Asia-Pacific
Economic Cooperation

APEC Report on Integrating Coastal Blue Carbon Ecosystems into Climate Policies

APEC Ocean and Fisheries Working Group
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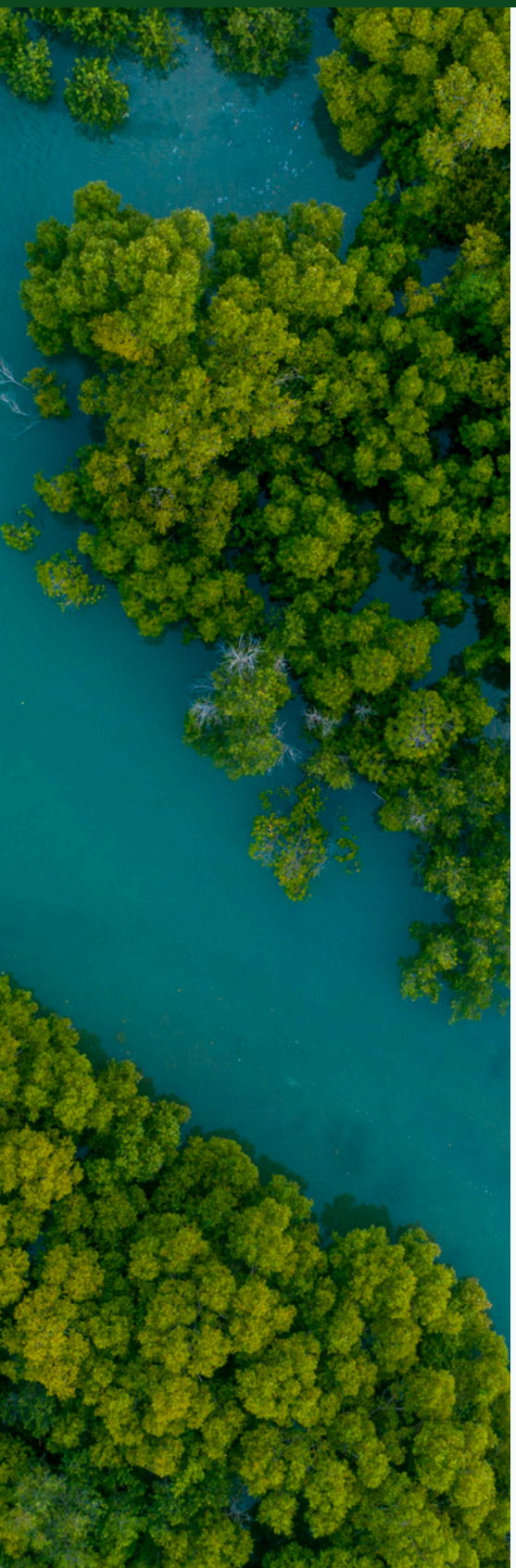
ABBREVIATIONS

ACCU	Australian Carbon Credit Unit
APEC	Asia Pacific Economic Cooperation
CCB	Climate, Community & Biodiversity Standards
ESG	Environmental, Social, Governance
GHG	Greenhouse Gas
IBCI	International Blue Carbon Institute
IoT	Internet of Things
IPCC	Intergovernmental Panel on Climate Change
MRV	Monitoring, Reporting, and Verification
NDC	Nationally Determined Contributions
OFWG	Ocean and Fisheries Working Group
PPP	Public-Private Partnership
SDG	Sustainable Development Goals
UNEP	United Nations Environment Programme
UNESCO	United Nations Education Scientific and Cultural Organization
VCM	Voluntary Carbon Market
VCS	Verified Carbon Standard
WOCAN	Women Organizing for Change in Agriculture and Natural Resource Management

INTRODUCTION



Blue carbon refers to the natural sequestration and storage of atmospheric carbon dioxide by coastal and marine ecosystems; it can refer to both habitats and wild marine organisms. Mangroves, salt marshes, and seagrass beds are well-known coastal blue carbon ecosystems with exceptional capacity for carbon capture and storage. Although they cover only about 2% of the ocean's area, they account for nearly half of the carbon sequestered in ocean sediments.

Blue carbon strategies typically focus on restoring and/or conserving naturally occurring coastal and marine blue carbon ecosystems, which provide multiple co-benefits. In addition to carbon sequestration, these ecosystems can enhance marine biodiversity, critical fisheries, shoreline protection, and water quality. However, progress in integrating blue carbon into economy-level strategies remains limited. A 2019 study by the Center for International Forestry Research found that only three Asia-Pacific economies—among both APEC and non-APEC members—had explicitly referenced blue carbon in their policies and established dedicated agencies. Common challenges include insufficient data, lack of standardized methodologies, overlapping mandates, and constrained institutional and financial capacities.

To address these gaps, the APEC OFWG 206 2024A project, "Capacity Building on Integrating Coastal Blue Carbon Ecosystems into Climate Policies in the APEC Region," aims to strengthen member economies' ability to incorporate coastal blue carbon ecosystems into economy-level policies and strategies. Through **Preliminary Research** and a **Workshop**, the project promotes science-policy integration, inclusive governance, and sustainable blue carbon markets, supporting the Putrajaya Vision 2040, Aotearoa Plan of Action, and Bangkok Goals on the Bio-Circular-Green Economy.

