short-term business goals with long-term ecological thresholds.

Scaling isn't about doing more; it's about thinking more deeply and moving together.

Session 2: From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies

Panellists comprised Mr Bradford Willis, Senior Associate at the Columbia Center on Sustainable Investment; Professor Yuen Yoong Leong, Director of Sustainability Studies at the United Nations Sustainable Development Solutions Network; Dr Bo Bai, Executive Chairman and Founder of the Asia Green Fund; Mr Wayne Mulligan, Chief Executive Officer of NZ Bio Forestry; Mr Satya Tripathi, Secretary-General, Global Alliance for a Sustainable Planet; Dr Weerawat Chantanakome, the Senior Policy Counsel on Energy at the Economic Research Institute for ASEAN and East Asia (ERIA) and Mr Ed Peng, Co-Founder and Partner at Canopy Generations Fund.

If the first session focused on sustainable development at the enterprise level, the second session expanded perspectives to the regional and system levels, offering brand-new insights. It prompted us to view carbon emissions not only as pollutants that need to be reduced, but also as a mirror image of the social structure. Panellists urged us to reflect on the essence of production methods, consumption patterns and prosperity creation. "If carbon is the currency of our

time, will we spend it to try to survive in this world or use it in some regenerative ways?"

A dual development path for ASEAN was proposed: decarbonisation of technical institutions and recarbonisation of the ecosystem. Professor Yuen Yoong Leong pointed out the flaws of the current carbon accounting system: it often only measures product efficiency but neglects the full life cycle cost from resource extraction to waste disposal. This echoes the "full life-cycle accounting" concept learnt in class, a method that measures the total carbon impact of assets rather than just operational emissions. This move will ensure that sustainability assessment can present environmental damage more comprehensively and accurately. But, as Professor Leong explained, the problem lies not only in the technical aspect but also in the ethical dimension. Ignoring hidden emissions shifts responsibility away from companies and damages long-term value. Hence, extending the lifespan of assets, such as designing solar panels and wind turbines to last more than the usual 25 years, is therefore presented as a way to align technical innovation with moral responsibility. In this way, the act of "temporal coherence" can be achieved.

The second pathway, recarbonisation, reversed the previous logic: if industrial systems must emit less, natural systems must regenerate more. Forests, peatlands and mangroves were reframed as living infrastructure, where asset degradation is not merely ecological loss but also capital destruction. One panellist estimated that up to 30% of global mitigation potential lies in protecting soil and land. We need to shift from viewing natural capital as a cost to recognising it as a productive investment, such as water security, biodiversity and community livelihoods. In this sense, recarbonisation can achieve both environmental restoration and economic strategy.

However, such coherence cannot exist without effective markets. The current carbon finance situation remains fragmented with clear symptoms of market inadequacy. Instead of abandoning the system, the speakers called for its reform, which includes distinguishing between carbon removal and avoidance, standardising benchmarks, and using AI-driven measurement, reporting and verification (MRV) to improve transparency and accelerate capital flows. These ideas reflected what our course instructor, Professor Lawrence Loh, described as the tension between market adequacy and regulatory intervention. Governments can build the enabling infrastructure for credible carbon markets, but private actors must also innovate to make them efficient and trustworthy. Only when these two forces move in the same direction can real transformation and impact occur.

The discussion also introduced a more advanced idea: double materiality. They mentioned that climate disclosure must account not only for how environmental change affects corporate performance (financial materiality) but also for how corporate activities reshape ecosystems and communities (impact materiality). This aligned with our class debates on the evolution of sustainability reporting, from one-way compliance to a two-way accountability system that recognises mutual dependencies between business and nature.

The panel's creative spirit came alive through Māori entrepreneur Mr Wayne Mulligan, Chief Executive Officer of NZ Bio Forestry, who cautioned against "carbon tunnel vision". He observed that while monoculture forestry might sequester carbon, it could simultaneously harm biodiversity and local livelihoods. His remark, "everything petroleum makes, trees can make too", reframed sustainability as biochemical innovation rather than a moral restraint. It was a striking example of systems thinking, viewing carbon not as a pollutant to eliminate but as a building block of circular design that connects industry, ecology and culture.

Additionally, this principle of coherence, where innovation, ecology and inclusion reinforce one another, also appeared at the governance level through ASEAN's Power Grid initiative. Dr Weerawat Chantanakome, the Senior Policy Counsel on Energy at the Economic Research Institute for ASEAN and East Asia (ERIA), explained that regional interconnection should not simply export electricity but also share prosperity, ensuring that smaller economies such as Laos and Cambodia benefit through jobs, infrastructure, and policy voice. This model of equitable benefit sharing illustrated the principles of inclusiveness and fairness, showing that legitimacy in sustainability transitions comes not from charity but from participation.

In summary, this session reframed sustainability not as a linear race to net zero, but as a multi-dimensional transformation towards regenerative value creation. ASEAN's future depends on harmonising the two main concepts in this session, which are decarbonisation and recarbonisation. These relate to reducing industrial emissions and restoring natural systems at the same time. Furthermore, achieving this balance will also require transparent governance, credible carbon markets and a shared ethic that treats ecosystems as productive assets rather than passive resources.

Session 3: Beneath the Waves: Catalytic Stewardship from OceanXplorer

If the previous sessions explored systems at the land and policy levels, this one would take us underwater both literally and conceptually. Promoted as the world's most advanced ocean research vessel, the OceanXplorer by OceanX transmits real-time images, transforming a technological tour into an in-depth exploration.

Live video transmission from the OceanXplorer research vessel.

Through the onsite screen, Mr Mario Tadinac, Media & Mixed Reality Technology Specialist at OceanX, guided us through Indonesian waters, where data came alive. Real-time visuals, such as depth maps, footage from remotely operated vehicles (ROV) and coral surveys, were provided through Unreal Engine (a 3D creation tool) and immersive virtual reality (VR) domes, translating marine science into a shared emotional experience. In this moment, sustainability became tangible, sensory and deeply human. It impressed the audience and reminded us that sustainability's success depends not only on measuring impact but also on communicating it in ways that move hearts and minds.

OceanX's model showed the power of cross-disciplinary collaboration. Engineers, coders and artists worked with scientists in "hackathons" to create interactive simulations and educational games that mirrored real ocean missions. These creative collaborations showed that environmental innovation grows stronger when ideas flow between fields, successfully linking technical accuracy with cultural imagination. It also reflected the systems integration approach, where science, technology and society connect within one coherent framework, leading to transformative change.

Among all the innovations shared, one story stood out. Mr Tadinac explained how OceanX created "digital twins" of coral reefs for schools in Indonesia and Malaysia, allowing those children, some of whom had never seen the sea before, to experience marine life through virtual reality. This project showed how technology can make environmental education more inclusive, sparking

empathy and curiosity at an early age. It reminded us that sustainability does not start only in laboratories, but in classrooms and communities, where imagination nurtures our first sense of belonging to nature.

As Mr Tadinac concluded, "Stewardship begins when the vessel leaves the boat." This metaphor captures the spirit of catalytic stewardship: discovery is significant only when knowledge continues to flow back into society and changes behaviour. In my view, the OceanXplorer thus becomes a symbol for sustainability itself, an ongoing journey that connects data to emotion, research with empathy, and innovation with responsibility.

Session 4: The Green Leap Forward: How China Is Reinventing Prosperity for a Sustainable World

The final session I attended brought my "IMPACT WEEK" experience to a successful conclusion. It allows me to reflect deeper on the ethical and cultural dimensions of sustainability. The guiding question "What is the responsibility of multinational enterprises in shaping a sustainable and harmonious future?" invited participants to view sustainability as a moral and cultural transformation.

Panellist Ms Gim Huay Neo, Managing Director, Member of the Managing Board, World Economic Forum, pointed out at the beginning that meaningful climate solutions must not be driven solely by financial tools or regulations. True change requires a reshaping of the perception of a shared mission. She called for dialogue between the East and the West and cooperation between the public and private sectors, highlighting that sustainability is advanced through empathy, listening and learning humility across different ideologies. The essence of sustainability is more about relationship building.

Expanding on this, Ms Nan Li Collins, Chair, United Nations Sustainable Stock Exchanges Initiative and Divisional Director, Investment and Enterprise, UN Trade & Development (UNCTAD), applied this vision by invoking "new hope, new values". She compared the Western concept of "improving the state of the world" to the Eastern concept of "improving the state of the mood." Her message reframed sustainability as more than resource management. Instead, it is an inner transformation grounded in awareness and compassion. Additionally, she also urged a reimagining of investment and capital systems as empathetic networks, where prosperity is measured not only by growth but by the quality of human consciousness that underlies it. This moral and spiritual turn connected sustainability with the well-being economy theme that defined the entire IMPACT WEEK, suggesting that regeneration begins not in markets, but in the morals and imagination that shape them.

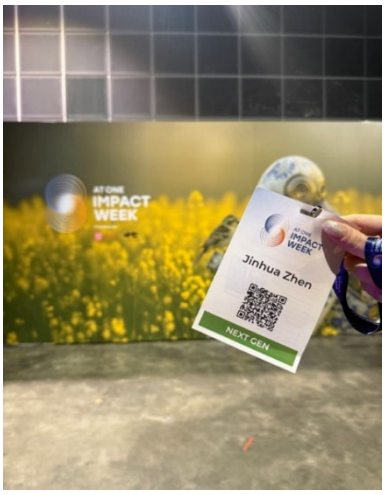
Mr Chavalit Frederick Tsao, Chairman, TPC (Tsao Pao Chee), who started IMPACT WEEK, has rooted these thoughts in his personal practice and leadership. Frustrated by the fragmentation of global climate dialogue, he created this platform as a co-creation experiment to prove that sincere collaboration can accelerate the realisation of a collective vision. His sentence "the rise and fall of the world depends on each individual" elevates sustainable development to a personal moral mission rather than an institutional agenda. This idea was echoed in our class discussion on moral leadership, which revealed balancing economic ambition with social responsibility. The idea suggested that the starting point of systemic change is not policy design, but an ethical awakening at the leadership level.

The session ended with a universal note, "The heart is the greatest arena." Chairman Tsao's reflection on the parallel development of business and culture reveals the spiritual foundation of sustainable development. Technology and capital may influence the global landscape, but only culture can be the "vessel of meaning" that shapes the definition of social progress. He then drew on the Buddhist wisdom of mutual dependence, emphasising that sustainable development is both an economic means and a moral pursuit, and it is a vision of a future shared by all living systems.

Overall, this session crystallised the ethics-related core of my IMPACT WEEK. It showed us that green transition is not only an innovation competition, but also a revolution in thinking patterns.

