Exchange of Experiences in the Development and Implementation of Fisheries and Aquaculture Traceability Systems to Strengthen Traceability and Combat IUU Fishing

Final Report

APEC Ocean and Fisheries Working Group

May 2025

Asia-Pacific
Economic Cooperation

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I. Executive Summary

A world with robust, coordinated, and standardized traceability systems would see IUU fishing significantly reduced, marine ecosystems thriving, and coastal communities prospering. Sustainable fishing practices would become the norm, ensuring the recovery of fish stocks and the preservation of biodiversity. Transparent supply chains would empower consumers to make informed choices, driving demand for responsibly sourced seafood. Economies would benefit from enhanced market access, avoided sanctions, and a competitive edge in global trade. By harmonizing efforts and sharing technological innovations, APEC economies can collectively transform the fisheries sector, ensuring its long-term economic, social, and environmental sustainability while setting a global standard for responsible resource management.

The implementation of robust traceability systems in fisheries and aquaculture has become a critical priority for APEC economies, driven by global regulatory frameworks, environmental sustainability imperatives, and the need to comply with international trade standards. Across the Asia-Pacific region, economies are intensifying efforts to strengthen compliance systems, guided by Regional Fisheries Management Organizations (RFMOs) and motivated by external enforcement mechanisms, such as yellow card sanctions for non-compliance with international fishing standards. Additionally, international market demands—such as product recall procedures mandated by the United States and environmental compliance requirements from the European Union—have underscored the urgency of advancing traceability systems.

This project aligns closely with the **APEC Roadmap on Combatting Illegal, Unreported, and Unregulated (IUU) Fishing**, which provides a strategic framework for addressing IUU fishing through regional cooperation, capacity-building, and innovation. The Roadmap's action areas—such as the implementation of **Port State Measures (PSM)**, the exchange of information on traceability and monitoring, and the promotion of public-private engagement—resonate strongly with the outcomes of this workshop. Specifically, the workshop's focus on harmonizing standards, fostering enforcement collaboration, and leveraging technology directly supports the Roadmap's objectives. For example:

- **Harmonized Standards**: The emphasis on adopting common traceability standards, such as the **Global Dialogue on Seafood Traceability (GDST)**, aligns with the Roadmap's call for enhanced information sharing and traceability tools.
- **Enforcement Collaboration**: The proposed collaboration between enforcement agencies (e.g., coast guards) and traceability systems supports the Roadmap's focus on strengthening monitoring, control, and surveillance (MCS) mechanisms.

- **Technological Innovation**: The workshop's focus on IT continuity and innovation, including the use of AI and blockchain, contributes to the Roadmap's goal of leveraging advanced technologies to combat IUU fishing.

By referencing the APEC Roadmap, this report highlights the relevance of the workshop outcomes to ongoing OFWG efforts and identifies new areas for collaboration, such as **best practices for IT governance** and **adopting a common measurable goal for traceability systems**. These efforts not only contribute to the implementation of the Roadmap but also suggest new cooperation areas that OFWG may want to explore, such as capacity-building initiatives and regional funding mechanisms.

While industrial fishing fleets have made significant strides due to greater resources and regulatory oversight, artisanal and small-scale fisheries (SSF) continue to face substantial challenges. These fisheries, often operating in remote and fragmented environments, grapple with limited infrastructure, technological gaps, and financial constraints. Expanding traceability to these sectors requires coordinated government action, increased financial investment, and capacity-building to ensure sustainable system maintenance and effective implementation.

Traceability is not merely a regulatory requirement—it is a cornerstone of economic growth, social well-being, and environmental sustainability for APEC economies. Strengthened traceability systems enable responsible resource management, promote equitable participation for small-scale fishers, and enhance food security. Furthermore, effective traceability mechanisms are essential for combating Illegal, Unreported, and Unregulated (IUU) fishing, a pervasive threat to global fisheries, marine biodiversity, and the economic sustainability of coastal communities.

The December 2024 APEC Workshop in Lima, Peru, served as a pivotal platform for member economies to exchange experiences, showcase success stories, and explore collaborative solutions for strengthening traceability and addressing IUU fishing. The workshop emphasized the integration of technology with administrative procedures, real-time monitoring, and coordinated action involving stakeholders such as coast guards, environmental agencies, fisheries managers, and governmental enforcement bodies. It also highlighted the need to align these efforts with the financial realities and operational capacities of APEC economies. Key Contributions and Success Stories:

1. **Chile** demonstrated how to combat IUU fishing while implementing traceability in small-scale fisheries, such as seaweed and razor clam fishing, using mobile phone technology and labeling systems. Chile is developing a verifiable traceability platform that tracks resources in

collaboration with domestic fisheries and local enforcement agencies. This initiative empowers local fishing communities to protect themselves from the damaging market effects of illegal seafood flooding the market and addresses unsustainable practices linked to unmonitored illegal extraction.

2. **China** showcased its advanced application of AI algorithms for detecting IUU fishing activities and expressed a commitment to sharing this technology openly with other APEC economies.
3. **Indonesia** through the special invited expert Farid Maruf, highlighted its groundbreaking success in small-scale fisheries management through data-driven approaches. Their case study provided critical insights into addressing traceability and IUU challenges in regions with large and diverse fishery populations, offering a model for scalable and inclusive solutions.
4. **Mexico** emphasized its openness to learning from other economies' success stories and facilitating the necessary exchanges for technological transfer. With plans to deploy a new domestic traceability system, Mexico is well-positioned to leverage these shared experiences to enhance its own framework.
5. **Peru**, as the host economy, showcased the sophistication of its SITRAPESCA system, which has achieved significant success in industrial fisheries. Peru is now working with various partners to adapt this system for small-scale fisheries, ensuring that the benefits of traceability reach all sectors of its fishing industry.
6. **The Philippines** brought a critical environmental perspective to the discussion, emphasizing the need to customize traceability strategies to incorporate small-scale fisheries. Their contribution highlighted the importance of aligning these programs with broader ecological goals and ensuring inclusivity for marginalized fishing communities.
7. **Thailand** innovated with market-based approaches by demonstrating how traceability can translate into higher market value for small-scale fishery products. Their efforts focus on formalizing partnerships with small-scale fishery stakeholders, creating economic incentives for compliance, and fostering sustainable practices.

These contributions underscored the importance of international cooperation and the need for a harmonized approach to implementing traceability systems across the region. The workshop reinforced the value of aligning traceability frameworks with enforcement measures and fostering partnerships that promote shared learning and mutual capacity-building.