SUMMARY OF THE PRELIMINARY RESEARCH

Governance Pathways for Blue Carbon Ecosystems in APEC

Presentation of the Preliminary Research on the Workshop

Dr. Shan-Ying Lee, Director, Department of International Development, Ocean Affairs Council (Chinese Taipei)

This preliminary study obtains a comprehensive understanding of the development of blue carbon ecosystems among selected APEC economies, including Australia; China; Indonesia; Japan; Republic of Korea; Malaysia; Singapore; Chinese Taipei; Thailand; and Viet Nam.

The report analyzes four interlinked dimensions. First, **the scientific foundations** for carbon measurement and ecosystem service valuation; Second, **the policy and legal integration** of blue carbon into economy-level climate frameworks; Third, **the market-based pricing mechanisms and financing models,** including PPPs and ESG investment; Fourth, **the inclusiveness and gender equality** in policy, research, and community participation.

Based primarily on secondary data, this research identifies key barriers and solutions to enhance blue carbon governance for long-term climate change mitigation. The challenges include the absence of standardized MRV systems, fragmented policies, limited financing access, and low levels of community and gender inclusion.

In response to these challenges, the report outlines strategic solutions such as harmonized MRV development, integration of blue carbon into climate strategy and carbon pricing frameworks, greater support for PPPs and capacity building. It also proposed strategies that empower APEC economies to turn blue carbon into a powerful tool for climate action by emphasizing four pillars: strengthening scientific credibility, enhancing policy coherence, enabling robust carbon markets, and promoting inclusive governance.

BACKGROUND AND MOTIVATION

As the world steps up action to respond to environmental challenges, threats, and impacts, coastal and marine ecosystems have gained attention for their powerful role in capturing and storing carbon. Blue carbon ecosystems—mangroves, seagrasses, and salt marshes—are powerful nature-based solutions that store significant carbon while protecting coastal communities from environmental risks.

Yet, despite their immense potential, these ecosystems remain underrepresented in economy-level resilience strategies, and they are increasingly threatened by human pressure, the changing ocean environment, policy, and market gaps. Many economies still lack standardized MRV systems, coherent legal frameworks, and governance structures to translate ecological potential into policy and market outcomes.

This study aims to bridge these gaps by mapping the current landscape of blue carbon governance, identifying enabling conditions, and outlining strategic pathways that link science, policy, markets, and local communities. To achieve this, the research draws upon comparative case studies from across APEC economies to illustrate how diverse governance models, financing mechanisms, and community-based approaches operate in practice. These case studies were selected to capture variations in institutional maturity, policy integration, and market readiness, offering insights into what drives success and where persistent challenges remain.

SCIENTIFIC FOUNDATIONS OF BLUE CARBON MEASUREMENT

Understanding how blue carbon is measured and verified is the first step toward effective policy integration and market participation. Robust MRV systems provide the scientific basis for credible carbon accounting and cross-economy comparability.

MRV functions like a **health check-up** for blue carbon ecosystems—it verifies that carbon storage is real, sustainable, and properly documented.

COMPARING MRV APPROACHES

Framework	Primary Purpose	Intended Users	Strengths	Limitations
IPCC Guidelines	Provides global consistency for domestic GHG inventories	Government authorities	Universal standard; supports NDCs	Lack of localized guidance, high data needs
Verra (VM0033)	Voluntary market crediting methodology	Policy planners, researchers	Flexible and science-driven	No crediting or carbon market linkage
Gold Standard	High-integrity carbon & SDG certification	Carbon credit project developers	High compatibility with carbon markets	High development and verification costs
Blue Carbon Initiative	Capacity-building and early-stage guidance	Sustainability-oriented project actors	Strong focus on sustainable co-benefits	More procedural demands
Japan's J-Blue Credit	Domestic crediting and local implementation	Japanese municipalities and businesses	Locally grounded, suitable for small projects	Limited international recognition

CURRENT CHALLENGES FOR BLUE CARBON ECOSYSTEMS DEVELOPMENT

Lack of standardized measurement

Blue carbon accounting methods remain inconsistent across economies, limiting data comparability and carbon credit credibility.

Fragmented policy frameworks

Policies related to blue carbon are scattered across environment, fisheries, and climate sectors, resulting in weak coordination and limited integration into NDCs.

Limited market mechanisms

Blue carbon projects are small in scale, costly, and face low liquidity, restricting their participation in carbon trading and finance systems.

Insufficient community and gender inclusion

Women and local communities are often underrepresented in decision-making, leading to inequitable benefit-sharing and weaker long-term sustainability.

POLICY & MARKET FOUNDATIONS FOR BLUE CARBON IN APEC

Policy Integration

Currently, the level of policy integration varies significantly.

Some economies—such as Australia; Japan; and Chinese Taipei—have taken concrete steps by developing crediting mechanisms and methodologies. Australia includes blue carbon under its Emissions Reduction Fund, allowing projects to generate ACCUs. Japan's J-Blue Credit system provides certified methodologies for seagrass and seaweed restoration. In Chinese Taipei, two domestic methodologies for mangrove and seagrass restoration were approved in 2025, laying the groundwork for formal inclusion in the GHG inventory and carbon offset programs.

A number of economies have also referenced blue carbon in their NDCs, but turning these commitments into action requires stronger legal and institutional frameworks. Region-wide, many initiatives remain at early or pilot stages, constrained by the lack of standardized guidelines, clear agency mandates, long-term budgets, and effective cross-ministerial coordination.

Market Mechanism

APEC economies are experimenting with different blue carbon pricing models, but the level of maturity varies widely.