Conclusion

After attending the four sessions, my understanding of sustainability evolved from an operational challenge to a human mission. Session 1 taught me that sustainable development is a form of governance, aligning incentives, culture and resilience towards a shared vision. Session 2 expanded sustainability into a design that links decarbonisation and recarbonisation to regenerate both economies and ecosystems. Session 3 showed that it is also about communication, translating science into empathy through innovation and storytelling. Finally, Session 4 deepened this journey through discussing conscience, grounding sustainability in ethics, culture and a shared moral responsibility.



My registration badge at IMPACT WEEK 2025 which marked a personal journey.

Together, these lessons transformed my view of sustainability from a technical process into a collective act of renewal. The frameworks we studied in class came alive through each dialogue, showing how theory becomes practice when guided by purpose. Now I understand that, as the IMPACT WEEK's theme suggests, five days can indeed shape fifty years when innovation, ethics and empathy move in coherence. Sustainability, I realised, is humanity's shared journey from carbon to consciousness.

From Harming to Healing: The Harmonious Coexistence of Technology and Nature

SHEN Jiaxin

A futuristic image of a harmonious coexistence of technology and nature.

Introduction

IMPACT WEEK 2025 gathered people who are concerned about sustainable development to explore new models for regeneration, coherence and shared prosperity for humanity and the planet (TPC (Tsao Pao Chee) & NO.17 Foundation, 2025a). Among them were two panel sessions that discussed the necessity of cooperation between nature and technological innovation, and the implementation plans based on nature.

The session "Can Technology Innovation Heal What It Once Harmed?" detailed the environmental harm that technological development has caused, as well as the significance of the need to collaborate with nature for technological innovation in the

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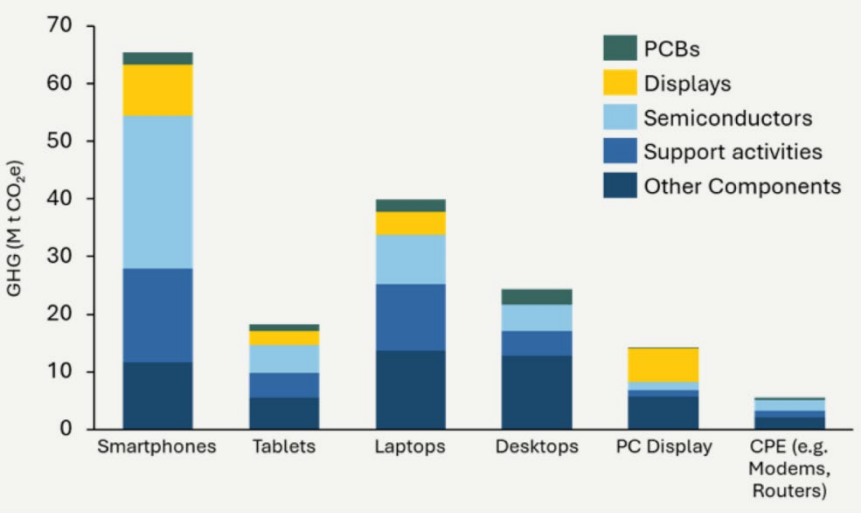
future. The other session is "Scaling Climate Action and Nature-based Solutions: From Intent to Impact". It focused on how to embed nature-based solutions in real business models, especially for small and medium enterprises, which are usually overlooked in climate discussions but which can bring real change to sustainable development.

Reflecting on these two sessions from IMPACT WEEK 2025, this report highlights how technology and nature can coexist to achieve an efficient balance and maximise benefits.

How Technology Caused Harm to Nature

Decades of rapid technological development have brought undeniable improvement. However, the environmental damage it inflicted has not received due awareness and concern from the public. According to Baldé et al. (2024), electronic waste (e-waste) has surged dramatically. The world generated approximately 62 billion kg of e-waste in 2022, representing an 82% increase since 2010, with only about 22% properly recycled. This figure is projected to rise to 82 billion kg by 2030. Additionally, the International Energy Agency (IEA) (2025) projected that global data-centre electricity consumption will more than double to roughly 945 TWh by 2030. With such a large and even excessive amount of electricity usage, it seems inevitable that nature would be damaged. Technology and the environment are always closely related. However, since the Industrial Revolution, the rapid development of technology has given some people the wrong impression that our well-being no longer depends on the environment.



GHG emissions for electronic products (Mt CO_2e)

Source: Center for Sustainable Systems, 2025

But in fact, the environment is the foundation of everything. In 2022, the information and communication technology (ICT) sector's carbon footprint was estimated at 567 Mt CO_2e, which is about 1.7% of global emissions. This number showed that technology use has a significant climate impact (Center for Sustainable Systems, 2025).

The electricity consumption and carbon emissions showed that the technology industry is not benign from an environmental standpoint. Even though the figures may look small in isolation, when you consider technology's scale and rapid growth, the situation becomes crucial. In this situation, where humans are unlikely to give up the benefits of technology, we should raise the question of how to redesign technology to make it sustainable. Now it is necessary to integrate the idea of environmental protection and strategically leverage nature's strengths in technology innovation.

How Technology Can Be Redesigned to Heal

The panellists from the session "Can Technology Innovation Heal What It Once Harmed?" emphasised that environmental damage brought by technology and industrialisation proved that the current technological trajectory is highly unsustainable. Thus, there is a need for a balanced approach that considers both technological advancement and environmental preservation. With a plan, technology and nature could be in balance by 2100. As one panellist Mr Julien Mialaret, Operating Partner, Eurazeo, explained, the goal is to design technology to amplify nature's intelligence rather than override it.

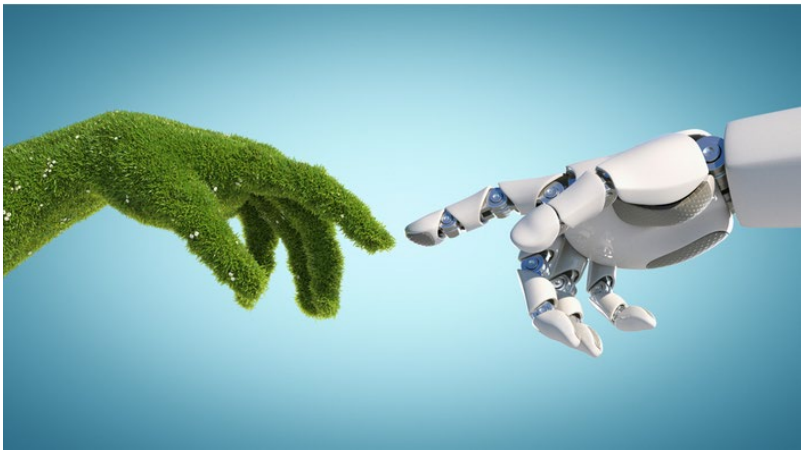
Energy, mobility, building methods and food production were some of the areas discussed. Mr Mialaret proposed that piezoelectric technology for energy harvesting, as well as fusion energy, can be considered as potential clean energy sources. Although humankind has not fully mastered these energy sources yet, the potential for clean, abundant energy is great. Beyond this, technology presents further possibilities for resource efficiency. This includes the emergence of bio-engineered materials that may strengthen over time and even absorb carbon dioxide, which can drastically reduce cooling energy requirements. Also, intelligent maintenance will rely on extensive sensor networks to analyse energy utilisation patterns, ensuring precise control and optimal energy efficiency across operations. These proposed possibilities seem to be a huge challenge for scientists to work on, but they already have a start. Many current sensors could be powered by harvested energy, and their production scale has reached an industrial level. The only challenge is to collect a larger number of sensors.

What's more, the site selection for AI-intensive buildings is also mentioned in this session. It is not just about where we build that can minimise damage to nature, but about the purpose of the building. Buildings that consume more energy should be built somewhere in proximity to the energy sources. In terms of the building design, a self-sufficient building should have plants that can reduce carbon emissions, a water purification system and a recycling system.

After discussing the ideal vision, we need to consider how to achieve the goal. As it would be a very long, difficult and complicated process for technology to transform from harming to healing nature, the entire transformation should be divided into phases. First, the major problem is to get funds to scale current renewable energy technologies and storage. While current technologies are quite strong, they are limited by a lack of proportionate financing and large-scale deployment. To be more specific, it is about investing in something commercially viable and then scaling it step by step.

Panellist Mr Nakul Zaveri, Partner, LeapFrog Investments, mentioned his company's investment in an energy company. This energy company produces battery packs for heavy equipment, such as those used in construction. These battery packs are cheaper and more efficient than diesel generators. In this case, both commercial and greener outcomes can be achieved, scoring a win-win situation for both clients and investors.

All the "futuristic" scenarios raised during IMPACT WEEK 2025 are very anchored in reality. These are tangible solutions ready for implementation. By combining AI, advanced chemistry, synthetic biology and many other technologies, we may come up with completely new solutions and things yet unimagined. Eventually, the harmonious coexistence of technology and nature may come faster and easier.



An illustrative image of the co-existence of technology and nature.

How to Scale Innovations via Nature-Based Solutions

In another session "Scaling Climate Action and Nature-based Solutions: From Intent to Impact", the primary theme is about using technology, partnerships and local knowledge to implement and scale nature-based solutions. This session discussed an important concept about how it is not enough to have good intentions and plans for making nature better. Having a solution that is scaled and grounded in ecosystems is vital for having successful outcomes. The ideas complement the discussion in the other session "Can Technology Innovation Heal What It Once Harmed?". During the entire process of technological transformation, we need to incorporate nature considerations in the innovations before scaling them.

Attending the IMPACT WEEK session "Scaling Climate Action and Nature-based Solutions: From Intent to Impact".

"Scaling climate action is not just about ambition—it's about turning intention into real, measurable impact" (TPC (Tsao Pao Chee) & NO.17 Foundation, 2025b). When turning intention into real impact, the process will cover three aspects: global, simple and corporate. To think of the problem in a global context, almost a million species are at risk of extinction. Problems in water supply, food security and air quality are also faced by many parts of the world. Meanwhile, solutions can start from simple steps. Even starting from small-scale solutions can have a considerable impact on global environmental problems. Further, the corporate aspect is that many companies need to assess the opportunities and risks related to nature, policies and the market. Not taking sustainability measures would affect their supply chain, reputation and maybe even their finances. Besides regulators, investors and consumers are also highly sensitive to a company's sustainability measures.

During the session, panellist Ms Melissa Moi, Head of Sustainable Business, Group Corporate Sustainability Office, United Overseas Bank, introduced how UOB sets its strategy and governance around sustainability commitments. She also pointed out how the company integrates nature-related business and opportunities into its day-to-day work.

Another speaker, Mr Gabriel Tan, Chief Executive Officer, GUAVA International, shared how they collaborated with the United Nations on sustainable tourism. They have supported global hotel chains, airlines and cruise lines in their sustainability initiatives, aiming to help these companies increase guest loyalty and profits. The main point is that small and medium enterprises bear greater sustainability impacts. At the same time, these enterprises, which face diverse audiences, are in a prime position to take simple actions for global sustainability. These examples effectively show that sustainability can be considered as the foundation for long-term business resilience and community flourishing. Besides impacts on nature, sustainability can also help contribute to economic aspects.

