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Private Sector Landscape Assessment

USAID Sustainable Fish Asia, Local Capacity Development

January 31, 2022

USAID Sustainable Fish Asia (SUFIA) Local Capacity Development (LCD) Activity

Private Sector Landscape Assessment Report
Fiscal Year 2021:
January 31, 2022

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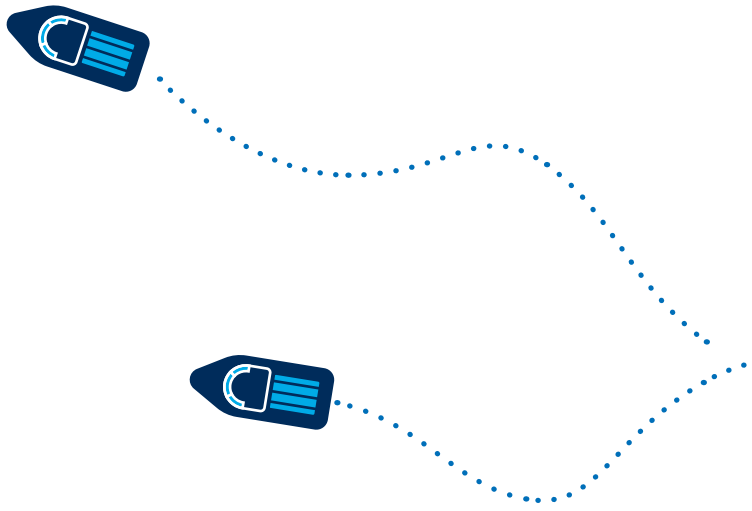
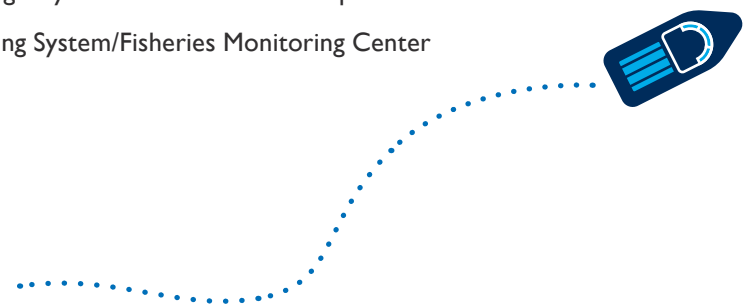


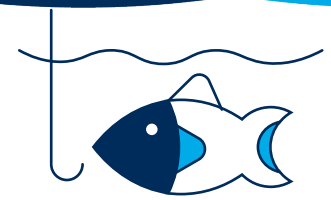
Acronyms

AI	Artificial Intelligence
APFIC	Asia-Pacific Fishery Commission
ASEAN	Association of Southeast Asian Nations
ASIC	Asian Seafood Improvement Collaborative
CDT	Catch Data and Traceability
COVID-19	Coronavirus Disease 2019
CSO	Civil Society Organization
CT	Coral Triangle
CTF	Conservation Trust Fund
CTI-CFF	Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security
EAFM	Ecosystem Approach to Fisheries Management
EEZ	Exclusive Economic Zone
EU	European Union
e-CDT	Electronic Catch Documentation and Traceability
FAO	Food and Agriculture Organization of the United Nations
FIP	Fishery Improvement Project
GDST	Global Dialogue on Seafood Traceability
GESI	Gender Equality and Social Inclusion
GSSI	Global Sustainable Seafood Initiative
GTA	Global Tuna Alliance
ISSF	International Seafood Sustainability Foundation
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPOA-IUU	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
IUU	Illegal, Unreported, and Unregulated Fishing
Lao PDR	Lao People's Democratic Republic
LCD	Local Capacity Development
LGBTQ	Lesbian, Gay, Bisexual, Transgender, and/or Queer or Questioning
MCTF	Marine Conservation Trust Fund
MSC	Marine Stewardship Council
MPA	Marine Protected Area
NFAT	National Fisheries Association of Thailand
NGO	Non-governmental Organization