Australia operates a full compliance market through its ACCU scheme, where certified blue carbon projects can generate tradable credits. Meanwhile, private sectors in Singapore; Chinese Taipei; and Thailand focus on voluntary markets driven largely by corporate ESG demand. Japan and Indonesia emphasize alignment with international standards such as Verra and the Gold Standard, aiming to enhance credibility and attract global investors.

Despite this emerging momentum, market mechanisms face several shared barriers. High MRV costs and limited technical capacity make it difficult for small or community-led projects to participate. Many projects also remain too small in scale to meet market thresholds, and inconsistent standards continue to raise concerns over credit quality. As a result, private-sector investment remains cautious.

SOLUTIONS—WHAT APEC COULD CONSIDER

Market mechanisms play a critical role in financing blue carbon projects by translating ecological value into tradable credits. However, several barriers currently limit their effectiveness including low liquidity, uncertain valuation, and limited finance access. To fully unlock the potential of blue carbon, interested APEC economies could consider a more coordinated and coherent governance framework that connects science, policy, and market solutions into one unified system. This research proposed three strategies:

1. To develop standardized MRV systems and data-driven tools that guarantee transparency and credit integrity, and to advance conservation and resilience policies.

2. To provide policy support by fostering cross-economy partnerships, regional learning platforms, and inclusive governance frameworks that engage both the public and private sectors.

3. To move beyond short-term, market-driven incentives and embed blue carbon within broader conservation and resilience policies.

Together, these strategies form a pathway that enables Interested APEC economies to scale blue carbon action in a credible, and resilient way.

COMPARATIVE INSIGHTS: CASE STUDIES ACROSS APEC

This research analyzed four representative cases, and they demonstrated that there is no one-size-fits-all model. Whether community-led, government-backed, corporate-driven, or innovation-based, successful blue carbon projects share common traits: scientific credibility, inclusive participation, and sustainable financing.

01

Japan

In Japan, the city of Yokosuka partnered with ENEOS and academic institutions to restore seaweed forests. By engaging local fishers, the project not only improved water quality and biodiversity but also created new income opportunities through J-Blue Credits.

02

Papua New Guinea

In Papua New Guinea, the “Mangoro Market Meri” initiative is a transformative model shows how empowering women’s leadership can drive both ecological and social transformation. It successfully generated income, influenced legislation, enhanced carbon sequestration and coastal resilience.

03

Chinese Taipei

In Chinese Taipei, ID Water uses AI and IoT technologies for indoor shrimp farming and channels treated wastewater into mangrove restoration, turning aquaculture into blue carbon assets. This business model enhances productivity, supports ecosystem recovery, and contributes to corporate ESG compliance.

04

Viet Nam

In Viet Nam, strong partnerships between the government, international donors, and local communities have enabled the restoration of over 2,800 hectares of mangroves.This case highlights how coordinated action and blended finance can deliver measurable climate and livelihood benefits.

RESEACH CONCLUSION

This research points out four key directions and propose a three-phase roadmap to accelerate blue carbon integration across APEC economies. These recommendations indicate the importance of coordinated regional strategies, standardized methodologies, and inclusive governances that can transform blue carbon ecosystems into a promising regional climate strategy.

Science

Strengthen science on greenhouse gas emissions, ecosystem vulnerability, long-term sustainability and resilience.

Policy

Develop an enabling policy environment for the expansion of blue carbon ecosystems, and incorporate extreme event risks into management strategies.

Conservation

Recognizing the limitations of relying solely on carbon trading, and shift to conservation-oriented policies.

Cooperation

Promote APEC-wide cooperation through harmonized methodologies, shared MRV standards, and inclusive governance.

- **In the short term**, put focus on capacity building — improving MRV accuracy, sharing knowledge, and supporting pilot projects to build technical credibility.
- **In the medium term**, efforts should shift toward policy alignment and institutional development, integrating blue carbon into NDCs, enhancing governance frameworks, and promoting public–private partnerships to mobilize finance and community participation.
- **Over the long term**, APEC should work toward a regionally coordinated framework featuring harmonized methodologies, unified MRV standards, and cross-economy collaboration.

This research has identified several suggestions for improvement in the future and will use the opportunity of the workshop to conduct constructive dialogue and exchanges with APEC economies to ensure blue carbon contributes to net-zero goals and sustainable development.

SUMMARY OF THE WORKSHOP

The Workshop on **Capacity Building on Integrating Coastal Blue Carbon Ecosystems into Climate Policies in the APEC Region** was successfully held on 15-16 October 2025, at Great Skyview, Taipei (Chinese Taipei).

It brought together participants and experts from 12 APEC economies, with a total of 119 on-site attendees. APEC member economies, including Chile; Indonesia; Mexico; the Philippines; Thailand; and Viet Nam, made a combined total of 10 nominations.

The workshop featured three panel discussions. Representatives from the public and private sectors of Australia; Indonesia; Japan; Republic of Korea; New Zealand; Singapore; and Chinese Taipei shared their experiences and engaged participants in in-depth discussions.

Among the 12 invited speakers and experts, seven were women, accounting for 58% of the total. Additionally, **women comprised 56% of all participants,** underscoring the workshop's achievement in promoting gender inclusivity and empowering women in blue carbon and marine sustainability. This outcome contributes to fostering a more diverse, equitable, and resilient ocean community within the APEC region.

On the second day, participants visited the Danshuei River Mangrove Nature Reserve and joined a closed-door roundtable meeting, which facilitated policy dialogue among government agencies, academia, and the private sector.