Structure of the Report:

This report provides a comprehensive overview of the project's findings, incorporating survey results, workshop outcomes, and practical recommendations for future action. The document is structured as follows:

1. **Introduction** – Outlines the importance of traceability systems in combating IUU fishing and the objectives of the APEC initiative.
2. **Results of the Virtual Survey** – Summarizes key findings on existing traceability frameworks, challenges, and capacity-building needs among APEC economies.
3. **Results and Conclusions of the Workshop** – Presents outcomes from the December 2024 Workshop, including success stories, shared experiences, and discussions on regional challenges and opportunities.
4. **Recommendations** – Proposes actionable steps for strengthening traceability systems, focusing on harmonizing standards, fostering international cooperation, and enhancing technological innovation.
5. **Follow-Up Actions and Future Directions** – Identifies next steps for ongoing collaboration, including capacity-building initiatives, pilot projects, and frameworks for regional traceability efforts.

Looking Ahead: Strengthening Regional Cooperation

The workshop highlighted the need for APEC economies to deepen collaboration and harmonize traceability standards to effectively combat IUU fishing. By leveraging APEC's collaborative platform, economies can avoid duplicating efforts, build on existing successes, and share technologies and systems that enhance regional fisheries management.

Moving forward, APEC economies must prioritize the development of measurable performance indicators, expand traceability coverage—particularly in small-scale fisheries—and foster technological innovation. Through knowledge-sharing and capacity-building, APEC can continue to drive sustainable development, ensuring the long-term economic, social, and environmental viability of fisheries across the Asia-Pacific region.

II. Introduction: A Vision for a Transformed World

Imagine a world where traceability systems are fully implemented, IUU fishing is significantly reduced, and these efforts are coordinated within economies and standardized across regions. In this world:

- **Marine Ecosystems Thrive**: Sustainable fishing practices are enforced, leading to the recovery of fish stocks and the preservation of marine biodiversity.
- **Coastal Communities Prosper**: Legal and sustainable fisheries provide stable livelihoods for millions of people, reducing poverty and enhancing food security.
- **Markets Are Transparent**: Consumers have access to verified, sustainably sourced seafood, fostering trust and driving demand for responsible products.
- **Economies Benefit**: APEC economies gain a competitive edge in international markets by meeting stringent environmental and trade standards, avoiding sanctions, and attracting environmentally conscious buyers.
- **Global Collaboration Flourishes**: Harmonized traceability standards and shared technologies create a level playing field, enabling economies to learn from one another and collectively address global challenges.

By achieving these outcomes, the APEC initiative can transform the fisheries sector, ensuring its long-term economic, social, and environmental sustainability. This vision underscores the importance of continued collaboration, innovation, and investment in traceability systems as a cornerstone of regional and global efforts to combat IUU fishing.

The implementation of effective traceability systems in fisheries and aquaculture is a complex and multifaceted challenge, particularly given the highly mobile and fragmented nature of marine resources. These systems are essential not only for ensuring compliance with international trade standards but also for promoting environmental sustainability, combating Illegal, Unreported, and Unregulated (IUU) fishing, and supporting the economic and social well-being of coastal communities. However, the diversity of APEC economies—ranging from highly industrialized nations to developing economies with extensive artisanal fisheries—presents unique challenges in designing and deploying traceability systems that are both effective and equitable.

Recognizing these challenges, the APEC initiative has prioritized the exchange of information and best practices among member economies. This exchange is critical for fostering a deeper understanding of how each economy approaches traceability and aligns it with their broader IUU fishing strategies. By mapping these approaches, APEC can identify synergies, gaps, and opportunities for collaboration, creating tangible contributions that benefit all economies. This collaborative effort lays the groundwork for a next stage of regional cooperation,

where proven technological solutions, financial investment strategies, and capacity-building initiatives can be shared and adapted to local contexts.

A key focus of this initiative is the exchange of technological innovations that have been successfully implemented across APEC economies. From artificial intelligence to affordable mobile solutions, these technologies offer scalable and adaptable tools for enhancing traceability. However, the effective deployment and ongoing maintenance of these systems require significant financial investment and government budget allocation. Ensuring sustainable funding mechanisms is essential to avoid system degradation and to support continuous improvement.

Equally important is the need to strengthen local capacity, particularly in remote and isolated regions where artisanal and small-scale fisheries operate. Training programs, resource allocation, and community engagement are critical to ensuring that traceability systems are not only implemented but also effectively maintained and utilized. By empowering local stakeholders, APEC economies can build resilient systems that address the unique challenges of their fisheries while contributing to regional and global sustainability goals.

This report builds on the outcomes of the December 2024 APEC Workshop in Lima, Peru, which provided a vital platform for member economies to share experiences, showcase success stories, and discuss collaborative solutions. The workshop highlighted the importance of integrating technology with administrative procedures, aligning traceability frameworks with enforcement measures, and fostering partnerships that promote shared learning and mutual capacity-building. Moving forward, APEC economies must continue to deepen their collaboration, harmonize standards, and prioritize measurable performance indicators to ensure the long-term viability of fisheries across the Asia-Pacific region.

The Importance of Traceability Systems in Combating IUU Fishing

Illegal, Unreported, and Unregulated (IUU) fishing remains one of the most significant threats to global fisheries, marine biodiversity, and the livelihoods of coastal communities. It undermines sustainable resource management, distorts market competition, and contributes to the overexploitation of fish stocks. Traceability systems are a critical tool in addressing this challenge, providing a mechanism to track seafood from catch to consumer, ensure compliance with regulations, and promote transparency across supply chains. By enabling the verification of product origins and fishing practices, traceability systems help deter IUU fishing, support legal and sustainable fisheries, and enhance consumer confidence in seafood products.

The APEC project recognizes that effective traceability systems are not only essential for regulatory compliance but also for achieving broader economic, social, and environmental objectives. These systems empower economies to

monitor and enforce sustainable fishing practices, protect marine ecosystems, and ensure equitable access to resources for small-scale fishers. Moreover, they facilitate compliance with international trade standards, enabling APEC economies to maintain access to global markets and avoid sanctions such as the European Union's yellow card system.