Conclusion

The transformation from technological harm to environmental healing requires more than innovation. It demands a mindset shift towards coexistence between technology and nature. Although sustainability seems like a huge, difficult task for society to continuously work on, breaking the task into pieces and solving it at the root makes the goals easier to achieve. The discussions from IMPACT WEEK 2025 demonstrate that sustainable progress is achievable when technological advancement is guided by ecological intelligence and implemented through scalable, nature-based solutions. Ultimately, sustainability is not a sacrifice but a strategy for long-term prosperity, proving that healing nature and advancing technology can progress at the same time.

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Harnessing Regeneration: A Learning Journey Through Ocean & Carbon Finance in Southeast Asia

GUAN Jian

Introduction

Today, our planet faces monumental problems such as climate change, polluted oceans and income inequality. There is a need to change how money and nature work together. From attending three panel discussions during IMPACT WEEK, I gained insights into directing money towards good causes and helping the Earth to heal.

This essay captures my learning journey through these sessions, linking global ideas to Singapore and the ASEAN contexts. I reflect on key messages, analyse emerging frameworks for regenerative finance, and connect lessons to regional applications and personal takeaways. This journey reinforced a central insight: sustainable finance is not just about mitigating harm, it is also about enabling life to thrive.

Financing the Blue Shift: From Pledges to Regenerative Capital

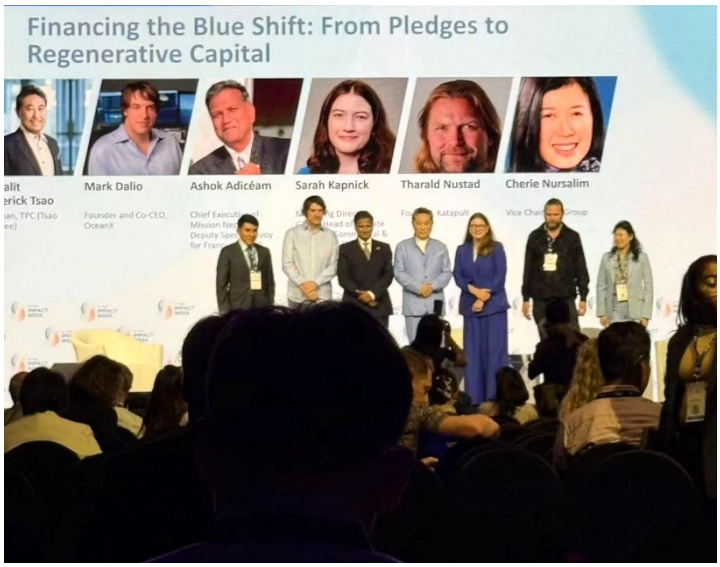
This plenary session explored the enormous potential and chronic underfunding of the blue economy, which comprises the interconnected oceans, seas and coastal ecosystems that sustain life and livelihoods. Only US$25 billion was invested in the global blue economy, compared to an estimated US$175 billion needed annually to safeguard and regenerate ocean systems in 2023.

Speakers, including Mr Mark Dalio from OceanX, Dr Alfredo Giron-Nava from the World Economic Forum and Mr Chavalit Frederick Tsao from TPC (Tsao Pao Chee), emphasised that traditional finance remains too fragmented and risk-averse to address ocean regeneration effectively. They advocated for blended

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

capital models that combine philanthropy, public finance and private investment to create catalytic, scalable change. Possible tools discussed included blue bonds, debt-for-nature swaps, and impact-linked finance that directly rewards positive ecological outcomes.

A powerful metaphor underpinned the discussion: finance should "flow like the ocean". This means breaking down silos in financial systems, regulatory organisations and coastal communities. As several speakers noted, those who live and work with the sea must lead the transformation of ocean finance.



The panel discussion "Financing the Blue Shift: From Pledges to Regenerative Capital" shed light on how the ocean economy is underfinanced.

Reflection

This session profoundly changed my understanding of ocean finance. Previously, I thought that ocean conservation was mainly the responsibility of charity organisations or governments. After hearing about innovative blue finance tools, I redefined ocean conservation as a space for systemic innovation, where finance can be both profitable and restorative.

Singapore, being a maritime hub, has an opportunity to pioneer blue financial products. The Monetary Authority of Singapore (MAS) already leads green finance frameworks; expanding into blue bonds and marine restoration funds could position Singapore as ASEAN's capital of ocean innovation. Still, there are challenges to note, such as finding the right metrics to look at. Another challenge is ensuring governance such that financial flows genuinely benefit ecosystems and local livelihoods. All in all, this session's key lesson for me is that regeneration demands co-creation between finance, science and communities.

From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies

I learnt from this session that climate risks could erode up to 11% of ASEAN's Gross Domestic Product (GDP) by 2100 if systemic action is not taken. But carbon,

traditionally seen as a metric related to pollution, could also be a currency of regeneration.

The panellists discussed the emerging ecosystem of interoperable carbon markets, cross-border green grids, and bio-based innovation clusters. Instead of focusing on offsetting emissions, the session emphasised transforming energy, agriculture and industries through regenerative design and carbon-positive innovation.

In Singapore's context, initiatives such as Climate Impact X already signal leadership in regional carbon market development. ASEAN could also be positioned as a living laboratory for regenerative carbon economies, blending technology, policy and indigenous ecological wisdom.

In the panel discussion "From Carbon to Coherence: ASEAN's Leap into Regenerative Climate Economies", the focus was on ASEAN's opportunities in regenerative economies.

Reflection

What struck me most was the conceptual shift from compensating for damage to creating value through regeneration. Carbon can shape how industries and communities interact with natural systems. I found particular relevance in Singapore's strategy of becoming a regional carbon services hub. The city-state's clear regulations, digital Measurement, Reporting, and Verification (MRV) tools, and financial depth give it a competitive edge, but regional fragmentation remains a barrier. Without interoperable standards, double-counting and integrity risks persist. ASEAN's success would depend not only on technology but also on trust, transparency, and shared governance.

The Green Leap Forward: How China is Reinventing Prosperity for a Sustainable World

The final session, conducted in Chinese, synthesised culture, capital and civilisation into a vision for shared global prosperity. It examined China's evolving role in leading a shift "from extraction to regeneration" as it deepens its Belt and Road Initiative (BRI) and expands its climate leadership.

"Civilisational harmony", a term mentioned by the panellists, means learning to understand different ways of thinking instead of forcing one idea on everyone. Sustainability is not just about science or money, it is also about culture, values and caring for future generations. For example, China's idea of an ecological civilisation connects ethics, nature and the economy, with a goal to build and restore.

Reflection

This was not my first time hearing about civilisational harmony, but the idea really touched me. Real change is not just about new technology. It is about changing how we think about success, growth and our connection with nature. As mentioned by the speakers, this idea fits well in Singapore because of its cultural mix and the intention to include everyone, even as it tries to stay efficient and plan for the future. After the conference, I strongly believe that money and culture are intertwined.

Overall Insights and Analysis

In all the talks, one message stood out: real change starts with relationships, whether it be ocean finance or carbon trading. The people who live closest to nature, such as fishermen, farmers and the locals, should have a voice in decisions. I think this means we need "relational capital", which is trust, fairness and teamwork among everyone involved.

It is important to include communities in financial plans. Singapore can help by working with its ASEAN neighbours to build skills and ensure that green finance is directed to the right people.

Another idea surfaced during the conference was that money must match nature's rhythm. Normal finance focuses on fast profits, but nature changes slowly. To fix this gap, we need patient and blended finance that rewards real impact, e.g. blue bonds or pay-for-performance systems that give returns when nature metrics improve.

Carbon-positive projects, such as planting mangroves or seagrass, can be profitable while healing the planet. Singapore can lead in such efforts by using strong data systems and working with nearby countries to track results.

Another message across all three sessions was that we need better teamwork across local, national and regional levels. Just as ocean currents and carbon cycles cross borders, so should financial flows and regulations. Initiatives such as the ASEAN Taxonomy for Sustainable Finance can help.

Application to Singapore and ASEAN Contexts

Singapore stands at the forefront of integrating sustainability into financial systems, with measures such as the MAS' Green Finance Action Plan. Extending this leadership into ocean and carbon finance could establish Singapore as ASEAN's regenerative finance hub. Tax incentives and blended finance could also attract private capital towards nature-based solutions. In addition, Singapore's expertise in digital infrastructure can support the creation of regional carbon clearinghouses with transparent monitoring, reporting, and verification systems.

The ASEAN region captures under 20% of global climate capital (Ooi, 2025). Advancing progress will require regulatory harmonisation, risk-sharing mechanisms, inclusive community participation and open data systems to ensure integrity and scalability. Singapore's convening power and financial depth can help shape these regional frameworks, steering ASEAN towards a regenerative economic future.

Conclusion

IMPACT WEEK helped me see how finance, nature, and culture are all deeply interconnected. I learnt that regeneration is not just a fancy idea about the environment. Instead, it is a new way for people to survive and grow together in an uncertain world. Real change takes courage. We need courage to question old habits and to imagine systems where profit also protects the planet. Standing amidst global finance and resource-rich Southeast Asia, Singapore has a special role to play. It has both the duty and the ability to lead change by turning money into a force that restores nature. Hope is lit.

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How to Achieve Climate Innovation?

Jiho JEON

Introduction

Turn on the television and climate change is among the headlines. It is not recent. It is not new. The same keywords from class, such as greenhouse gas (GHG) and the urban heat island effect, are still around today. Why are we still talking about the same things?

The simple answer is that climate change is now a climate crisis. Another answer is that it is yet unsolved. In the past, proposed solutions focused on reducing GHG emissions and technological innovation. It did not turn out that well. Recently, climate innovation shifted towards more collaborative and multi-layered approaches. The keywords have become "collaboration, localisation and community".

Climate Innovation and Implications

This report is based on the insights from a panel discussion during IMPACT WEEK— "Ecosystem Showcase: The Power of Cross-regional Collaboration". It discussed the new directions of climate innovation and practical implications in the local context. Key themes include technology, entrepreneurship, partnerships and ecosystem building.

Most of the discussion was about challenging the traditional top-down innovation model and emphasising the transition towards a bottom-up community-based approach. The relevance was clear. Historically, climate discussions were dominated by developed nations (e.g. those in Europe or North America), which have technological capacity and capital. However, this one-sided structure did not cater for developing nations' technological and economic capacities.

This situation implies that climate innovation must be a decentralised structure (Andersson & Ostrom, 2008). More than technology transfer, climate innovation

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requires a new model that involves cultural context, social trust and community-based action.

On the site at IMPACT WEEK.

One interesting key phrase was "restructuring social relationships". Often, climate innovation is considered an issue driven by technology and markets. Now, social relationships, and more specifically, trust, have come into the picture. As one speaker mentioned, climate action begins with trust, not technology. We need to emphasise the needs of reconstructing collaborative structures among businesses, government, investors and local communities.