PANEL 1

Integrating Science and Policy for Blue Carbon Ecosystems

Moderator
Dr. Hsiang-Wen Huang, Former Deputy Minister, Ocean Affairs Council (Chinese Taipei)

This panel examined how blue carbon science can be effectively integrated into climate policy frameworks across APEC economies. It highlighted the carbon sequestration potential of blue carbon ecosystems, their role in climate resilience, and the importance of interdisciplinary research.

Participants discussed current policy gaps, regional cooperation mechanisms, and case studies, identifying key enabling conditions and best practices for mainstreaming blue carbon into domestic and regional climate strategies.

Dr. Kim emphasized that tidal flats, though often overlooked, are vital blue carbon ecosystems. He presented data showing their strong CO_2 absorption and storage capacity, noting that Korea's extensive tidal flats were inscribed as UNESCO World Heritage sites in 2021.

He called for the IPCC to officially recognize tidal flats under its blue-carbon framework and outlined Korea's research proving they meet IPCC's new methodological criteria. Kim urged economies to preserve biodiversity while restoring coastal wetlands and to engage local communities and private sectors in blue-carbon credit projects that balance carbon sequestration with ecological integrity.

Dr. Seungdo Kim, Emeritus Professor, Department of Environmental Sciences and Technology, Hallym University (The Republic of Korea)

Dr. Atsushi Watanabe, Director, Division of Ocean Vision and Action, Ocean Policy Research Institute, The Sasakawa Peace Foundation (Japan)

Dr. Watanabe traced Japan's integration of science and policy in blue-carbon development, highlighting rapid progress since 2020 through the J-Blue Credit system. He explained how Japan established a verified economy-level blue-carbon credit scheme supervised by the Ministry of Land, Infrastructure, Transport and Tourism, supported by third-party certification.

Covering over 60 projects, mostly macroalgae, tidal flats, and mangroves, the program sequesters about 9,000 tons CO_2 annually. He noted Japan's economy-level targets to expand blue-carbon sequestration from 0.35 to 2 million tons by 2040, linking scientific monitoring, community participation, and corporate offset purchases to promote coastal restoration and social well-being.

Dr. Adi presented Indonesia's progress in incorporating seagrass ecosystems into domestic climate strategies. With two decades of experience in coastal remote sensing and marine socioeconomics, he discussed methodologies for mapping and monitoring seagrass health, emphasizing restoration in suitable habitats rather than artificial planting in unsuitable areas.

He showcased Indonesia's inclusion of seagrass in its NDCs and stressed the importance of community-based conservation, combining traditional knowledge with scientific management. Adi underscored that seagrass protection supports carbon sequestration, fisheries, and coastal resilience, illustrating how integrating science into policy can deliver both environmental and socio-economic co-benefits.

Dr. Novi Susetyo Adi, Head of the Center for Socioeconomic Research, Ministry of Marine Affairs and Fisheries (Indonesia)

Q&A Summary

During the Q&A session, participants focused on how to strengthen science–policy linkages and overcome implementation gaps. Questions centered on aligning MRV standards across economies, integrating new ecosystems such as tidal flats and macroalgae into IPCC frameworks, and balancing carbon markets with ecological conservation.

Speakers agreed that scientific credibility and community engagement are key to sustainable blue carbon governance. Dr. Kim explained that tidal flats have complex biogeochemical processes and require standardized field and satellite monitoring to ensure credibility for inclusion in IPCC frameworks. Dr. Watanabe noted Japan's approach of developing a transparent, economy-wide verification mechanism through the J-Blue Credit program, where data are peer-reviewed and publicly accessible. Dr. Adi emphasized the need for capacity building at the community level, stressing that successful restoration depends on social acceptance and livelihood co-benefits rather than technical feasibility alone. The discussion concluded that cross-economy collaboration, sharing data, MRV standards, and best practices, is essential for scaling blue carbon integration across APEC.

PANEL 2

Blue Carbon Markets and Pricing Mechanisms

Moderator
Dr. Wen-Chen Shih, Professor, Department of International Business, National Chengchi University (Chinese Taipei)

This panel explored regulatory frameworks, market structures, and financing mechanisms for blue carbon, with a focus on voluntary carbon markets and international standards such as Verra's VCS. Discussions addressed public–private partnership models, cross-economy investment experiences, and market integrity challenges.

The panel also examined how ESG strategies can drive private sector engagement, align blue carbon investments with SDGs, and enhance both climate impact and corporate value.

Ms. Sinha introduced Verra's VCS as a global benchmark for high-integrity carbon credit certification. She discussed methodologies VM7 and VM33 for restoring tidal wetlands, peatlands, and mangroves, noting current reductions of 42 million tons of CO_2 annually, with future projections over 120 million tons.

Innovations in seagrass and seabed protection were emphasized, along with the importance of credible MRV systems and third-party validation. She showcased Pakistan's large-scale mangrove restoration project as a model that integrates carbon sequestration, biodiversity protection, and community benefits, illustrating the potential of blue carbon for measurable environmental and social co-benefits.

Ms. Komal Sinha, Former Senior Director, Government and Policy Engagement, Verra (India)

Dr. Andreas Hutahaean, Principal Consultant of NEYEN and Co-founder of Blue Carbon Indonesia (Indonesia)

Dr. Hutahaean explored global cooperation and investment in blue carbon, highlighting its ecosystem services like livelihoods and biodiversity. He reviewed initiatives such as the Blue Carbon Partnership and noted around 80 projects covering 22 million hectares, generating 7 million tons of carbon credits.