Objectives of the APEC Project

The APEC project aims to strengthen traceability systems across member economies by fostering collaboration, sharing best practices, and promoting technological innovation. Key objectives include:

1. **Harmonizing Standards**: Developing regional frameworks to align traceability standards and ensure interoperability across economies.
2. **Enhancing Enforcement**: Integrating traceability systems with enforcement mechanisms to improve monitoring, reporting, and compliance.
3. **Promoting Technological Innovation**: Facilitating the exchange of proven technological solutions, such as blockchain, artificial intelligence, and mobile monitoring tools, to enhance traceability capabilities.
4. **Supporting Small-Scale Fisheries**: Addressing the unique challenges faced by artisanal and small-scale fisheries through capacity-building, financial investment, and community-based approaches.
5. **Combating IUU Fishing**: Strengthening regional cooperation to detect, deter, and eliminate IUU fishing activities, thereby protecting marine resources and supporting sustainable development.

A World Without APEC Collaboration: The Challenges of Working in Silos

In the absence of APEC collaboration, fishery managers across the Asia-Pacific region would continue to face significant hurdles in implementing and expanding traceability platforms. These dedicated professionals are true heroes, working tirelessly to combat IUU fishing, promote sustainable practices, and ensure compliance with international standards. However, they often operate in isolation, constrained by limited budgets, fragmented resources, and a lack of access to shared knowledge and technologies. Without a coordinated regional approach, these efforts remain localized, struggling to scale up and achieve meaningful impact.

Working in silos exacerbates these challenges. Fishery managers are forced to reinvent the wheel, developing traceability systems from scratch without the benefit of lessons learned from other economies. This duplication of effort wastes valuable time and resources, slowing progress and leaving critical gaps in enforcement and monitoring. Moreover, the lack of harmonized standards and interoperable systems creates barriers to international trade, as economies struggle to meet the diverse and often stringent requirements of global markets.

Small-scale fisheries, which are already marginalized due to limited infrastructure and financial constraints, bear the brunt of these inefficiencies. Without access to affordable technologies, capacity-building programs, and financial support, these fisheries remain vulnerable to the damaging effects of IUU fishing and unsustainable practices. The result is a fragmented and uneven approach to traceability, where some economies make significant strides while others fall behind, undermining regional efforts to achieve sustainable fisheries management.

The APEC Advantage: Collaboration for Transformation

APEC collaboration offers a powerful alternative to this fragmented approach. By creating a platform for knowledge exchange, technological transfer, and joint design, APEC enables economies to leverage successful experiences and avoid duplicating efforts. Economies with advanced traceability systems, such as Chile's mobile technology solutions or China's AI-driven detection tools, can share their expertise with those just beginning their journey. This exchange not only accelerates progress but also ensures that even the most resource-constrained economies can benefit from cutting-edge innovations and best practices.

For economies starting from scratch, APEC provides a "super boost" head start. Instead of navigating the complexities of traceability implementation alone, these economies can draw on the collective wisdom of the region, adapting proven solutions to their unique contexts. This collaborative approach also fosters the development of harmonized standards, ensuring interoperability across systems and facilitating compliance with international trade requirements.

Moreover, APEC's platform amplifies the voices of fishery managers, highlighting their achievements and advocating for the financial and technical support they need to expand their efforts. By uniting economies around a shared vision, APEC transforms isolated struggles into a collective force for change, driving sustainable development and ensuring the long-term viability of fisheries across the Asia-Pacific region.

III. Methodology

This chapter outlines the methodology used to gather data, facilitate discussions, and develop actionable outcomes for the final report on strengthening fisheries and aquaculture traceability systems and combating Illegal, Unreported, and Unregulated (IUU) fishing. The process involved two key components: a **virtual survey** distributed across APEC economies and a **two-day workshop** held in Lima, Peru. Together, these methodologies provided a comprehensive foundation for the final report.

1. Virtual Survey Methodology

The virtual survey was designed to gather insights into the current status of traceability systems, challenges faced by APEC economies, and innovative approaches being implemented. The survey aimed to provide a baseline understanding of the diverse experiences and needs of member economies, particularly in small-scale and artisanal fisheries.

Survey Design and Distribution:

- **Target Audience:** The survey was distributed to representatives from APEC economies, including government agencies, fisheries managers, enforcement bodies, and private sector stakeholders.
- **Questionnaire Structure:** The survey included both quantitative and qualitative questions, covering topics such as:
    - The percentage of traceable catch in artisanal and industrial fisheries.
    - Existing traceability systems and technologies in use.
    - Challenges in implementing traceability (e.g., cost, technology, training).
    - Strategies for combating IUU fishing.
    - Innovative technologies and future directions.
- **Distribution Channels:** The survey was distributed via email and online platforms, ensuring accessibility for all participants. A secure online form was used to collect responses.

Data Collection and Analysis:

- **Response Rate**: The survey received responses from multiple APEC economies, including Brunei Darussalam; Chile; Indonesia; Papua New Guinea; Peru; and Thailand.
- **Data Analysis:** Responses were analyzed to identify common themes, challenges, and success stories. Quantitative data (e.g., percentages of traceable catch) were summarized, while qualitative responses were coded and categorized to extract key insights.

- **Outcomes:** The survey results provided a snapshot of the current state of traceability systems in APEC economies, highlighting progress, gaps, and opportunities for collaboration.

2. Two-Day Workshop Methodology

The two-day workshop in Lima, Peru, served as a collaborative platform for APEC economies to share experiences, discuss challenges, and develop actionable recommendations. The workshop was structured to encourage active participation, knowledge exchange, and problem-solving.

Workshop Design and Structure:

- **Participants:** The workshop brought together representatives from APEC economies, including government officials, fisheries managers, technology experts, enforcement agencies, and private sector stakeholders. Special invited experts, such as Farid Maruf from Indonesia, provided additional insights.
- **Agenda:** The workshop was divided into two main phases:
    1. **Day 1: Presentations and Knowledge Sharing**
        - Each participating economy presented their approaches to traceability and IUU fishing prevention, showcasing success stories and challenges.
        - Special sessions focused on emerging technologies, such as AI, blockchain, and mobile applications, and their role in enhancing traceability.
    2. **Day 2: Collaborative Discussions and Pillar Development**
        - Participants engaged in group discussions to identify common challenges and opportunities.
        - Using a design thinking approach, participants developed five key pillars to guide future actions.

Design Thinking Approach:

The workshop employed a design thinking methodology to foster creativity, collaboration, and actionable outcomes. The process included the following stages:

1. **Empathize:** Participants shared their experiences and challenges, building a deep understanding of the needs and pain points of different stakeholders.
2. **Define:** Key challenges and opportunities were clearly articulated, leading to a focused problem statement: *How can APEC economies collaborate to strengthen traceability systems, reduce IUU fishing, and ensure sustainable fisheries management?*

3. **Ideate:** Participants brainstormed solutions using the post-it approach (affinity mapping), generating ideas that were grouped into themes.
4. **Prototype:** The five pillars were developed as draft frameworks, with participants adding details and refining the concepts.
5. **Test:** The pillars were validated through group discussions, ensuring they addressed the identified challenges and were feasible to implement.