Acronyms *(continued)*

NRM	Natural Resource Management
NWP	Nature, Wealth, Power
PNG	Papua New Guinea
PPP	Public-Private Partnership
PSE	Private Sector Engagement
PSLA	Private Sector Landscape Assessment
PSMA	Port State Measures Agreement
RDMA	Regional Development Mission for Asia
RFMO	Regional Fisheries Management Organization
RFMO RAVs	Regional Fishing Management Organizations Records of Authorized Vessels
RPOA-IUU	Regional Plan of Action to Promote Responsible Fishing Practice including Combating IUU Fishing and its Coordination Committee Meetings
RTI	Research Triangle Institute
RISE	Roadmap for Implementing Seafood Ethics
SALT	Seafood Alliance for Legality & Traceability
SeaBOS	Seafood Business for Ocean Stewardship
STF	Seafood Task Force
SEAFDEC	Southeast Asian Fisheries Development Center
SME	Small and Medium Enterprise
SOW	Scope of Work
SSF	Small-Scale Fisheries
SUFIA	Sustainable Fish Asia Local Capacity Development Activity
TIP	Trafficking in Persons
TVPA	Trafficking Victims Protection Act
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UN SDGs	United Nations Sustainable Development Goals
USAID	United States Agency for International Development
VMS/FMC	Vessel Monitoring System/Fisheries Monitoring Center





Executive Summary

The Sustainable Fish Asia (SUFIA) Local Capacity Development (LCD) activity is a two-year project (September 2020–August 2022) funded by the United States Agency for International Development (USAID) Regional Development Mission for Asia (RDMA) and implemented by Research Triangle Institute (RTI) International. The goal of SUFIA LCD is to mitigate threats to biodiversity from unsustainable and illegal, unreported, and unregulated (IUU) fishing in the Southeast Asia and Pacific regions.

To address the challenges of IUU fishing practices in the project's regions, SUFIA LCD aims to enhance the capabilities of two leading regional intergovernmental fisheries organizations: the Southeast Asian Fisheries Development Center (SEAFDEC) and the Coral Triangle Initiative on Coral Reefs Fisheries (CTI-CFF). SUFIA LCD will help these leading fisheries organizations meet international compliance and performance standards as well as expand their resource base for long-term viability.

This **Private Sector Landscape Assessment (PSLA)** is the culmination of a nine-month, region-wide research effort with the primary objective to develop approaches and actual opportunities for SEAFDEC and CTI-CFF to engage fisheries businesses in voluntary compliance and promoting sustainable fishing practices in the Asia region. The research findings and recommendations put forward in this PSLA have three primary audiences and corresponding objectives:

- SEAFDEC and CTI-CFF: to identify potential private sector engagement (PSE) opportunities for these two regional intergovernmental fisheries organizations to better meet their compliance, viability, and programmatic targets
- Regional Fisheries Stakeholders: to document key findings and lessons for identifying, designing, and executing partnerships with the private sector for sustainable fisheries management and practices in the region
- USAID/RDMA: to provide PSE approaches, ideas, and recommendations for future fishery support programs in the region. This activity also aligns to USAID's climate strategy and will contribute to the mobilization of $150 billion in public and private finance for climate action by 2030.

The **methodology** behind the PSLA consisted of four key activities:

1. **Stakeholder consultations:** Consulted USAID, CTI-CFF, and SEAFDEC to develop the scope and corresponding inception paper by October 2020. During research and writing—SUFIA LCD exchanged emails, called, and held virtual meetings with public, civil society, and private sector stakeholders.
2. **Desk research:** Identified, understand, and pulled key information that informed this report from numerous sources including United Nations (UN) Food and Agriculture Organization (FAO) and other multilateral organization reports, research and instructional materials from other donor projects, industry and market analysis, and partner reports, among others.
3. **Individual and organizational survey:** Created, distributed, and received 172 responses from 26 countries to a skip logic survey. Respondents were approximately one-third private sector, one-third government, and one-third civil society, academia, and the international donor community.
4. **Private sector partnership opportunity development:** Shared research with SEAFDEC and CTI-CFF and help them co-developed six separate concept papers for private sector partnerships. SUFIA LCD will be working with both partners to develop these six concept notes into formal partnerships and to-date, three of the six opportunities are in-process with various companies.