He also discussed Indonesia's regulatory framework, including Presidential Decree No. 110/2025 on carbon economic value. Successful blue carbon finance hinges on policy coherence, community inclusion, and blended investments to address capacity gaps and support sustainable coastal restoration.

Mr. Laidlaw outlined the evolution of carbon markets from the 1960s to today's VCM, projected to reach USD 800 billion. He shared his foundation's 12-year experience developing community-based mangrove restoration in Myanmar and Malaysia, planting 50 million trees and supporting local "Mangrove Academies." Emphasizing integrity and transparency, he discussed collaboration with Verra and digitalized methodologies (e.g., VM33 + CCB) to ensure credibility and traceability.

Laidlaw stressed that sustainable blue carbon finance depends on innovation, such as insurance mechanisms and blue bonds, to de-risk early investments and attract institutional capital, transforming small-scale projects into scalable, resilient climate solutions.

Mr. Nick Laidlaw, Chief Operating Officer, Worldview International Foundation (Australia)

Q&A Summary

The Q&A session centered on practical challenges in verifying, financing, and expanding blue carbon projects. Questions from delegates focused on how conservation baselines are defined, how biodiversity and social co-benefits are quantified, and how to ensure accountability in seabed protection and mangrove restoration.

Ms. Sinha explained that baseline and MRV frameworks under VM7 and VM33 are third-party verified, and Verra is developing integrated labels to link carbon, biodiversity, and social benefits. Mr. Laidlaw noted that co-benefits, such as livelihoods and gender inclusion, should be backed by scientific data and independent reviews, while innovative tools like insurance mechanisms and blue bonds can help reduce project risk and attract investors. Dr. Hutahaean emphasized that technical success depends on local ecological and governance conditions and that public-private cooperation is crucial to mobilize long-term finance. The discussion concluded that transparency, standardized methods, and community participation are essential for a credible and inclusive blue carbon market.

PANEL 3

Enhancing Inclusive Participation in Blue Carbon Ecosystems

Moderator
Dr. Hsiao-Chun Tseng, Associate Professor, Institute of Marine Environment and Ecology, National Taiwan Ocean University (Chinese Taipei)

The panel addressed inclusive participation in blue carbon governance, focusing on gender equality, community engagement, and capacity building. It emphasized the roles of women and marginalized groups in research and decision-making, highlighting education and skills development for inclusive leadership.

Practical examples showed how inclusive policies and investments enhance social resilience, project effectiveness, and equitable, sustainable blue carbon governance.

Ms. Gilchrist presented the W+ Standard, a certification by WOCAN designed to measure women's empowerment in climate projects. She highlighted that systemic barriers hinder women's access to land rights, financing, and decision-making despite their crucial roles in mangrove management and fisheries.

The W+ Standard evaluates six domains—time, income, health, leadership, education, and food security—and allocates at least 20% of revenue to women's groups. Case studies from Indonesia; Nepal; Papua New Guinea; and Viet Nam demonstrate that empowering women improves project sustainability, community welfare, and ecosystem resilience, underscoring the importance of gender equality in blue carbon governance and climate solutions.

Ms. Marianne (Dutkiewicz) Gilchrist, Core Associate and W+ Expert, WOCAN (New Zealand)

Dr. Pham Thu Thuy, Professor in Public Policy, College of Business, Government and Law, Flinders University (Australia)

Dr. Pham emphasized that advancing inclusive blue carbon governance requires education, institutional reform, and leadership transformation. She presented a knowledge–awareness matrix showing that while scientific understanding of blue carbon ecosystems is strong, social, political, and equity dimensions remain underexplored.

True progress demands shifting from "business as usual" to interdisciplinary and transdisciplinary collaboration linking science, policy, and communities. She highlighted the need for shared governance, cross-sector policy alignment, and evidence-based decision-making grounded in AI, citizen science, and Indigenous knowledge.

Ms. Babuik emphasized IBCI's mission to promote global blue carbon action through science, policy, finance, and community partnerships. She highlighted the neglect of women's roles in coastal resource management, impacting equity and effectiveness. Citing 35 years of research, she found gender considerations often overlooked in coastal and carbon governance.

Using examples from Brazil; Colombia; and Peru, she illustrated how women's leadership in areas like mangrove restoration improves biodiversity and social resilience. She concluded that sustainable blue carbon projects require structural gender inclusion, equitable resource ownership, and better integration of SDG 5 with climate goals.

Ms. Lauren Babuik, Director, Capacity & Partnerships, International Blue Carbon Institute, Conservation International (Singapore)

Q&A Summary

The Q&A centered on how to operationalize gender inclusion and community empowerment in blue carbon initiatives. Participants asked about the verification process and costs of the W+ Standard, the translation of local voices into policy, and how gender integration can strengthen project outcomes.

Ms. Gilchrist clarified that W+ follows a process similar to carbon credit certification, requiring independent third-party verification and associated costs, which can be recovered through project revenue. Dr. Pham emphasized that legal frameworks and political will are vital to ensure women's and Indigenous communities' participation. She noted that without legal recognition and continuous engagement, inclusion efforts remain symbolic. Ms. Babuik elaborated on the Peruvian case, where training local women to conduct fisheries monitoring fostered confidence and long-term leadership. The session concluded that sustainable blue carbon governance must embed gender equity, legal safeguards, and local ownership from project design to implementation.