Outcomes of the Workshop:

The workshop culminated in the development of five key pillars:

1. **Agreeing on Standards:** Harmonizing traceability standards (e.g., GDST) for interoperability.
2. **Verified Traceability:** Integrating small-scale fisheries into traceability frameworks.
3. **Bridging Coast Guard Operations and Traceability:** Enhancing enforcement through real-time data and collaboration.
4. **IT Continuity and Innovation:** Balancing existing IT infrastructure with new technological advancements.
5. **Strategic Communication:** Engaging stakeholders and building trust through effective messaging.

3. Integration of Survey and Workshop Outcomes

The insights from the virtual survey and the workshop were integrated to provide a comprehensive understanding of the challenges and opportunities in strengthening traceability systems. The survey data informed the discussions during the workshop, while the workshop outcomes provided actionable recommendations based on real-world experiences and collaborative problem-solving.

Key Contributions:

- **Survey Insights:** The survey highlighted the progress made by APEC economies in implementing traceability systems, as well as the persistent challenges in small-scale fisheries. These insights guided the focus areas for the workshop discussions.
- **Workshop Outcomes:** The five pillars developed during the workshop provided a clear framework for addressing the challenges identified in the survey. The collaborative approach ensured that the recommendations were practical, inclusive, and aligned with the needs of all stakeholders.

4. Follow-Up and Reporting

Following the workshop, the outcomes were documented and analyzed to produce the final report. The report includes:

- A summary of the survey results and workshop discussions.
- Detailed case studies from economies with successful traceability systems.
- Actionable recommendations for strengthening traceability and combating IUU fishing.

IV. Results of the Virtual Survey

In 2024, a voluntary virtual survey was distributed across APEC economies to gather insights into the current status of traceability systems in artisanal fisheries, the challenges faced in combating IUU fishing, and the innovative approaches being implemented. The survey aimed to provide a comprehensive understanding of the diverse experiences and needs of APEC economies, particularly in small-scale and artisanal fisheries. The responses highlighted both progress and persistent challenges, offering valuable input for the upcoming exchange of experiences and collaborative efforts.

Below is a summary of the key findings from the survey:

1. Overview of Artisanal Fisheries

- **Indonesia** reported that 71.6% of its total fish catch comes from artisanal fisheries, with **the Indonesia's Fish Traceability and Logistics System** in place to ensure electronic traceability across the supply chain.
- **Chile** highlighted that 60% of its total fish catch is from artisanal fisheries, with 100% of the catch being traceable through a comprehensive system that integrates public and private sector efforts.
- **Peru** noted that 30% of its fish catch comes from artisanal fisheries, but only 5-10% of the catch is currently traceable. The economy is developing traceability systems, including apps like **Trazapp**, though coverage remains limited.
- **Thailand** reported that 20% of its fish catch comes from artisanal fisheries, with 16.5% of the catch currently traceable. The economy is working on expanding its **Thai Flagged Catch Certification System (TFCC)** to include artisanal fisheries.
- **Brunei Darussalam** indicated that 65% of its fish catch is from artisanal fisheries, but only 10% is traceable due to challenges in cost, technology, and training.
- **Papua New Guinea (PNG)** stated that artisanal fisheries are underdeveloped, with no traceability systems currently in place for this sector.

2. Traceability Systems

- **Indonesia** has implemented a Fish **Traceability and Logistics System**, which integrates electronic traceability from catching to marketing. However, challenges remain in encouraging middlemen and suppliers to adopt the system.
- **Chile** has achieved 100% traceability in its artisanal fisheries, with a system that tracks fish from origin to export. The economy emphasized the importance of keeping the system open to accommodate new commercial operations.

- **Peru** is developing traceability systems, including apps like **Trazapp**, though coverage is currently limited to specific regions and fishing communities.
- **Thailand** is expanding its **Thai Flagged Catch Certification System (TFCC)** to include artisanal fisheries, with a focus on public awareness campaigns to encourage adoption.
- **Brunei Darussalam** is in the early stages of implementing traceability, with only selective fish catch data compilation currently in place. The economy is exploring the use of **Artificial Intelligence (AI)** to enhance traceability and combat IUU fishing.
- **Chinese Taipei** has developed an **Inshore Fishing Vessel Unloading Declaration System** and a **Chinese Taipei Aquatic Product Production Traceability QR Code**, though only 3.6% of artisanal catch is currently traceable due to challenges in cost, technology, and fishermen's autonomy.

3. Challenges in Implementing Traceability

- **Cost, Technology, and Training** were consistently identified as the primary challenges across economies. For example:
    - **Indonesia** cited technology and training as major barriers, particularly in encouraging middlemen to adopt traceability systems.
    - **Peru** highlighted the need for greater awareness and joint work with artisanal fishing communities to improve traceability.
    - **Thailand** noted that awareness among artisanal fishers is a significant challenge, alongside cost and technology.
    - **Brunei Darussalam** emphasized the need for user-friendly electronic data collection systems and capacity-building efforts.
- **Compliance** was another significant challenge, particularly in ensuring that small-scale fishers and aquaculture producers adhere to traceability requirements.

4. Combating IUU Fishing

- **Indonesia** has implemented **law enforcement and surveillance measures**, including patrol fleets and air surveillance, to combat IUU fishing. The economy has also collaborated with APEC on IUU fishing initiatives.
- **Chile** has strengthened compliance through collaboration between public sector agencies, including the navy, police, and customs. Chile is also a member of the **IUU-Action Alliance**.
- **Peru** has supervisors at key landing points, though coverage is limited. The economy is exploring the use of **Vessel Monitoring Systems (VMS)** for artisanal boats.
- **Thailand** has enforced the **Royal Ordinance on Fisheries 2558 B.E.**, which comprehensively addresses IUU fishing by artisanal vessels.

- **Brunei Darussalam** uses **social media and electronic media** to raise awareness about IUU fishing and has collaborated with regional organizations like **SEAFDEC** and **ASEAN**.