How can we get trust? This main question from the discussion surfaced keywords such as understanding, communication, subsidies, long-term plans etc. To find the answer, this report will develop its discussion into three key questions:

1) How does global climate innovation transition from the traditional centralised model?

2) How does "local context" influence climate technology and ecosystem?

3) How can various stakeholders build a collaborative ecosystem for climate innovation?

From these guiding questions and sections, this report seeks to explore the evolving climate innovation through the lens of "reconstructing collaboration". Understanding this transition from a technology-centred to a relationship-centred perspective will be the critical starting point for a sustainable society.

Speakers in Session

The following table summarises the panellists' views.

Table 1: Key Messages from the Panellists

Panellist	Concept	Key message
Ms Vani K. Nades Chief Operating Officer, Emstret Holdings Limited	Climate innovation can start from the smallest space. Community level of entrepreneurship and experimentation are the real driving forces of sustainable change.	Entrepreneurship can be fostered in resource-rich but opportunity-poor regions. Trust and capacity building are more important than capital.
Ms Rebecca Sharpe Founder, Better Earth Ventures	Impact investment = Key mechanism for climate innovation Sustainability can be integrated into the core business model.	A relationship between environmental performance and financial returns has been shown. Investors should prioritise long-term value creation over short-term return. Climate investment = Commitment to structural change
Ms Nienke Benders Founder, BrightWise	In the climate technology funding landscape in Asia, early-stage start-ups are underfunded.	Climate investment = Ecosystem-oriented approach (e.g. funding, policy dialogue, strategic mentoring and partnership) Climate Innovation = Technological Innovation + Financial Innovation

Panellist	Concept	Key message
Mr Chris Roe Cluster Lead-Entrepreneurship, Climate KIC	Europe's innovation model often fails to translate in Asia. The success of innovation lies in the local context and cultural trust.	There needs to be a trust-based partnership involving governments, universities and start-ups. Climate innovation cannot be imported; it will be co-built within each society.
Mr Fajar Anugerah Head of Venture Building, Terratai	Climate innovation is about turning research into reality. A successful expansion in Southeast Asia will depend on the regulatory environment, market receptivity and talent availability.	Success of innovation = Idea + Ecosystem readiness
Ms Songqiao Yao Founder and Chief Explorer, WildBound	To restore forests, which are living ecosystems of collaboration, a multi-layered network model comprising local farmers, public institutions and businesses is needed.	Muscle to Momentum: A cyclical process where small efforts build trust, leading to larger-scale projects. True ecosystem leadership = Empowerment Local autonomy is preferred over top-down international intervention.
Mr Christopher Lee Chief Executive Officer, Climate KIC Australia	Three major barriers to collaboration: institutional, cultural and operational.	Inclusive participation could come from youth organisations, small businesses and local governments.

Panellist	Concept	Key message
	Why? It is more about fragmented systems than bad intentions.	Innovation = System design

A Socio-structural Transformation

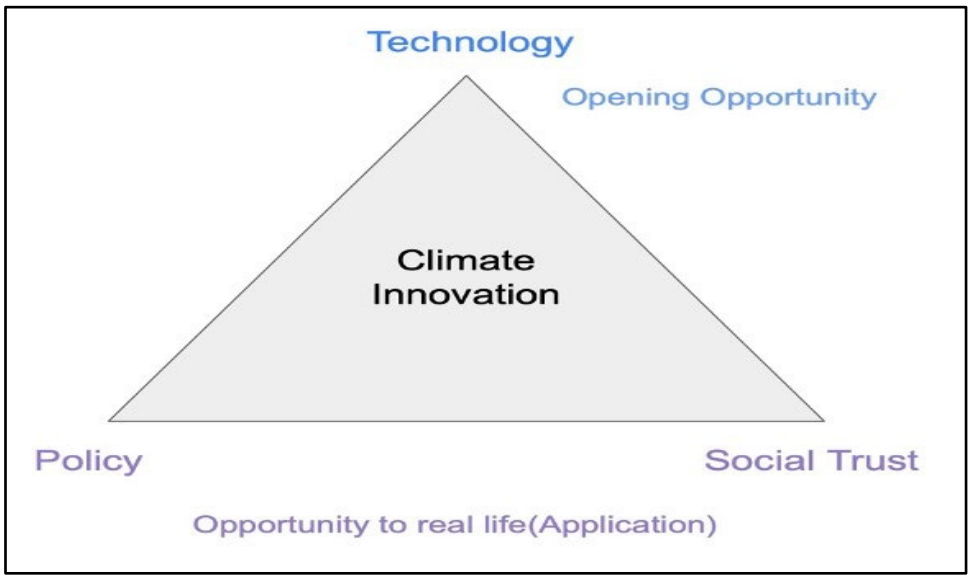
How does global climate innovation transition from the traditional centralised model?

Climate innovation has evolved into a matter of socio-structural transformation. There are two main transitions. The first is the growing importance of regions such as Africa, Asia and South America, as opposed to Europe and North America, which were traditionally the centres of climate response. The second is decentralisation in innovation. Where previous innovations were mostly top-down approaches based on capital and technology, a new wave of innovation arises from trust, collaboration and adapting to local contexts.

For example, in the Asia continent, recent climate innovation modelling is based on collaborative ecosystems involving governments, start-ups, international organisations, non-governmental organisations and local communities. As a latecomer in climate change, Asia used to follow the unilateral technology transfer from Europe and North America. But there is a huge gap between what they can do and what they need to do.

By adapting the innovation to its context, however, Asia can find a more suitable climate solution for itself. There is a growing concept within climate innovation: Direction matters more than speed. It emphasises a sustainable innovation paradigm which focuses on long-term structural change and problem-solving. Quoting the panellists, climate innovation is not a competition of technologies; it is problem-solving and requires a reconfiguration of relationships.

In fact, this thought reflects reality. Climate technology is developing upon a triangular foundation of technology, policy and social trust. While technological improvement creates new possibilities, policy (institutional trust) and community (social trust) are bringing those possibilities to our real life. This structural collaboration is growing in importance, especially for Asia, which has seen an increasing number of green finance and energy transition projects.



A triangle foundation of climate innovation.

The paradigm of global climate innovation is interactive. It is also about co-learning and co-creation, prioritising problem-solving and balancing the three pillars (Technology, Policy and Social Trust) rather than a sole focus on technological innovation. Climate innovation is a form of networked innovation built from interactions among diverse regions.

The Local Context

How does "local context" influence climate technology and ecosystem?

The complexity and uncertainty of socio-political and cultural aspects can limit the impact of technological transfer. As mentioned, climate innovation is increasingly less about technological innovation and more about policy and social trust. Consideration of the local and cultural context is necessary in innovation, leading to localised innovation.

For example, projects in Southeast Asia are often government-led, with limited participation by civil society. On the other hand, European models are based on a civil-centred consensus, which is a slower model and requires high levels of social trust. These differences result in different outcomes when applying the same technology.

The outcomes of climate technologies are also dependent on regional values and social structures. Take massive renewable energy projects in Asia, for example. Japan and South Korea prioritise efficiency and stability, whereas Indonesia, the Philippines and Vietnam value job creation and community acceptance more. Here, the situation in each society matters, rather than the technology itself.

Therefore, climate innovation is also about how the local community interprets the technology and integrates it into their own problem-solving processes. This aspect implies redefining climate innovation as a social relationship. Building the relationship requires communication, and in the end, it must reach trust. As Ms Songqiao Yao, Founder and Chief Explorer, WildBound, mentioned, climate innovation begins with trust. And trust is not built through a single project. It grows with small and consistent acts. Therefore, applying climate innovation needs a relationship-centred approach.

From Isolated Experimentation to Collective Acceleration

How can various stakeholders build a collaborative ecosystem for climate innovation?

Collective acceleration is the process by which multiple actors, such as governments, start-ups, research institutions, and the community, jointly accelerate the progress towards a shared goal. It is a polycentric system (Ostrom, 2010) that thrives on mutual reinforcement, collaborative learning and communication. Previous ecosystem building in climate innovation mostly focused on isolated experimentation. The issue is that efforts by individual entities may not truly represent local value in a regional area. Hence, the climate innovation approach must be collective acceleration.

To sustain the impact, speakers pointed out the three stages of communication: Develop communication strategies rooted in the local language and culture, introduce community consultation in the pre-policy stage, and strengthen local leadership development.

To achieve climate innovation, various actors must clarify their distinct roles. For example, the government provides the institutional basis and investment, private firms contribute technological efficiency and capital, and start-ups and civil society suggest experimental and participatory models. This whole cycle, when each unit contributes its strengths, shares knowledge and collaborates, will be co-evolution.

Ms Vani K. Nades, Chief Operating Officer, Emstret Holdings Limited, and Mr Fajar Anugerah, Head of Venture Building, Terratai, pointed out that as sustainability transitions are facing complexity with various interests, model trials must be initially small-scale, and these small-scale entrepreneurship and venture building will be the future of sustainability. Their views imply important links between sustainability and collective acceleration. The concept of sustainability is broad with many complexities. Problem-solving in sustainability must start small-scale and move towards collective acceleration.

Summary

The panel session implied that the current situation needs to be improved. A centralised structure in climate innovation caused the gap between developed and developing countries, and reliance on the technology sector did not really solve the problem. How can we solve this? The keyword is transition, and we need to bring two different transitions to climate innovation.

Two transitions in climate innovation

1) Transition from a technology-centred approach to a relationship-centred approach

Climate innovation is not merely a matter of technology. While technological solutions look promising, this is just one pillar of innovation. To achieve real innovation, we need to align and balance the pillars of Technology, Policy and Social Trust. In applying technology, trust and collaboration are required from various stakeholders such as governments, firms, civil society and local communities.

2) Transition to localised contexts

While technology application is important, the issue is that the innovation may not be suitable for every region. The application needs to account for distinct differences in perceptions and socio-political structures. The climate innovation approach must be aligned with the local context, with understanding and co-designing.

Two keywords leading transitions

The next important question is how to sustain the transition. Here, two keywords must be mentioned: communication and collaboration.