Group Discussion

Participants are grouped by three main panel topics to foster cross-sectoral dialogue and share diverse insights on blue carbon ecosystems. This interactive exchange aims to generate actionable suggestions and strengthen regional collaboration, focusing on science and policy integration, market mechanisms, and inclusive governance.

Each group will share unique perspectives to inspire innovative solutions and best practices. This collaborative approach enhances understanding and empowers participants to drive change in their fields, promoting sustainability and resilience in blue carbon ecosystems.

Group 1

The group had an in-depth discussion on how scientific research can better support the integration of blue carbon policy.

They emphasized the need for policymakers to conduct cost-benefit analyses to determine the economic and ecological value of blue carbon conservation. Participants agreed that such analyses form the foundation for effective protection and restoration strategies, ensuring that science-based data directly informs decision-making and promotes efficient resource allocation for blue carbon governance.

Group 2

Focusing on science-policy integration, the group stressed the importance of establishing APEC-recognized blue carbon standards or guidelines that reflect both regional coherence and economy-level differences. They suggested APEC could host a knowledge-sharing platform for data, case studies, and methodologies from member economies, such as Mexico's blue carbon experiences and Verra's project examples.

Such a platform would strengthen collaboration, maximize collective learning, and accelerate progress toward a unified regional blue carbon framework.

Group 3

This group examined challenges and opportunities in blue carbon markets and pricing mechanisms.

Emphasized the need for stricter disclosure, transparent MRV, and integrity safeguards to build credibility. They highlighted Chinese Taipei's new mangrove and seagrass methodologies as models of public-private cooperation. Participants also called for enhanced investment frameworks and APEC-level dialogue to manage voluntary market risks and strengthen cross-sector partnerships for sustainable blue carbon development.

Group 4

The group discussed effective models for PPPs in carbon markets. Highlighted that long-term policy stability and a strong commitment from the government are essential for attracting sustainable investment and fostering public trust. It is crucial for governments to offer consistent guidance, while private companies should actively participate as authentic partners in climate finance and ecosystem restoration.

The group found that trust, transparency, and shared benefits are essential for lasting PPPs and promote inclusive, long-term blue carbon collaboration.

Group 5

Highlighting gender and indigenous inclusion, the group shared valuable insights and perspectives from the Philippines.

They stressed that public awareness, regional cooperation (e.g., APEC and Coral Triangle Initiative alliances), and standardized measurement indicators are key to tracking women's participation and empowerment outcomes. By quantifying capacity-building impacts and developing cross-economy comparable metrics, APEC can promote gender-responsive policies and inclusive governance frameworks that amplify women's and indigenous voices in blue carbon ecosystem management.

Group 6

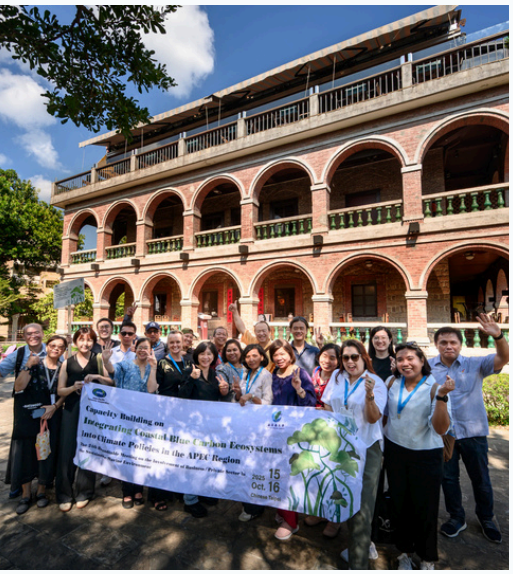
This group discussed strategies to enhance inclusive participation in blue carbon governance. They recommended education reform to encourage women's entry into marine and environmental sectors, alongside bottom-up, community-driven approaches supported by enabling policies. Members agreed that solutions must be holistic and well-coordinated, learning from successful cross-sector models.

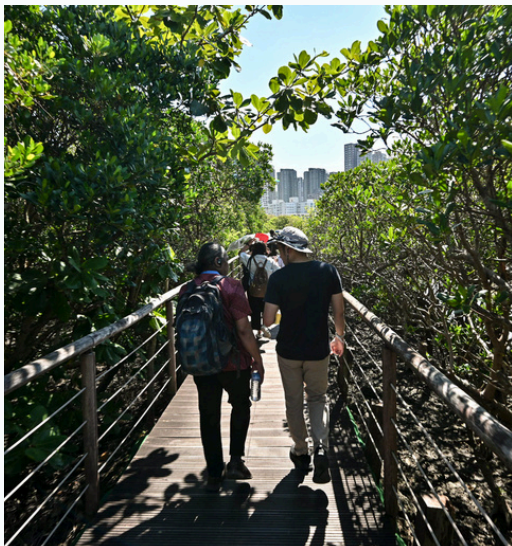
Strengthening the role of civil society and grassroots organizations was seen as essential to ensure long-term inclusivity and equitable participation in blue carbon initiatives.

SUMMARY OF THE FIELD TRIP

Guided Tour—Coastal Blue Carbon Ecosystems

16 October 2025
Chinese Taipei





Danshuei River Mangrove Nature Reserve

Located at the estuary of the Danshuei River in northern Chinese Taipei, is the largest continuous habitat of shuibizai mangroves (Kandelia candel) within the economy. This rare and resilient coastal ecosystem has adapted to tidal flows, fluctuating salinity, and soft mudflats, forming a natural buffer that stabilizes shorelines, reduces erosion, and helps protect communities from storm surges and sea-level rise.