5. Innovative Technologies and Future Directions

- **Indonesia** is implementing a **Fish Traceability and Logistics System (Stelina)**, which will be mandatory this year.
- **Chile** is exploring the use of **AI for species recognition** and has already achieved near 100% electronic transactions in its traceability system.
- **Peru** is considering the use of **VMS applications** for artisanal boats to enhance traceability.
- **Thailand** is developing **image processing techniques** to automate species identification, size estimation, and compliance verification.
- **Brunei Darussalam** is exploring the adoption of **AI technologies** to enhance traceability and combat IUU fishing.

6. Capacity Building and Future Needs

- **Indonesia** has conducted workshops on **Fish Traceability Based on Data Interoperability** in collaboration with global organizations.
- **Chile** has provided training to fishermen and market buyers through workshops, websites, and YouTube channels.
- **Peru** emphasized the need for greater awareness and joint work with artisanal fishing communities to improve traceability.
- **Thailand** has implemented training programs on the awareness, usage, and legal aspects of traceability systems.
- **Brunei Darussalam** expressed a need for **guidelines and support from regional organizations** to enhance traceability and combat IUU fishing.

7. Success Stories

- **Chile** highlighted the positive impact of its traceability system, which has reduced the time between catch and market, improving efficiency and sustainability.
- **Indonesia** is preparing to enforce mandatory traceability regulations this year, which is expected to significantly enhance the sustainability of its artisanal fisheries.
- **Thailand** has promoted artisanal fishery products through the **"Fishermen's Product Distribution to Consumers"** project, establishing **"Fisherman Shops"** across the economy to connect fishermen directly with consumers.

Key Takeaways from the Survey

The survey revealed that while many APEC economies have made significant progress in implementing traceability systems, challenges remain, particularly

in small-scale and artisanal fisheries. **Cost, technology, training, and compliance** are the most common barriers, but innovative solutions such as **AI, blockchain, and mobile technologies** are being explored to overcome these challenges. Collaboration and knowledge-sharing among APEC economies will be critical to addressing these issues and achieving harmonized traceability standards across the region.

V. Results of the Workshop

The December 2024 APEC Workshop in Lima, Peru, was a dynamic and collaborative event that brought together representatives from member economies, experts, and stakeholders to address the challenges and opportunities in implementing traceability systems and combating Illegal, Unreported, and Unregulated (IUU) fishing. Over two days, participants engaged in presentations, discussions, and group activities that culminated in the development of **five key pillars** to guide future actions. These pillars emerged from the collective insights and experiences shared by economies, as well as the innovative approaches highlighted by special workshop guests.

Day 1: Presentations and Knowledge Sharing

The first day of the workshop featured presentations from each participating economy, showcasing their unique approaches to traceability and IUU fishing prevention. These presentations provided a foundation for the collaborative discussions that followed.

1. **Chile: A Model for Comprehensive Traceability**
    - Chile's presentation highlighted its **100% traceability system** for artisanal fisheries, which integrates mobile technology and labeling to track seafood from catch to export. The economy emphasized the importance of **public-private collaboration** and the need for adaptable systems to accommodate evolving commercial operations. Chile's success in reducing IUU fishing through robust enforcement mechanisms and technological innovation set a high standard for other economies.
2. **China: Leveraging AI and Blockchain for IUU Detection**
    - China showcased its use of **AI algorithms** and **blockchain technology** to enhance seafood export verification and combat IUU fishing. The economy's presentation also highlighted its commitment to **technological transfer** and capacity-building initiatives. China's innovative approach demonstrated the potential of advanced technologies in strengthening traceability systems.
3. **Mexico: Building a Blockchain-Based Traceability Framework**
    - Mexico presented its ongoing efforts to develop a **blockchain-based traceability system** for fisheries and aquaculture products. The economy emphasized the importance of **interoperability** with existing systems and the need for standardized data sharing across the supply chain. Mexico's approach highlighted the role of technology in ensuring transparency and compliance with international trade standards.

4. **The Philippines: Empowering Small-Scale Fishers Through E-CDT Systems**
    - The Philippines shared its experience in implementing **Electronic Catch Documentation and Traceability (E-CDT)** systems, particularly for small-scale fisheries. The presentation highlighted the importance of **public-private partnerships** and capacity-building efforts to ensure the successful adoption of traceability systems. The Philippines' focus on empowering local communities and improving market access for small-scale fishers resonated strongly with other economies.
5. **Peru: Expanding Traceability to Small-Scale Fisheries**
    - Peru, as the host economy, presented its efforts to expand traceability systems to small-scale fisheries through initiatives like **Trazapp**, a mobile application for tracking seafood. The economy highlighted the challenges of limited coverage and the need for greater awareness and collaboration with artisanal fishing communities. Peru's presentation underscored the importance of **local engagement** and **technological adaptation** in remote and resource-constrained areas.
6. **Thailand: Strengthening Traceability Through the Fisherman Shops Project**
    - Thailand shared its success story of the **Fisherman Shops Project**, which promotes local fishery products directly to consumers. The initiative has not only improved market access for small-scale fishers but also reduced IUU fishing by creating sustainable market channels. Thailand's presentation highlighted the importance of **economic incentives** and **community-driven solutions** in strengthening traceability systems.
7. **Indonesia: Farid Maruf on Global Best Practices and Emerging Technologies**
    - Farid Maruf, a traceability technology expert from Indonesia, delivered a comprehensive presentation on **global best practices** and **emerging technologies** in seafood traceability. He emphasized the role of **Electronic Catch Documentation and Traceability (E-CDT)** systems in combating IUU fishing and improving fisheries management. Maruf's insights into the use of **AI, blockchain, and data-sharing mechanisms** provided a forward-looking perspective on the future of traceability systems.

Day 2: Collaborative Discussions and Pillar Development

The second day of the workshop focused on collaborative discussions to identify common challenges and opportunities.

A Design Thinking Approach to Developing the Five Pillars

The development of the five pillars during the December 2024 APEC Workshop in Lima, Peru, was guided by a **design thinking approach**, a human-centered methodology for problem-solving and innovation. This approach was instrumental in fostering collaboration, creativity, and actionable outcomes. Design thinking is iterative and non-linear, focusing on understanding user needs, generating ideas, and prototyping solutions. Below is how each stage of the design thinking process was applied to develop the five pillars:

1. Empathize: Understanding the Challenges

- The first step involved **empathizing** with the diverse stakeholders present, including representatives from APEC economies, small-scale fishers, enforcement agencies, and technology experts. Through presentations and open discussions, participants shared their experiences, challenges, and successes in implementing traceability systems and combating IUU fishing. This phase helped build a deep understanding of the unique needs and pain points of each stakeholder group.