1) Communication

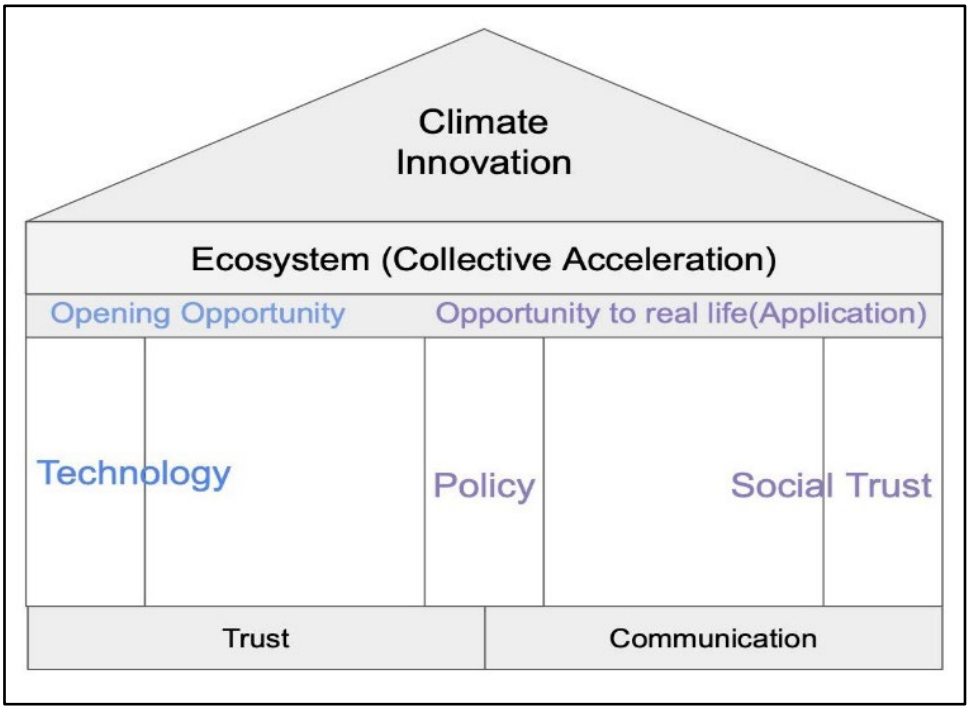
A common view among the speakers was that "climate innovation is not an output of technological progress but a linguistic process". In other words, the way we speak and listen are critical factors. The session emphasised how we can understand and persuade each person who is in charge. Three stages lie in the communication methodology: Develop communication strategies rooted in the local language and culture; introduce community consultation in the pre-policy stage; and strengthen local leadership development.

2) Collaboration

While communication is key for constructing the climate innovation system, collaboration is also crucial for sustaining the project. As the panellist Ms Yao

mentioned, it is important to start small and gradually gain trust. In this process, open knowledge sharing and reciprocal accountability are required.

In conclusion, climate innovation is not merely about technology, it is also about the redesign of relationships, which begin with communication and collaboration. Future climate innovation will be constructed with three pillars: Technology, Policy and Social Trust. It will be sustained based on trust and communication. Moreover, this cycle will be applied as a collective acceleration ecosystem which enhances climate innovation.



A developed system of climate innovation.

Learning Points

Attending IMPACT WEEK leaves me with a lot of learning points. To solve the climate crisis and lead climate innovation, both understanding and application are important. I learnt that sustainability is not just a concept, it is more like problem-solving. A sentence to summarise this panel session is: To achieve sustainability, we have to persuade various parties, and hence we need something more than technology.

The reasoning is simple, but for me it was a critical point that I had not realised in my sustainability course previously. Sustainability can be a new concept for some people and an old concept to others. There are also varying levels of belief in sustainability. Nevertheless, mutual understanding and sustained discussions

are key. We need to stick with the human factor by creating our own language of sustainability for each other.

The author at IMPACT WEEK.

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Operationalising Sustainability: How SMEs Transform Sustainability from Intent to Action

PU Jiayi

At the IMPACT WEEK 2025 venue entrance.

I attended two sessions during the IMPACT WEEK event: "Can Technology Innovation Heal What It Once Harmed?" and "Scaling Climate Action and Nature-based Solutions: From Intent to Impact". Both sessions addressed the serious issues relating to natural resources and climate change due to industrialisation and technological advancement. The panellists proposed that the development of business and society should pay attention to the impact on the environment. This is a significant topic in today's rapidly advancing technological society. Earth's resources are limited, and humanity must focus on sustainable

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development while pursuing technological innovation to ensure future generations can still enjoy a healthy natural environment.

Can Technology Innovation Heal What It Once Harmed?

Attending the session "Can Technology Innovation Heal What It Once Harmed?".

The first session I attended was primarily focused on climate technology investment. It invited several venture capitalists specialising in Southeast Asia and global markets to share their perspectives on the factors causing environmental damage and how technological innovation can mitigate harm to achieve sustainable development in the future.

The Environmental Impact of Industrialisation

What impressed me most was that the speakers looked back to 1875, which brought the audience to the era of the beginning of industrialisation. Coal accounted for over 10% of energy consumption in 1800, surpassed 50% in the 1870s, and peaked at nearly 80% in the early 1900s (Clay et al., 2023). Coal use and air pollution were associated with increased mortality (Clay et al., 2023). Therefore, the 1875 timeframe effectively conveyed to the audience the conflict history of natural environments and industrial development. There was a time when businesses and governments pursued technological innovation without sufficient environmental awareness. After World War II, every country had prioritised industrial and agricultural growth to rebuild its economy.

The guest speakers highlighted specific impacts that industrialisation brings to the environment. Mr Julien Mialaret, Operating Partner, Eurazeo, noted Paris' air pollution and Mr Kelvin Leung, Director, Growth Investment, Openspace Capital, highlighted how commercialised extraction activities drove resource consumption beyond basic needs, with large-scale production models causing

environmental pollution and waste generation. Meanwhile, Mr Nakul Zaveri, Partner, LeapFrog Investments, highlighted a common idea of that period: escaping dependence on nature was the only way to overcome famine risks. Consequently, Western industrialised nations began using technologies to sever this dependence, even though it may result in harming the environment. While governments, businesses and individuals during that time might pay little attention to environmental protection, society now requires greater technological innovation to protect resources and mitigate harm.

Looking Ahead to the 2100 Technology Goals

The guests discussed the technological innovations that need to be achieved by 2100 to ensure the sustainability of natural resources. These include replacing fossil fuels with fusion energy to achieve zero emissions, transforming transportation systems into fully autonomous networks to enhance efficiency, and reducing pollution from vehicle emissions. Bioreactors could reshape food production systems, manufacturing nutrients and food through an efficient, low-cost production chain without damaging farmland. Additionally, AI can be used to optimise architectural design to achieve energy self-sufficiency, zero waste, and a fully circular economy. However, the vision for the future remains idealised. To achieve future goals, companies should first start taking concrete steps towards sustainable development.

Scaling Climate Action and Nature-Based Solutions: From Intent to Impact

This session focused on how small and medium-sized enterprises (SMEs) should integrate climate and environmental protection into their business decisions. This is a crucial and urgent issue in sustainable development, but it is often ignored by many corporations. I was interested in this session because I believe

"Scaling Climate Action and Nature-based Solutions: From Intent to Impact" panel discussion.

that every business has a responsibility to drive sustainability beyond broad principles and create tangible impacts for the environment. However, many companies see profitability as a primary objective. While consumers are increasing their awareness of environmental sustainability, some SMEs lack a clear understanding of the importance of protecting nature and biodiversity. They do not think that they can create a significant impact on the environment even if they participate. However, the reality is the opposite. SMEs are even more connected to the land, food and water resources that we use.

This session inspired me to realise that while large companies can have a meaningful impact on the environment, SMEs should also align with sustainable development to make tangible contributions to environmental protection. This connects to the content discussed in my school lectures, such as circular economy, environmental and social responsibilities, as well as governance. The experience has deepened my understanding of these concepts.

Evidence of Environmental Deterioration

The guest speakers highlighted the connection between nature, the business world and the real economy, emphasising that SMEs should be aware of the relevance of environmental protection to their operations. The risks and opportunities arising from nature and the environment can also help businesses generate profits and build sustainable economic models.

Extensive facts were presented about the worsening environmental situation. The speakers noted that the impacts of climate change are real. One-third of the land is degraded, with approximately 24 billion tonnes of topsoil lost annually (United Nations, 2017). Also, one-third of food is wasted or lost annually, corresponding to more than one quarter of the world's agricultural area used to grow this food (United Nations, 2013).

The data further revealed that food loss and waste generated 8 to 10% of annual global greenhouse gas (GHG) emissions, with its toll on the global economy estimated at roughly US$1 trillion (United Nations, 2024). Meanwhile, a weather-related disaster occurred every day on average over the past 50 years, killing 115 people and causing US$202 million in daily losses (World Meteorological Organization, 2021). The climate and natural crises are caused by inadequate management of land and resource development and utilisation. To address these environmental challenges, we need to start by addressing land, agricultural and water systems.

To help SMEs understand the significance of this proposition, they must recognise that natural capital is an integral component of every value chain and

economic activity. The scarcity of raw materials like water, soil nutrients or good air quality will directly lead to production costs rising and output declining, which will also slow productivity across the entire supply chain. The speakers used examples from different industries to demonstrate how businesses can generate profits while regenerating natural capital. It deepened my understanding of sustainability and offered insights into how SMEs can benefit from sustainable development.

Sustainable Business Analysis for Olam Agriculture

Among the examples, Olam Agri's business case left the deepest impression on me. Panellist Dr Shailendra Mishra, Global Head of Sustainability (Food, Feed and Freight), Olam Agri, shared how the firm is committed to reducing the environmental impact of agriculture by conserving water, reducing CO_2 emissions, and fostering a network of smallholder farmers to stabilise the food supply chain.

Olam Group is a global food and agriculture conglomerate primarily focused on supplying food, feed, and fibre. Its value chain spans over 60 countries and includes farming, processing and distribution operations, as well as a global network of farmers (Olam Group, n.d.). Its "Sustainable Basmati Production" project in India had led to cumulative water savings of at least 5 billion litres from 2019 to 2021, whilst also training at least 1500 smallholder farmers on the adoption of climate-smart rice cultivation (Olam Agri, n.d.). Olam Agri also worked with partners on a "Carbon Offsetting Rice Emissions" (CORE) project in India since December 2022. By the end of 2024, 12,000 farmers have been trained, of which 90% are women, and more than 15,000 tonnes of carbon dioxide-equivalent emissions have been avoided through the "alternate wetting and drying" farm practices as well as natural farming (Sustainable Agricultural Supply Chains Initiative, 2025).

Olam Agri has replaced resource-intensive traditional farming methods with innovative approaches, not only conserving natural resources but also enhancing supply chain efficiency and reducing costs to boost profitability. The smallholder training programme demonstrates how sustainability strategies transform costs into long-term productivity gains. This aligns with what I learnt from my course regarding the economic dimension of sustainability. It was emphasised that sustainable business models should create shared value by integrating economic, social and environmental capital.

Additionally, Dr Mishra shared how Olam Agri's 4P collaboration model creates economic and ecological benefits. The 4P model which stands for Public-Private-Philanthropic Partnerships is an emergent framework that aims to "address

complex social and environmental challenges through shared resources and expertise" (Impact Europe, 2025). In Olam Agri's case, the model involves collaboration among multiple stakeholders such as government agencies, international organisations, private enterprises and local farmers. This reminded me of a class discussion about how relationships among stakeholders determine the strategic direction and performance of organisations.