The reserve functions as an important blue carbon sink, capturing and storing atmospheric CO_2 in vegetation and sediments, directly contributing to climate change mitigation and adaptation. It also filters pollutants, improves water quality, and sustains estuarine biodiversity. More than 30 species of crabs, mudskippers, mollusks, and shellfish inhabit the tidal flats, while the reserve serves as a critical habitat for egrets, herons, snipes, and migratory shorebirds.

As one of the most accessible mangrove reserves in Chinese Taipei, the Danshuei River Mangrove Nature Reserve highlights the essential role of coastal blue carbon ecosystems in biodiversity conservation, climate resilience, and inclusive participation. It serves as both a local treasure and a valuable reference case for the APEC region, demonstrating how mangrove conservation can contribute to sustainable development and the integration of blue carbon ecosystems into climate policies.

SUMMARY OF THE ROUNDTABLE MEETING

16 October 2025
Chinese Taipei

The APEC **Roundtable Meeting on the Involvement of the Business/Private Sectors in the Sustainable Marine Environment** aims to strengthen dialogue among APEC economies on marine conservation, sustainable resource use, and the development of the blue economy—highlighting the critical role of business and private sector engagement.

Since 2000, Chinese Taipei has hosted this meeting annually. Now in its 24th edition, the roundtable remains one of APEC's most significant platforms for advancing cooperation on sustainable ocean governance.

This year's roundtable was held as a closed-door, invitation-only session, convening APEC delegates, government officials, and key stakeholders from both the public and private sectors for in-depth discussions.

Participants of the 24th Roundtable Meeting, held in conjunction with the Capacity Building on Integrating Coastal Blue Carbon Ecosystems into Climate Policies in the Asia-Pacific Region, recognize the vital role of traditional coastal blue carbon ecosystems—such as mangroves, seagrasses, and salt marshes—and also emerging ecosystems such as macro-algae, as nature-based climate solutions. These blue carbon ecosystems provide substantial co-benefits for biodiversity conservation. By fostering thriving ecosystems supported by just and inclusive institutions, the SDGs and promoting sustainable blue economy development can be advanced.

Building on the Preliminary Research Report, workshop discussions, and the framework of APEC regional cooperation, **the following policy recommendations are put forward for the consideration of APEC economies**.

Integration of Science and Policy for Blue Carbon Ecosystems

- We encourage APEC economies to strengthen blue carbon science, MRV capacity and funding, with a specific focus on improving and establishing baseline data for blue carbon ecosystems, standardized methodologies, and data-sharing platforms to enhance comparability, transparency, and long-term resilience.

- We recommend incorporating blue carbon into APEC economies' GHG inventories, and mainstreaming blue carbon into NDCs, biodiversity strategies, adaptation plans, and coastal management frameworks at the economy-level, supported by systematic conservation planning and cross-disciplinary research.

- We recommend establishing a related blue carbon platform or sub-working group under the OFWG to institutionally promote policy best practices, share scientific data, and serve as a focal point for regional knowledge exchange, case sharing, and connecting the public/private sectors, local communities, and civil societies with financial institutions.

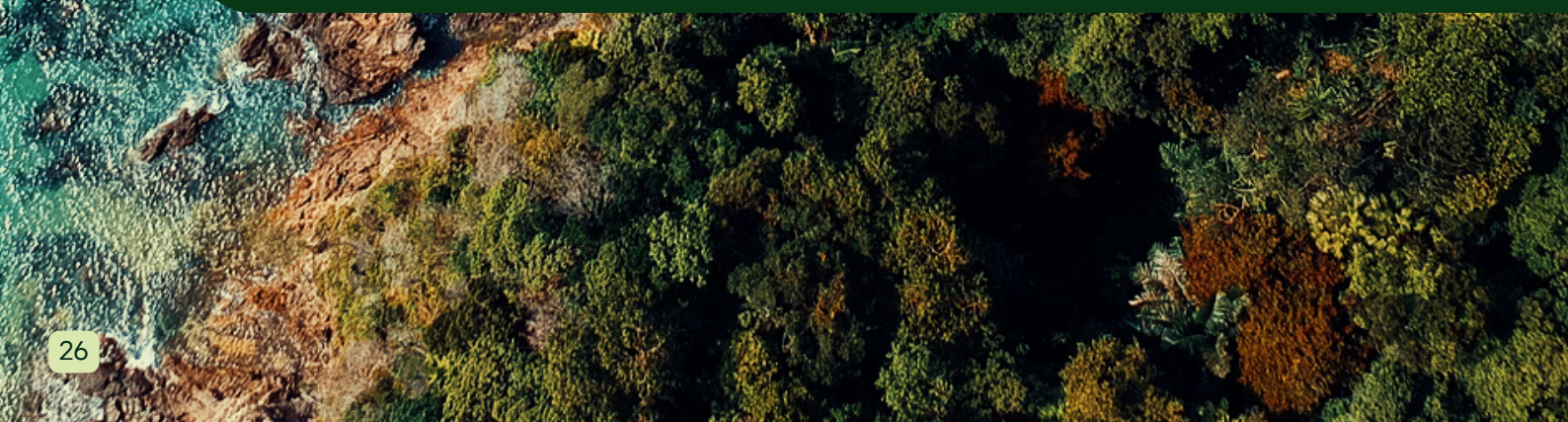
- We recommend exploring the launch of cross-economy Blue Carbon Pilot Projects to test and demonstrate the feasibility of common MRV protocols, emerging blue carbon project methodologies, carbon credits, and benefit-sharing mechanisms under diverse regulatory frameworks.