2. Define: Framing the Problem

- After gathering insights, the workshop moved to the **define** stage, where the key challenges and opportunities were clearly articulated. Participants identified common themes, such as the need for harmonized standards, the gap between enforcement and traceability, and the challenges faced by small-scale fisheries. These insights were distilled into a clear problem statement: *How can APEC economies collaborate to strengthen traceability systems, reduce IUU fishing, and ensure sustainable fisheries management?*

3. Ideate: Generating Solutions

- The **ideation** phase was marked by creative brainstorming sessions using the **post-it approach** (affinity mapping). Participants wrote down their ideas, solutions, and recommendations on post-it notes, which were then grouped into themes. This process encouraged diverse perspectives and ensured that all voices were heard. The ideation phase led to the identification of five key areas of focus, which later became the **five pillars**:
    1. Agreeing on Standards
    2. Verified Traceability in Small-Scale and Industrial Fisheries
    3. Bridging Coast Guard Operations and Traceability
    4. IT Continuity and Innovation
    5. Strategic Communication

4. Prototype: Building the Pillars

- In the **prototype** stage, participants worked collaboratively to refine the five pillars. Each pillar was treated as a "prototype" or draft framework, with participants adding details, defining key questions, and identifying potential challenges. For example:
    - **Pillar 1 (Standards)**: Participants discussed the need for harmonized standards like GDST and explored how to ensure interoperability across systems.
    - **Pillar 3 (Enforcement and Traceability)**: Groups brainstormed ways to align coast guard operations with traceability systems, focusing on efficiency and budget allocation.
- This phase allowed for rapid iteration and refinement, ensuring that the pillars were practical and actionable.

5. Test: Validating the Pillars

- The final stage, **testing**, involved validating the five pillars through group discussions and feedback. Participants evaluated whether the pillars addressed the key challenges identified earlier and whether they were feasible to implement. For instance:
    - **Pillar 2 (Small-Scale Fisheries)**: Participants tested the pillar by discussing how it could be applied to real-world scenarios, such as improving traceability in remote coastal communities.
    - **Pillar 4 (IT Continuity and Innovation)**: Groups explored how economies could balance maintaining existing IT systems with adopting new technologies.
- This iterative process ensured that the pillars were robust, inclusive, and aligned with the needs of all stakeholders.

Key Features of the Design Thinking Approach

1. **Human-Centered Focus**
    - The process prioritized the needs and experiences of stakeholders, particularly small-scale fishers, enforcement agencies, and technology providers. This ensured that the solutions were practical and impactful.
2. **Collaborative and Inclusive**
    - By using the post-it approach (affinity mapping), the workshop encouraged participation from all attendees, fostering a sense of ownership and shared responsibility.
3. **Iterative and Flexible**
    - The design thinking approach allowed for continuous refinement of the pillars, ensuring they were adaptable to the diverse contexts of APEC economies.
4. **Action-Oriented**

- Each pillar was designed to address specific challenges and included actionable recommendations, such as harmonizing standards, improving enforcement-traceability alignment, and fostering innovation.

Outcome: Recommendations for Innovation and Collaboration

The application of the design thinking approach resulted in the development of **five pillars** that provide a clear framework for strengthening traceability systems and combating IUU fishing across the Asia-Pacific region. These pillars are not only innovative but also grounded in the real-world experiences and needs of APEC economies. By fostering collaboration, creativity, and actionable solutions, the design thinking approach ensured that the workshop outcomes were both impactful and sustainable.

Using this approach participants grouped their findings into five key pillars that will guide future actions:

1. **Pillar 1: Agreeing on Standards**
   - Participants emphasized the need for **harmonized standards** to ensure interoperability across traceability systems. Whether adopting the **Global Dialogue on Seafood Traceability (GDST)** framework or aligning with domestic standards like those in China, economies recognized the importance of a shared approach to measurement and data sharing.
2. **Pillar 2: Verified Traceability in Small-Scale and Industrial Fisheries**
   - Discussions highlighted the need to address traceability challenges in both **industrial-scale operations** and **small-scale fisheries**, particularly in biodiversity hotspots. Participants explored solutions for bycatch reduction, hotspot management, and the development of measurable KPIs to track progress.
3. **Pillar 3: Bridging Coast Guard Operations and Traceability**
   - The role of **enforcement** in combating IUU fishing was a key focus, with participants exploring how to align coast guard operations with traceability systems. Discussions centered on measuring efficiency, allocating budgets, and ensuring interoperability between enforcement and traceability efforts.
4. **Pillar 4: IT Continuity and Innovation**
   - Participants recognized the dual need to **maintain existing IT infrastructure** while fostering **innovation** in traceability technologies. The role of governments in setting frameworks and the private sector in driving innovation was highlighted, along with the importance of collaboration to prevent redundancies and ensure data sovereignty.
5. **Pillar 5: Strategic Communication**

- The final pillar focused on the importance of **strategic communication** to engage stakeholders, secure external commitments, and position traceability efforts as global success stories. Participants emphasized the need to build trust and gain support through effective messaging and outreach.

Key Takeaways from the Workshop

The workshop not only showcased the progress made by APEC economies but also set the stage for future collaboration and knowledge-sharing. The **five pillars** developed during the event provide a clear framework for addressing the challenges of traceability and IUU fishing, while also highlighting opportunities for innovation and regional cooperation. By aligning efforts around these pillars, APEC economies can work together to achieve sustainable fisheries management and ensure the long-term viability of the region's marine resources.

Justification for APEC Representatives to Engage in This Exercise

The active participation of APEC representatives in this exercise was driven by a shared recognition of the urgent need to address challenges in fisheries traceability and combat Illegal, Unreported, and Unregulated (IUU) fishing. The enthusiasm and commitment demonstrated by participants underscored the importance of this collaborative effort. Below are the key motivators and justifications for their engagement:

1. Shared Responsibility for Regional Sustainability

- Fisheries and aquaculture are vital to the economies, food security, and livelihoods of APEC member economies. However, issues like IUU fishing and ineffective traceability systems undermine sustainability efforts. This exercise provided a unique opportunity for representatives to collaboratively address these challenges, leveraging the collective expertise, resources, and commitment of APEC economies. By working together, participants demonstrated their shared responsibility for ensuring the long-term sustainability of the region's marine resources.