The 4P model presents a sustainable governance structure that engages society as a whole group. Compared to traditional PPP (public-private partnership) models, the 4P model involves philanthropic capital to help projects overcome risks and provide funding. It also involves people to ensure the localisation and sustainability of the project. Overall, this collaborative social governance model turns climate goals into implementable and measurable actions.

In summary, the case of Olam Agri has provided insights into transforming sustainability goals into tangible impact. The entire panel session had focused on connecting the business world with nature. Natural elements, such as water, soil, air and raw materials, are the foundation of all value chains and economic activities. While pursuing profitability, enterprises must prioritise the conservation of natural resources to achieve sustainable benefits. This approach also helps brands maintain their reputation and meet the growing demands from regulators, investors and customers.

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Reflection on Sustainability Transformation Across Industries

Qi Yan

During my summer vacation in France, a small green label "Agriculture Biologique" on products caught my attention. It refers to organic farming, certifying that the product has been produced and packaged with respect to the natural environment and animal comfort. As a consumer, I realised that sustainability in Europe had evolved from a corporate slogan to a consumer expectation, and thus become a selling point. I wondered why such awareness is less prominent in Singapore. Is it a cultural, policy or economic issue? With this question in mind, I signed up for the panel discussion "Scaling Climate Action and Nature-based Solutions: From Intent to Impact" during IMPACT WEEK, hoping to uncover how different industries interpret and operationalise sustainability.

The Agriculture Biologique (organic farming) certification label.

Finance Shaping Sustainability

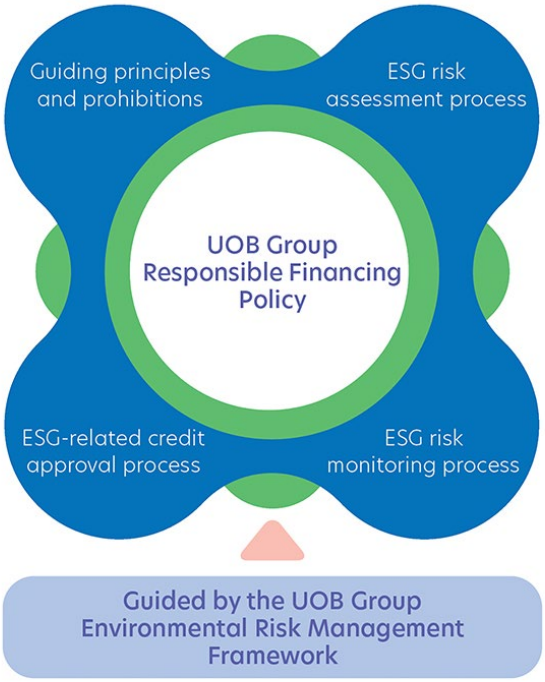
Panellist Ms Melissa Moi, Head of Sustainable Business at the United Overseas Bank (UOB), reframed finance as a catalyst for sustainable transformation rather than a neutral allocator of capital. She opined that "the economy itself should be sustainable", which pushed me to rethink the Economics, Environmental, Social and Governance (EESG) concept. I feel that Economics is not what follows ESG, instead, it shapes ESG. In this interpretation, the pricing, structure and management of capital would have incorporated sustainability considerations from the very beginning, rather than being added as an afterthought.

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

"Scaling Climate Action and Nature-based Solutions: From Intent to Impact" panel discussion.

UOB's Group Responsible Financing Policy illustrates how this operates in practice. It integrates ESG factors directly into lending and investment decisions, prioritising low-carbon projects and requiring credible performance trajectories, (UOB, 2025). This does not reject traditional metrics but extends the definition of what counts as good performance for firms. Hence, we can see that sustainability can help to finance organisations, rather than just helping to boost their reputation.

Yet, I was wondering whether small and medium-sized enterprises (SMEs) have sufficient incentives to shoulder the upfront costs of sustainability, such as staff upskilling, finding greener suppliers and investing in data systems, when thin margins, uncertain returns and complicated reporting criteria hinder motivation. In practice, as



UOB Group Responsible Financing Policy

Source: UOB, n.d.

mentioned by Ms Moi, three forces push in tandem: regulation sets the floor, buyer requirements create short-term commercial consequences (win/lose contracts), and investors consider transition and physical risks. Which factor matters most is context-specific: in export supply chains, buyer pressure typically bites first; in regulated sectors, policy leads; where external finance is pivotal, investor expectations dominate.

Tesla presents a valuable yet singular case study I have examined. At one time, it monetised sustainable development through innovation and regulatory means by selling carbon credits (Kharpal, 2021). This trajectory relied on a specific combination of sector demand and regulatory policies, which are conditions that most SMEs cannot replicate. However, the key lesson from Tesla's experience lies in bridging the financing gap before cash flow significantly improves. For SMEs, this means combining financial tools with sustainability-linked loans. These loans are tied to validating Key Performance Indicators (KPIs), formulating credible transition plans, lowering transaction costs, and supplier-led incentives within the value chain. In doing this, projects become more attractive to lenders.

Thus, banks assume the role of invisible architects of change towards sustainability throughout this process. Their task is to translate long-term resilience into short-term, financeable value through clear standards, stable policies and robust data support for SMEs. Reflecting on this, I now contend that financing is not merely capital allocation but market shaping. It directs funds towards credible projects aligned with transition objectives, thereby enabling sustainability and competitiveness to mutually reinforce each other over time.

Rethinking Sustainability Transformation from Policy to Culture

The views of Mr Gabriel Tan, Chief Executive Officer, GUAVA International, shifted my focus from finance to execution and cultural change. His point on enabling enterprises to embark on sustainability journeys highlighted that transformation failures stem not from a lack of tools, but from insufficient motivation and awareness.

I was wondering which industries are more receptive to sustainable transformation and what challenges they encounter along the way. I observed that companies most willing to pursue such transformations are typically those facing intense pressure from consumers, investors or regulators, alongside those deriving clear operational benefits. This prompted me to reflect on the nature of business transformation: people resist making changes, particularly when its benefits are not immediately apparent and involve uncertainty.

Through Mr Tan's examples from the hospitality industry, I learnt that large hotel chains are the first to adopt sustainable development measures as sustainability leads to reduced energy costs, investor appeal and enhanced reputation, which align with their business incentives. However, the challenges such as upfront costs, data complexity and fragmented supply chains made me realise that sustainability is not a linear process. Mr Tan's metaphor of teams in companies being "like a herd of horses" illustrates that sustainable development requires agility and collective wisdom, rather than rigid top-down control. Furthermore, these challenges contribute to GUAVA's difficulty in onboarding new clients. I began to see that transformation is not just a matter of strategy but a matter of culture.

Thinking about culture has made me reflect on my own context. In Europe, the strong awareness of sustainability is not a recent phenomenon. It has been established through decades of comprehensive policies, education and formation of social values. For instance, the European Union's "Green Deal" enforces comprehensive environmental standards at each stage of the production process (European Commission, n.d.). This approach has cultivated a culture where sustainability is regarded as an inherent responsibility rather than an external obligation. In this case, people prefer sustainable products not only because of regulatory constraints, but also because they reflect social norms.

In contrast, this awareness is still gradually taking shape in Asia. The question that comes to my mind is whether sustainability in Asia will be policy-driven or culture-driven. I realise that policies are a more direct and coercive means. For example, China's anti-involution policy aims to combat destructive price wars and market manipulation behaviour that undermine social equity and resource efficiency (Tay, 2025). This measure promotes healthy competition and thus sustainable economic development. It demonstrates how regulation can act as a bridge, nudging enterprises to take responsible actions before the values of sustainability are fully internalised in cultural norms.

However, even in Europe, which has already developed a mature sustainable consciousness, vigilance remains crucial. Policies such as anti-dumping measures (Singh, 2025), which prevent the import of cheap goods, can combat unfair trade practices and play a key role in maintaining long-term economic sustainability. Moreover, such measures can help prevent the exploitation of labour or environmental policy loopholes. While the European system relies more on institutional frameworks, the Asian system relies more on partnerships and policies. Hence, in addition to promoting ESG, transforming it into relationship value, trust and long-term partnerships, while also navigating policy levers and

cultural dynamics, is crucial in accelerating the achievement of sustainable outcomes.

Sustainability Through Inclusive Transformation

The third speaker, Dr Shailendra Mishra, Global Head of Sustainability (Food, Feed and Freight), Olam Agri, brought the conversation back to the starting point of sustainability: supply chains. He highlighted the circumstances of farmers, often overlooked by consumers. Recognising that one third of the world's food is wasted and approximately 840 million people will face food insecurity, Dr Mishra conveyed that Olam Agri aims to build a more resilient and efficient food system through technology and training programmes that empower smallholder farmers. These initiatives have enhanced food security, improved the living standards of farmers, and bolstered Olam Agri's reputation. However, the firm still faces challenges such as collecting reliable data and ensuring consistent standards across multiple countries. What particularly impressed me was how it combines data-driven efficiency with a people-centred development philosophy.

From Dr Mishra's speech, I realised that sustainability is not only about reducing harm, but also about creating shared resilience. His focus on building local capacity reminded me that top-down sustainability initiatives often fail when they ignore the people who are affected directly. Transformation will be most effective when every participant is considered and motivated as they see a personal stake in the outcome.

Examining UOB's financial innovation, GUAVA's organisational transformation, and Olam Agri's supply chain empowerment, I recognised that sustainability is not restricted to a specific field, but links finance, strategy and motivation. In all cases, the common thread lies in designing systems that make sustainable actions not only feasible but profitable. This has shaped my own view: sustainability should not be seen as an independent pillar of business; it must be the foundation for all economic decisions.

As I envision my future as a banker or consultant, I now understand that ESG will define the competitiveness of firms. Integrating ESG into capital allocation and investment decisions will require not only metrics, but also conviction, a long-term mindset and collaboration. Although I anticipate challenges such as resistance to change, a focus on short-term returns and data or technology gaps that make impact assessment difficult, I also see great potential. As I learnt from the event, systemic change happens when sustainability shifts from "adding a cherry on top" to an essential condition for business success.

That green label I saw in France which made me curious, now symbolises an entire ecosystem of responsibility and innovation. As both a consumer and a future professional, I aim to contribute to this continuity by helping organisations move from intent to impact, and to ensure that sustainability is not merely a label we recognise, but a legacy we build.

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Restoring the Meaning of Business for Impact: Blue Finance

LI Jiaan

Introduction

This report is based on the session "Financing the Blue Shift: From Pledges to Regenerative Capital" at IMPACT WEEK 2025 in Singapore. This report will first explore the background and importance of the ocean economy and point out the shortcomings of past measures in this area. Then it will evaluate the new measures proposed by multiple panellists. Finally, combining academic research and the conference content, this report will summarise the feasibility and limitations of the future trend of blue finance.

"Financing the Blue Shift: From Pledges to Regenerative Capital" panel discussion.