Blue Carbon Markets and Pricing Mechanisms

- We encourage APEC economies to move beyond carbon-based market-only approaches by promoting sustainable production and development, conservation-oriented policies, acknowledging the limitations of relying solely on carbon trading, and incorporating blue carbon into NDCs, climate legislation, and coastal planning.

- We recommend creating an enabling policy environment for blue carbon ecosystem development, referencing internationally recognized standards, while exploring compliance and voluntary markets to ensure high-quality carbon credits and facilitate cross-economy credit trading. Specifically, addressing the issues of carbon rights ownership and land tenure related to blue carbon projects to ensure social and environmental integrity, and benefits sharing with local communities.

- We encourage the mobilization of finance through public-private partnerships and innovative financial instruments (such as results-based finance, ESG-linked bonds, and blue carbon funds) to support blue carbon restoration and protection.



Enhancing Inclusive Participation and Governance in Blue Carbon Ecosystems

- We encourage inclusive governance that empowers and promotes leadership of women, indigenous peoples, and local communities in project design, implementation, and benefit-sharing, while incorporating co-benefits such as biodiversity, fisheries, livelihoods, and disaster risk reduction. Furthermore, we specifically call on APEC economies to ensure consistency and effectiveness in integrated coastal area management policies.
- We recommend the inclusion of women, indigenous peoples, local communities, scientists, policymakers, and community leaders in governance regulatory frameworks, paying attention to the participation of key minorities, and recognizing their roles as stewards of blue carbon ecosystems.
- We call for the incorporation of indigenous, ancestral, and local communities' knowledge and the institutionalization of consultation processes with indigenous and coastal communities to complement scientific approaches to blue carbon.
- We encourage support for community-based sustainable livelihoods linked to blue carbon ecosystem services, such as eco-tourism, sustainable aquaculture, and traditional fishing, to ensure that conservation efforts promote both resilience and economic empowerment.
- We support strengthening the governance capacity of APEC economies and facilitating the implementation of blue carbon initiatives.

CONCLUSIONS

Coastal blue carbon ecosystems provide multiple co-benefits for coastal areas and communities, including carbon sequestration, biodiversity protection, shoreline protection, tourism and recreation opportunities, and resilient coastal development across the APEC region. Findings from the preliminary research, workshop, and roundtable dialogue reveal that, while momentum is growing, significant scientific, institutional, market, and governance gaps still limit the full integration of blue carbon into economy-level policies and strategies. The following conclusions summarize the most critical insights for advancing coherent regional progress.

Robust scientific baselines and standardized MRV systems are essential for credible blue carbon integration.

APEC economies encounter challenges such as gaps in baseline data, inconsistent methodologies, and differing technical capacities, hindering the integration of blue carbon into economy-level conservation and resilience strategies. Strengthening MRV systems, enhancing long-term monitoring, and expanding technical cooperation are essential for transparency and credibility. Experiences from member economies show that rigorous science improves restoration effectiveness and market readiness.

Fragmented policy frameworks and uneven institutional coordination hinder large-scale implementation.

Fragmented responsibilities and uneven regulatory maturity continue to hinder economy-wide blue carbon strategies. In areas where governance alignment is more robust, projects advance more efficiently and deliver broader co-benefits. Achieving alignment among economy-level agencies, legislation, and community institutions is essential for effective restoration, sustainable livelihoods, and maintaining consistent long-term governance.

Inclusive governance and sustainable finance are key to long-term, community-centered outcomes.

Successful blue carbon initiatives depend on the involvement of local communities, enhancing ecosystem stewardship and social resilience. However, blue carbon markets face challenges like high transaction costs and limited investor confidence. To scale projects beyond pilot phases, expanding PPPs, blended finance, and benefit-sharing mechanisms is essential for maintaining environmental and social integrity.

RECOMMENDATIONS

Building on the Preliminary Research Report, workshop exchanges, group discussions, and the outcomes of the APEC Roundtable Meeting, the following recommendations aim to guide member economies toward coordinated, credible, and inclusive blue carbon development. These recommendations reflect shared priorities across science, policy, markets, and community governance and align with APEC's broader climate and sustainable development commitments.

1

Strengthen Science & MRV Capacity

APEC economies should consider investing in baseline data, harmonized MRV methodologies, and long-term monitoring systems. Interested economies can improve MRV capacity in the region through data exchange, case sharing, and collaborative research.

2

Integrate Blue Carbon into Resilience and Coastal Policies

Blue carbon could be incorporated into conservation and resilience strategies and coastal zone management. Successful strategies could explore cross-sectoral coordination to ensure coherent, multi-dimensional policy planning.

3

Develop Credible and Inclusive Carbon Markets

Interested member economies could consider creating enabling environments referencing international standards, clarifying land tenure, and piloting regional projects to test MRV, methodologies, and benefit-sharing mechanisms.

4

Mobilize Sustainable Finance and PPPs

PPPs, results-based finance, blue bonds, and blended finance could be considered to scale restoration and conservation efforts.

5

Advance Community-Centered Governance

Local communities could be integrated into governance, project design, and benefit-sharing processes. Local ecological knowledge could complement scientific approaches to strengthen resilience.

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