2. Alignment with APEC Goals

- The exercise directly aligned with APEC's commitment to promoting sustainable fisheries, fostering innovation, and enhancing regional collaboration. By participating, representatives contributed to advancing APEC's broader goals of economic development, environmental stewardship, and improved trade practices. This alignment reinforced the relevance of the workshop and motivated participants to actively engage in shaping actionable outcomes.

3. Mutual Benefits Across Economies

- Every APEC economy faces unique challenges in fisheries traceability and enforcement. Through this exercise, participants shared their experiences, successes, and lessons learned, creating a platform for mutual learning and collaboration. This exchange of knowledge led to tangible benefits, such as improved technology sharing, better resource allocation, and stronger trade relationships, motivating representatives to fully engage in the process.

4. Building a Framework for Actionable Outcomes

- The exercise was designed to move beyond theoretical discussions and generate concrete recommendations, key performance indicators (KPIs), and pilot initiatives. Participants were motivated by the prospect of creating measurable progress and establishing a collaborative framework for addressing future challenges. This focus on actionable outcomes ensured that the workshop delivered real value to all involved.

5. Strengthening Regional Partnerships

- The exercise fostered trust, collaboration, and long-term relationships among APEC economies. Representatives recognized the opportunity to build alliances that extend beyond the workshop, strengthening regional cooperation in addressing shared challenges. This sense of partnership and camaraderie was a key motivator for active participation.

6. Opportunity to Influence Policy and Innovation

- By actively participating, representatives had the chance to shape the future direction of traceability and enforcement policies within APEC. Their contributions helped define standards, prioritize innovation, and establish frameworks that will guide both government and private sector actions. This opportunity to influence policy and drive innovation was a significant motivator for engagement.

7. Practical Solutions for Local and Global Challenges

- The insights and strategies developed during the exercise are applicable both locally and globally. Representatives were motivated by the prospect of bringing back actionable solutions to their economies while contributing to global efforts in combating IUU fishing and improving traceability. This dual impact reinforced the importance of their participation.

8. Maximizing Impact Through Measurable Goals

- The exercise emphasized the importance of defining measurable goals and KPIs to track progress effectively. Participants were motivated by the opportunity to ensure that every action taken by APEC economies leads

to tangible improvements in traceability and sustainability. This focus on measurable impact was a key driver of engagement.

9. Call to Action

- The exercise served as a call to action for APEC representatives to lead the way in shaping sustainable fisheries practices, not only for their economies but for the entire APEC region. The insights and outcomes from the workshop represent a critical step toward a more sustainable and equitable future for fisheries and aquaculture. This sense of purpose and responsibility motivated participants to fully engage in the process.

Enthusiasm and Commitment: A Foundation for Next Steps

The enthusiasm and commitment demonstrated by APEC representatives during the exercise were evident in their active participation, thoughtful contributions, and collaborative spirit. This engagement was driven by a shared understanding of the importance of addressing traceability and IUU fishing challenges, as well as the potential for collective action to drive meaningful change. The exercise not only strengthened regional partnerships but also laid the groundwork for future collaboration, innovation, and policy development.

By participating in this exercise, APEC representatives took a critical step toward ensuring the sustainability of the region's fisheries and aquaculture. Their contributions will serve as a foundation for next steps, including the implementation of pilot projects, the development of harmonized standards, and the establishment of measurable KPIs. Together, they are shaping a future where sustainable fisheries management is a shared reality across the Asia-Pacific region.

VI. General Results and Conclusions

The December 2024 APEC Workshop in Lima, Peru, culminated in a series of actionable insights and outcomes across five key pillars, setting the stage for collaborative efforts to strengthen traceability systems and combat Illegal, Unreported, and Unregulated (IUU) fishing. The workshop not only highlighted the challenges faced by APEC economies but also provided a clear framework for addressing these issues through innovation, collaboration, and strategic planning. Below is a summary of the results and conclusions drawn from the discussions:

1. Standards and Harmonization

- **Insights**: Participants emphasized the critical role of harmonized standards, such as the **Global Dialogue on Seafood Traceability (GDST)**, in achieving interoperability among economies. The need to

align with regional standards, including those in China, was identified as a pathway to bridge gaps between exporters and importers.
- **Actionable Outcomes**: APEC economies agreed to initiate discussions on adopting a **common standard** for traceability systems, starting with pilot projects in export-heavy economies. This approach will ensure that all economies can work toward a unified standard, facilitating smoother trade and compliance.

2. Verified Traceability
- **Insights**: The integration of small-scale fisheries into traceability frameworks emerged as both a challenge and an opportunity. While large-scale industries have made significant progress, small-scale operations remain hotspots for IUU fishing due to limited resources and infrastructure.
- **Actionable Outcomes**: Facilitated by **Farid Maruf**, participants identified critical **Key Performance Indicators (KPIs)** for monitoring traceability, including volume reporting, cost reduction mechanisms, and the use of **AI** to enhance compliance tracking. These KPIs will serve as benchmarks for improving traceability in small-scale fisheries.

3. Coast Guard Collaboration and Budgeting
- **Insights**: Participants explored the potential for enhanced collaboration between enforcement agencies, such as coast guards, and local fishing communities. Leveraging real-time data platforms for better monitoring and enforcement was highlighted as a key strategy.
- **Actionable Outcomes**: A **working group** was proposed to assess the cost-efficiency of existing enforcement mechanisms, with a focus on developing funding strategies for technology upgrades. This initiative aims to strengthen the link between enforcement and traceability efforts.

4. Continuity and Innovation in IT Systems
- **Insights**: While innovation in IT is essential, ensuring system continuity through robust infrastructure was deemed equally important. **New Zealand's API-driven strategy** was cited as a model for private sector integration and scalability.
- **Actionable Outcomes**: APEC economies agreed to establish **best practices for IT governance**, focusing on open-source platforms to reduce costs and enhance collaboration. This approach will ensure that IT systems remain adaptable and sustainable over the long term.

5. Effective Communication
- **Insights**: Engaging NGOs, civil society, and industry stakeholders in the traceability conversation is vital for building trust and ensuring compliance. Effective communication was identified as a cornerstone for the success of traceability initiatives.

- **Actionable Outcomes**: Economies proposed **regional communication campaigns** to highlight the benefits of traceability for both environmental sustainability and economic growth. These campaigns will aim to raise awareness and foster stakeholder buy-in.

Short-Term Goals

- **Pilot Projects**: Launch collaborative pilot projects focusing on integrating small-scale fisheries into existing traceability systems. These projects will serve as test cases for scaling up successful approaches.
- **Workshops**: Conduct regional workshops to disseminate knowledge on aligning with **GDST standards** and other harmonized frameworks. These workshops will build capacity and foster collaboration among APEC economies.