Background

The ocean economy has long been an indispensable component of the global economic system. According to the Organisation for Economic Co-operation and Development (OECD, 2016), the ocean covers 71% of the Earth's surface, providing food security and enabling 90% of global trade transportation through

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shipping. The compound annual growth rate of the value added generated by the ocean-based industries between 2010 and 2030 is estimated at 3.5%. The ocean economy supplied 31 million jobs in 2010, and this number is estimated to grow to 40 million in 2030.

In terms of industrial structure, shipping, fisheries, and marine tourism are three direct pillars of the ocean economy. The global shipping market was valued at approximately US$2.2 trillion in 2021 (Allied Market Research, 2022), serving as the core engine of international trade and logistics. Separately, aquatic animals generated a first-sale value of US$452 billion in 2022, according to the Food and Agriculture Organization of the United Nations (2024). Meanwhile, marine tourism, particularly coral-reef-based tourism, demonstrates immense economic potential. The coral reefs generate US$36 billion annually, including over US$19 billion from on reef activities such as diving and snorkelling, with the remainder from reef-adjacent tourism like coastal hotels and recreation (Spalding et al., 2017).

The Economic and Social Value of Oceans

During the IMPACT WEEK panel discussion, panellist Dr Sarah Kapnick, Managing Director and Global Head of Climate Advisory at J.P. Morgan, explained the change in the ocean economy concept. Historically, it focused primarily on increasing economic value through shipping infrastructure and fishery output, while sustainability was limited to maintaining these industries over time. However, emerging research has revealed that the ocean's value-creation mechanisms are far more complex, extending deeply into ecological and social systems.

Beyond direct economic returns, oceans support global life systems by maintaining ecological health, fostering socio-ecological interactions, and sustaining oxygen, carbon and food cycles. Ocean Panel's report highlighted that healthy marine ecosystems restore fishery resources, enhance coastal economic security, and strengthen socio-ecological resilience against climate change (Stuchtey et al., 2022). Marine biodiversity also contributes to half of global oxygen production. Hence, the ocean economy must be redefined to include the joint maintenance of ecosystem functions and social well-being, rather than merely considering economic growth.

Underfunded Marine Protection

Nevertheless, the global oceans face severe challenges. Climate change, overfishing, plastic pollution and expanding maritime activity are accelerating ecosystem degradation. As maritime infrastructure develops and global trade

intensifies, balancing shipping, energy, and ecological protection has become a critical issue for sustainable ocean development (OECD, 2016).

Despite broad recognition of the ocean's importance, marine protection remains one of the most underfunded sectors in the global financial system. Session moderator Dr Alfredo Giron Nava, Head of Ocean Action Agenda, World Economic Forum, noted that achieving Sustainable Development Goal (SDG) 14 (Life Below Water) requires at least US$175 billion annually, while current investment is only about US$25 billion. This gap reveals a stark contrast between the ocean's economic significance and the insufficient financial commitment to its conservation and governance.

Oceans as Global Commons

From a global governance perspective, the ocean constitutes a typical global common. Its resources are highly open and mobile, no single nation can claim exclusive control, and its degradation produces spillover effects across borders (Ye et al., 2024). As Hardin (1968) argued in The Tragedy of the Commons, when public resources lack clear property rights and regulation, individual rational behaviour leads to collective ecological collapse. The oceans illustrate this dilemma: cumulative impacts of overfishing, pollution, shipping expansion and deep-sea mining are pushing natural systems beyond self-recovery thresholds.

Ocean acidification, plastic pollution, and biodiversity loss have created interlinked global risks that threaten food security, climate stability and coastal economies (OECD, 2016). Thus, the current "free use and over-exploitation" of ocean resources represents a profound negative externality, one that cannot be corrected by any single nation or market mechanism but requires multilateral governance frameworks and institutional constraints.

Historically, global marine governance has relied on the United Nations Convention on the Law of the Sea (International Maritime Organization, n.d.). Yet as sustainability challenges intensified, this framework faced institutional fragmentation and state-interest dominance as states are the ones that develop the detailed rules and standards (Chen et al., 2025). Ye et al. (2024) argue that sustainable ocean governance depends on collaboration among governments, businesses and researchers. At this year's IMPACT WEEK, experts from diverse sectors: policy, technology, finance, and social advocacy, offered a range of innovative approaches to address these systemic shortcomings.

Panel Discussion

The table below lists panellists and related initiatives.

Table 1: Panellists and Projects

Name	Designation	Field	Initiatives Mentioned
Dr Alfredo Giron Nava	Head of Ocean Action Agenda, World Economic Forum	International cooperation	Biodiversity Beyond National Jurisdiction Agreement; World Trade Organization's Fish One Agreement
Mr Chavalit Frederick Tsao	Chairman, TPC (Tsao Pao Chee); organiser of IMPACT WEEK	Industry	Promoting synergy between the blue economy and human-centred sustainable business
Mr Mark Dalio	Founder and Co-Chief Executive Officer, OceanX	Public awareness and engagement	Ocean exploration and media outreach
Mr Ashok Adicéam	Chief Executive of Mission Neptune, Deputy Special Envoy to the French President for the Third United Nations Ocean Conference (UNOC3)	International relations	"Mission Neptune" ocean science programme
Dr Sarah Kapnick	Managing Director, Global Head of Climate Advisory, Commercial & Investment Bank, J.P. Morgan	Research and investments	Science-informed investments
Mr Tharald Nustad	Founder, Katapult	Impact investment	Katapult Ocean accelerator programme

Ms Cherie Nursalim	Vice Chair, Giti Group	Policy & corporate sustainability	G20 Bali Global Blended Finance Alliance; Blue Halo S project

The proposed marine protection initiatives discussed during the conference can be categorised into the broad areas of transnational policy, education and research, finance and environment. Key views are summarised below.

Transnational Policy

At IMPACT WEEK, Dr Alfredo Giron Nava, Head of Ocean Action Agenda, World Economic Forum, announced that the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement had been signed by 66 countries, marking its official entry into force. As an implementing agreement under United Nations Convention on the Law of the Sea (UNCLOS), it aims to ensure the conservation and sustainable use of marine biodiversity in the high seas and seabed beyond national jurisdiction. Its four main pillars are (The Pew Charitable Trusts, 2024):

- Marine Genetic Resources (MGRs) and benefit sharing, promoting equitable access to deep-sea genetic resources.
- Area-Based Management Tools (ABMTs), supporting Marine Protected Areas (MPAs) and ecological monitoring.
- Environmental Impact Assessments (EIAs), requiring nations to conduct scientific evaluations and public disclosure for high-risk high-sea activities.
- Capacity building and transfer of marine technology (CBTMT), encouraging developed nations to provide funding, research and knowledge to developing countries.

The BBNJ's collective ratification represents a shift from resource competition to shared governance, establishing a new global order of cooperation and fairness for ocean sustainability.

Dr Giron-Nava also highlighted the World Trade Organization's (WTO) Agreement on Fisheries Subsidies ("Fish One Agreement"), which bans government subsidies to vessels engaged in illegal fishing, restricts support for overfishing and unregulated high-seas operations (Irschlinger, 2024). With 111 member states ratifying it, this agreement symbolises the transition of blue-economy principles from policy to enforcement. Dr Giron-Nava framed it within a "governance, science, economy" triangle, emphasising the integration of

scientific oversight and economic mechanisms. Mr Chavalit Frederick Tsao, Chairman, TPC (Tsao Pao Chee), expanded on this view, promoting his concept of an "Economy of Abundance", the reconciliation of economy and ecology through institutional coordination.

Besides the above regulations, WTO has a dedicated fund to finance developing countries' fishery monitoring and governance capabilities to ensure equity and sustainability (Irschlinger, 2024).

Although these efforts introduce multilateral cooperation and third-party oversight, they still face challenges. Barirani (2022) noted that BBNJ needs to integrate with other existing policies, while Auld et al. (2024) questioned whether WTO's trade-dispute framework can help in the implementation of the Agreement on Fisheries Subsidies. Nonetheless, they remain pivotal milestones in advancing global marine sustainability.

Education and Research

OceanX, a non-profit ocean exploration initiative founded by Ray Dalio and Mark Dalio, integrates research, media and education to elevate public awareness of marine conservation (OceanX, n.d.). Its flagship vessel, *OceanXplorer*, conducts deep-sea expeditions, environmental DNA (eDNA) sampling, and climate research while producing documentaries. Mr Mark Dalio situates OceanX within the broader framework of "ocean exploration + new economy + decarbonisation + marine finance", arguing that scientific data is essential for governance and capital alignment.

Dr Sarah Kapnick, Managing Director, Global Head of Climate Advisory, Commercial & Investment Bank, J.P. Morgan, likewise emphasised the translation of scientific research into governance.

Still, as Mr Tsao observed, most family-owned enterprises remain only superficially aware of the blue economy, limiting financial flows towards conservation and green innovation. Bridging this gap through education, collaboration and cross-sector dialogue is vital to strengthening the ocean's sustainable finance ecosystem.

Finance and Environment

Panellist Ms Cherie Nursalim, Vice Chair, Giti Group, is also the Co-Chair of the United Nations Sustainable Development Solutions Network Southeast Asia. Appointed Special Advisor on Climate to the Indonesian government in 2021, Ms Nursalim had acted as a bridge-connector in establishing the G20 Bali Global

Blended Finance Alliance (GBFA) in 2022, which aims to accelerate investment in climate action (G20 Bali Global Blended Finance Alliance, n.d.).

One of GBFA's most notable initiatives is Blue Halo S, which represents a self-financing programme for marine conservation (Tri Hita Karana Forum, 2022). With the support of the Indonesian government, Green Climate Fund, Conservation International and Konservasi Indonesia, this initiative was piloted in Sumatra, Indonesia. Activities included the rehabilitation of blue carbon ecosystems and sustainable fisheries management (Conservation International, 2022). During the panel discussion, Ms Nursalim emphasised the importance of integrating blue carbon into financial systems as a key contribution to the sustainability of the blue economy.

Currently, Indonesia targets the effective management of 32.5 million hectares of marine protected areas by 2030, accounting for about 10% of its territorial waters (Coordinating Body on the Seas of East Asia, 2024). The country aims to expand this coverage to 30% by 2045.

The Blue Halo S initiative could contribute to this aim, leveraging data from research institutions, policy support from the government and blended finance from public, philanthropic and private funds. Panellists regarded this project as a model for the future of sustainable ocean development.

Challenges for the Blue Economy

Despite advancements, a significant funding gap persists for sustainable ocean development. Sustainability scholars across sectors have proposed multiple strategies to bridge this gap, ranging from scaling blended-finance instruments and improving credit-rating frameworks for blue projects to establishing standardised verification mechanisms for blue bonds and enhancing cross-regional coordination among public, private and philanthropic investors.

Blue finance has gradually become a key instrument for driving the transformation towards a sustainable ocean economy, with its core value lying in redirecting capital away from destructive, subsidy-dependent, and short-term profit-oriented activities towards environmentally friendly and socially equitable blue industries (Sumaila et al., 2021).

However, at the systemic level, the overall effectiveness of blue finance remains constrained. First, a substantial funding gap persists—the annual budget required for effective management of marine protected areas still falls short by hundreds of millions of dollars (Sumaila et al., 2021). Second, the global blue capital market remains limited in scale; blue bonds account for only a small

fraction of the total sustainable bond market (Shibli, 2024), while robust mechanisms for risk-sharing and returns evaluation are lacking.

To enhance the long-term effectiveness of blue finance, future development should proceed along three main directions. First, reform fiscal and incentive structures by eliminating harmful fishery and fossil-fuel subsidies and introducing "polluter-pays" and ecosystem service payment mechanisms. Second, expand the pool of investable assets and establish global market standards by scaling up blue bonds, blended finance, and insurance instruments. The standards also include developing a harmonised international blue-finance framework, an ongoing effort by the Sustainable Blue Economy Finance Initiative (United Nations Environment Programme – Finance Initiative, n.d.). Third, at the institutional and capacity-building level - particularly in small island and developing states—create transparent and standardised systems for project disclosure and monitoring to attract private capital and strengthen resilience to financial risks.

Overall, blue finance has made a significant leap from concept to practice, yet achieving full systemic governance and global impact will require sustained coordination across policy, market and legal domains.

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Why Not Act Now?

WANG Yanrui

Before attending IMPACT WEEK, I had a simple question in mind: Why do many people still take few actions after hearing the climate facts? The answer I often hear is, "I agree with sustainability, but I don't know how to do it."

The author at the IMPACT WEEK entrance.

So, I chose to attend two sessions in IMPACT WEEK that seem different but echo each other in the theme. Lecture 1 discusses whether technologies that once caused harm can now be used to restore nature. Lecture 2 is more practical, focusing on how organisations, especially small and medium-sized enterprises (SMEs), can transform their "nature-based" intentions into measurable impact. The reason I chose these two lectures is that I wanted both a direction (a long-term vision) and a method (what can be done now).

Tai, S. Y., Loh, L., & Ang, H. M. (Eds.). (2026, February). *Impact reimagined: Voices of the next generation for sustainability* (Vol. 1: Climate and nature). Well-being and EESG Alliance (WEGA), TPC (Tsao Pao Chee), NO.17 Foundation, & Centre for Governance and Sustainability, NUS Business School.

Lecture 1: Can Technology Innovation Heal What It Once Harmed?

The first session was energetic and had a strong human factor. It explored a core question: can technology that once harmed nature now help to heal it? The speakers skipped a technical pitch and instead led a "time-travel" exercise, first going back 150 years and then jumping to the year 2100 to help us think about how technological development, social progress and environmental impact are connected.

For me, the more practical question is: when I imagine 2100 as the year in which the world is in balance with nature, which technologies could make this balance real?

Listening to the speakers, I made some notes. First, although industrialisation and technological progress have greatly improved people's lives (for example, in health and comfort), they have also pushed us away from nature and created pollution.

At the first panel discussion.

Technologies That Heal

The speakers also said that technology can help repair nature only when we use it to cut real harm, in real places, starting now. For example, on construction sites, battery packs can replace diesel generators. The speakers said these packs are about 30% cheaper, much quieter, and reduce local air and noise pollution. In city logistics, fixed-loop electric vehicle (EV) routes (for example, warehouse → supermarket → back) let teams start small, prove reliability, and can be copied to the next district. The speakers also see fusion energy and precision/biomanufacturing as long-term directions, and AI-assisted engineering and design lowering lifetime material and energy use.

To keep technology on the "healing" path, we will need to set clear guardrails: judge proposals by ecological outcomes (cooler microclimates, water saved),

keep costs low enough so that SMEs and cities can actually adopt them, and at the same time align with policy and finance so that banks and buyers reward projects by verified results rather than glossy claims.

The Mindset of Working with Nature

After the lecture, I reflected further. In my opinion, the answer does not lie in a list of magical technologies. It lies in a fundamental shift in thinking. We need to shift from a mindset of "opposing nature" to an ecological mindset of "working with nature". The value of future technologies, such as nuclear fusion, is not only in the technology itself but also in the way it is used. They should be placed in a centralised, circular and fairer system.

For instance, AI should not be used merely to pursue profit; it can also model heat and building loads to cut energy at the right time window and improve comfort. This is already happening in building energy management systems pilots (International Energy Agency, 2019). Meanwhile, new materials should consider repairability, reusability, and recyclability from the very beginning of their design, so that products can return to the cycle (in line with the circular economy) instead of becoming waste (Ellen MacArthur Foundation, 2022).

This lecture also clarified my view of a manager's role. If I am fortunate enough to become a manager in the future, my responsibility will not only be to care about the technical feasibility of a solution, but also to look at the intention and values behind it. Projects worthy of support and investment should be those that can restore ecology and allow more people to benefit, for example, projects that lead to healthier soil and higher farmer income at the same time. Only with solutions like this can we shift from the linear model of "take, create, throw" to a regenerative future where resources circulate and the ecosystem is restored.

Lecture 2: Scaling Climate Action and Nature-based Solutions: From Intent to Impact

The core issue that Lecture 2 aimed to address is how organisations, especially SMEs, can transform and implement nature-based actions from concepts into daily operations. At the same time, impact is measurable, fundable and replicable. The host pointed out that without action, nearly a million species are at risk of extinction. This is not only an environmental issue, but also a real economy risk related to supply chains, raw materials and financing. The speakers believe that SMEs are key because they are closest to land, food and water.

Translate "Nature" into Business Language

The speakers pointed out that natural capital is a component of every value chain. They used vivid examples to illustrate that data centres and factories need water

to cool, buildings rely on air quality and soil to stay stable, and even the materials of the chairs under our feet come from nature. This made me realise that "nature" is not only forests and animals; it is also a fundamental requirement for business operations and daily life.

Communication Methods

Another learning point that impressed me was the strategy for communicating with SMEs. If you start talking about abstract terms like "natural capital", the boss may stop listening. The speakers suggested breaking it down into specific issues that managers already worry about every day, such as water cost, risk of production disruption, and raw material loss. By linking nature-related actions to these indicators that directly affect efficiency and profit, companies can be pushed to act more effectively.

From this point, I also developed some other thoughts. The communication grammar that works for SMEs is the same one that helps prevent greenwashing: fewer adjectives, more evidence. Climate talk can be fluff when we use pleasant words without proof. Trust grows when we say less but more clearly. For example, instead of "this product is green", say "this bottle uses 30% recycled plastic this year". Instead of "we care for nature", say "we planted six trees on the west fence and recorded afternoon temperatures before and after". In short: name the change, name the number, name the date. This aligns with guidance on environmental claims by organisations such as the United Kingdom Competition & Markets Authority (2021).

The Scale of Nature Projects

Furthermore, I now understand why the scaling up of nature projects is different from the scaling of climate projects, and what the essential differences are. Financing for nature projects is more difficult, and large-scale replication is more complex, because the output is more localised and site-specific. Many projects are small and specific, for example, water conservation, regenerative agriculture and recycling, rather than something like a giant solar farm or a complete electric vehicle value chain.

The speakers mentioned that strict rules from top buyers (the "queen bee") can force some change, but may not fully transform the entire value chain, because conditions such as soil, water, infrastructure and labour rhythm are very different in each place.

The correct approach should be:

- Understand the risks within each value chain.

- Understand the agile, flexible and operational solutions that can be adopted at present.
- Define what value and returns this investment will bring (e.g. fewer shutdowns, fewer repair reports, fewer complaints).

Top-down versus Bottom-up

From my research, there are already many finance and policy signals. For example, the Taskforce on Nature-related Financial Disclosures framework is making nature-related dependencies, risks and opportunities visible to finance (Taskforce on Nature-related Financial Disclosures, n.d.). Governments also send policy signals through national biodiversity targets and green building standards that include nature-related criteria.

But this lecture completely changed my perspective on driving large-scale change. I once thought it mainly relied on "top-down" pressure from large companies and governments. After this session, I realised it cannot only depend on top-down action. What is truly effective is bottom-up collaboration: teams adjust while trying, act quickly, and respond to what they see on the ground.

The speakers talked about how, in a fast-paced world, centralised decision-making is often one step behind. The idea is to enable the people closest to the problem to adjust and act quickly instead of waiting for instructions from the central unit. Do not let process waste time. I believe this "swarm" type adaptive system is better at coping with complex and fast-changing ecological challenges than a pure "queen bee" model, although guidance from the top is still necessary.

Conclusion

I walked into IMPACT WEEK with one small, persisting question: Why do facts not lead to action? After these two sessions, I have a plausible answer. People need a story they can see, and a step they can measure. Lecture 1 set the direction: use technology with nature, and judge it by outcomes, not claims. Lecture 2 showed the mechanics: turn "nature" into operations (water, downtime, waste etc) and tie each plan to a location, a change and a follow-up date. When big visions are paired with evidence, budgets follow, and other teams can replicate.

I also want to be honest. Although I cannot fully understand all the lecture details, I learnt and thought a lot. I am very happy, and honestly lucky, that I was able to participate in IMPACT WEEK. It broadened my view and allowed me to hear experts from different industries share their insights.

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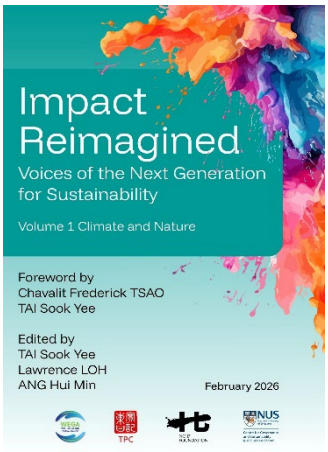

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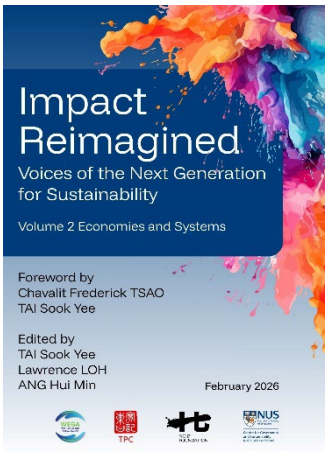

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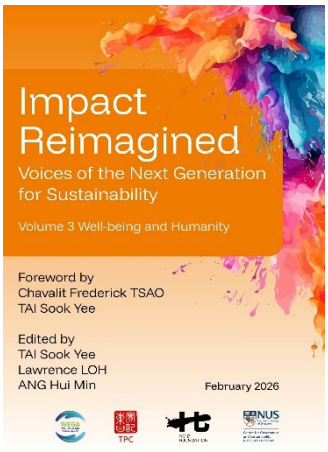

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