Medium-Term Goals

- **Technology Sharing**: Create a **shared repository for IT solutions**, enabling economies to adopt and adapt successful tools. This initiative will reduce duplication of efforts and promote innovation.
- **Enforcement Funding**: Develop **regional funding mechanisms** to support Coast Guard collaborations with fishing communities. These mechanisms will ensure that enforcement agencies have the resources needed to combat IUU fishing effectively.

Long-Term Goals

- **Integrated Platforms**: Establish a **region-wide, interoperable traceability platform** that includes both industrial and small-scale fisheries. This platform will facilitate seamless data sharing and compliance across APEC economies.
- **Stakeholder Engagement**: Foster partnerships with NGOs, international organizations, and private sector stakeholders to amplify the impact of traceability systems. These partnerships will ensure that traceability efforts are inclusive and sustainable.

Conclusion

The December 2024 APEC Workshop marked a significant step forward in the collective effort to strengthen traceability systems and combat IUU fishing across the Asia-Pacific region. By focusing on **standards harmonization, verified traceability, enforcement collaboration, IT continuity, and effective communication**, participants developed a comprehensive framework for action. The workshop's outcomes reflect a shared commitment to sustainability, innovation, and regional cooperation.

The **short-term, medium-term, and long-term goals** outlined during the workshop provide a clear framework for achieving measurable progress. By launching pilot projects, sharing technology, and fostering stakeholder engagement, APEC economies are well-positioned to address the challenges of traceability and IUU fishing. These efforts will not only enhance the sustainability of fisheries but also strengthen economic growth, food security, and environmental stewardship across the region.

As APEC economies move forward, the insights and outcomes from this workshop will serve as a foundation for continued collaboration and innovation. Together, participants have taken a critical step toward ensuring a sustainable and equitable future for fisheries and aquaculture in the Asia-Pacific region.

VIII. Follow-Up Actions and Future Directions

The December 2024 APEC Workshop in Lima, Peru, laid the groundwork for a collaborative and scalable approach to strengthening traceability systems and combating Illegal, Unreported, and Unregulated (IUU) fishing across the Asia-Pacific region. To build on the momentum generated during the workshop, the following **follow-up actions and future directions** are recommended. These steps aim to create a **scaling effect**, ensuring that the efforts of individual economies are amplified through regional collaboration and shared success stories.

APEC's Role in Scaling Impact

APEC has a pivotal role to play in creating the enabling conditions for scaling the impact of traceability and IUU fishing initiatives. By leveraging its unique position as a regional forum, APEC can:

1. **Help Moderate the Process**
    - APEC can act as a neutral facilitator, guiding economies through the implementation of harmonized standards and collaborative projects. This includes providing technical support, coordinating working groups, and ensuring that all voices are heard.
2. **Create Enabling Conditions with Workshops and Cross-Pollination**
    - APEC should organize regional workshops to disseminate knowledge, share best practices, and foster cross-pollination of ideas among economies. These workshops will help build capacity and ensure that successful approaches are replicated across the region.
3. **Facilitate Communication Among Economies**
    - APEC can establish communication channels to ensure continuous dialogue among economies. This includes creating platforms for sharing updates, challenges, and successes, as well as facilitating peer-to-peer learning.
4. **Identify Critical Players to Replicate Impact**
    - APEC should identify key economies and stakeholders that can serve as baseline models for replication. By highlighting success stories and scaling proven approaches, APEC can create a ripple effect across the region.
5. **Use a Pilot Methodology to Test and Scale Solutions**
    - APEC should promote a pilot-based approach, where economies test innovative solutions on a small scale before scaling them up. This methodology reduces risk and ensures that solutions are practical and effective.

Minimum Starting Point for Collaboration

The **minimum starting point for collaboration** should be the **standardization of traceability systems** and a unified approach to combating IUU fishing. By aligning on common standards and frameworks, APEC economies can create a **win-win scenario** that benefits everyone, especially the region. This alignment will not only enhance regional cooperation but also position APEC as a global leader in sustainable fisheries management, with success stories that can be promoted worldwide.

Two Examples of Collaboration Opportunities from the Workshop

The workshop methodology fostered a spirit of collaboration, creating opportunities for economies to work together and share resources. Two standout examples emerged:

1. **Mexico and Chile: Sharing Platforms to Avoid Reinvention**
    - **Opportunity**: Chile offered its **traceability platform** to Mexico, allowing Mexico to build on an existing system rather than starting from scratch. This collaboration demonstrates how economies can leverage each other's strengths to accelerate progress.
    - **Next Steps**: APEC can facilitate this partnership by providing technical support and ensuring that the platform is adapted to Mexico's specific needs. This collaboration can serve as a model for other economies looking to adopt or adapt existing systems.
2. **China and Peru: Technological Transfer and Grant Resources**
    - **Opportunity**: China proposed **technological transfer** to Peru, offering advanced tools and resources to enhance traceability in small-scale fisheries.
    - **Next Steps**: APEC can help formalize this partnership by organizing workshops to facilitate knowledge transfer and ensuring that the funding is allocated effectively. This initiative can serve as a blueprint for other economies seeking to combine technological innovation with financial support.

Potential Outcomes and Success Stories

By implementing these follow-up actions, APEC can create **success stories** that demonstrate the power of regional collaboration. These stories can be showcased at future APEC events, highlighting the tangible benefits of harmonized standards, shared resources, and innovative solutions. For example:

- **Success Story 1: Mexico and Chile's Shared Platform**

    - This collaboration can be promoted as a model for **cost-effective and efficient traceability implementation**, showing how economies can work together to avoid duplication of efforts.
- **Success Story 2: China and Peru's Technological Transfer**
    - This partnership can be highlighted as an example of **innovative resource sharing**, demonstrating how technological transfer and financial support can enhance both traceability and enforcement capabilities.

Call to Action

The success of these initiatives depends on the active participation and commitment of some APEC economies. By working together, economies can create a **scaling effect** that amplifies the impact of individual efforts. APEC's role in moderating the process, creating enabling conditions, and facilitating communication will be critical to achieving this goal.

The time to act is now. By standardizing traceability systems, fostering collaboration, and leveraging innovative solutions, APEC economies can ensure the sustainability of their fisheries, protect marine biodiversity, and secure the livelihoods of millions of people across the region. Together, they can turn these efforts into **global success stories**, positioning APEC as a leader in sustainable fisheries management.