To better understand the fishery industry landscape and the nexus of fishery collaboration, oversight, and decision-making, the PSLA team **conducted a high-level mapping of key global and regional industry led or multistakeholder initiatives**. The initiatives are the Asian Seafood Improvement Collaborative (ASIC), Conservation Alliance for Seafood Solutions, FishChoice, Global Dialogue on Seafood Traceability (GDST), Global Sustainable Seafood Initiative (GSSI), Global Tuna Alliance (GTA), High Level Panel for Sustainable Ocean Economy (The Ocean Panel), International Seafood Sustainability Foundation (ISSF), Monterey Bay Aquarium Seafood Watch, Roadmap for Implementing Seafood Ethics (RISE), Seafood Alliance for Transparency and Accountability (SALT), Seafood Business for Ocean Stewardship (SeaBOS), Seafood Stewardship Index (World Benchmarking Alliance), Seafood Task Force, and Ship to Shore Rights Initiative South East Asia.

The team also developed and administered an online **PSLA stakeholder survey**, which identified areas of interest for collaboration within business, government, and civil society stakeholders. The PSLA team asked about experience, expectations, and motivation for collaboration. The survey received 172 responses from 26 countries, including all CTI-CFF and SEAFDEC member countries (Section 4 details the results). Using information gleaned from the surveys coupled with stated priorities (ecosystem approach to fisheries management and better data access) of our partners, SUFIA LCD facilitated a consultative process with companies, SEAFDEC, and CTI-CFF to co-develop the six **concept notes for private sector partnership opportunities**. These activities focus on:

- To support Baan Nai Nang fishing community in Krabi Province in its implementation of ecosystem approach to fisheries management (EAFM) by providing support to key infrastructure (e.g., catch-data record, solar cells for the crab bank, food processing facilities for their social enterprise, and a fish landing bridge) and serve as a model for replication in Krabi Province and potentially in other parts of Thailand.
- A comparative study to reduce the negative impacts of trawling vessels by examining how to improve efficiency and energy-saving ability and reduce the negative impact to the seabed by examining the gear design, e.g., the otter board.
- An upgrade to CTI-CFF's CT Atlas database to integrate in GIS and spatial data and to monitor the implementation and progress of the CTI-CFF Regional Plan of Action (RPOA) 1.0 and 2.0 by member countries and partners.
- A SEAFDEC pilot to establish a mangrove crab bank for a small fishing community in Thailand that focuses on biodiversity protection, marine conservation, supporting livelihoods (indirectly reducing IUU fishing), and promoting sustainable fishing practices to small-scale fishing communities.
- A stock assessment to determine the status of the sandfish and sea cucumber has not yet been conducted, and thus, it is difficult to determine whether this species is endangered from overfishing.
- SEAFDEC pilot to develop an automated electronic catch documentation and traceability (e-CDT) software using Artificial Intelligence to improve data accuracy, transparency, and reduce IUU fishing.

Based on the PSLA desk research, consultations, surveys, and PSE opportunity identification - the team identified several key findings related to private sector involvement in promoting sustainable fishing. The **findings** are shown in Exhibit 1:

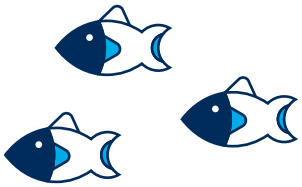


Exhibit 1: Key Findings for Engaging Private Sector in Sustainable Fishing

Persistent Challenges	Private Sector Incentives	Emerging Good Practices
• Intergovernmental organizations have limited mandate, experience, and models to work directly with private sector entities • There is a lack of technical materials, training, and shared learning opportunities in local languages and in an understandable format for small scale fisheries • Labor and women's rights remain neglected within many fishery industries, companies, and organizations	• The private sector will be more willing to support and comply with catch restrictions and other regulations if they trust the data and are involved in pre-decision making dialogue • The use of various partnership models such as in-kind, sponsorship, donations, and joint projects provides many options for joining sustainable fishing efforts at a modest cost • Technology remains an immense asset for fishing companies when customized, made affordable, and networked for connectivity • Incentives for small-scale fishers include financial support and services, technical capacity support, and technology solutions to help them achieve certification, transparency, and implementation of sustainable fishing practices.	• Increase use of in-country and company-level transparency initiatives (e-CDT and other reporting systems) for catch, processing, import/export, and other relevant data points • An increasing number of model Ecosystem Approach to Fisheries Management localities that can be replicated elsewhere (i.e., Baan Nai Nang Fishing Community in Thailand) • An increasing number of frameworks, practical tools, and finance industry commitments to invest in sustainable blue economy initiatives • While COVID-19 has severely reduced in-person events and exchanges – virtual communication, connectivity, and productive collaboration has increased and improved exponentially using new technology platforms and virtual co-creation tools

The PSLA report also provides a series of **recommendations** for specific stakeholders as well as more general, sector-wide suggested initiatives, including:

- Improve fish stock, catch, and other industry data for more evidence-based policymaking
- Increase social capital among business, government, and civic organizations through multistakeholder dialogues, shared learning, and inclusive policymaking
- Facilitate private sector (blue economy) finance to speed up country-level and region-wide transition to more sustainable and better managed fisheries
- Continue technical and material investments in small scale fisheries and scaling of the ecosystem approach to fisheries management
- Utilize political economy analysis (PEA) and behavioral science tools to better understand the incentives, impediments, and opportunities toward sustainable fishing
- Prioritize the protection of rights for the most vulnerable (migrants, fleet laborers, youth) and ensure that organizations and activities are representative and inclusive

Lastly, this report ends with the Annexes, which provides a situational context as it relates to sustainable fishing issues and PSE in Asia, 14 country-level fishing industry snapshots, and additional information about the PSLA methodology, survey questionnaire, list of stakeholders, annotated bibliography, and end notes.

1. Introduction

USAID/RDMA adopted the Sustainable Fish Asia Project Appraisal Document in 2020 to outline their future strategy in the fisheries sector. In August of 2020, RTI International was awarded the SUFIA Local Capacity Development (LCD) Activity, which is a part of the larger portfolio. SUFIA LCD's primary activities are centered on collaboration with two key regional organizations: The Southeast Asian Fisheries Development Center (SEAFDEC) and the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF). Both organizations are instrumental in promoting the sustainability of small-scale fisheries and marine biodiversity in the Asia-Pacific Region. They also work to address issues of climate change, food security, gender equality, and fair labor initiatives within the fishing industry.

The goal of the two-year SUFIA LCD is to mitigate threats to biodiversity from unsustainable and illegal, unreported, and unregulated (IUU) fishing in the Southeast Asia and Pacific regions. This will be achieved by enhancing the operational and technical capacity of SEAFDEC and CTI-CFF in achieving their mandates to support member countries, particularly in combating IUU fishing, increasing marine biodiversity conservation, and strengthening engagement with the private sector.

In addition to building the organizational capacity of the partner organizations (Objective 1), SUFIA LCD works to devise ways to deepen engagement with the private sector and expand regional approaches that include market-driven solutions, identified through the PSLA (Objective 2). Based on the findings of this report, SUFIA LCD will work with SEAFDEC and CTI-CFF to identify and execute private sector partnership opportunities.

Private Sector Landscape Assessment

This PSLA report builds off past USAID/RDMA assessments including a 2006 Global Fisheries Opportunities Assessment, a 2014 Southeast Asia Fisheries Stakeholder Analysis, and a 2020 Marine/Fisheries PSE Subsector Assessment. The report is meant to inform USAID and other Asia fishery stakeholders—including SEAFDEC and CTI-CFF—about the current context, challenges, and opportunities related to PSE.

This PSLA is the culmination of a nine-month, region-wide research effort with the primary objective to develop approaches and actual opportunities for SEAFDEC and CTI-CFF to engage fisheries businesses in voluntary compliance and promotion of sustainable fishing practices in the Asia region. The research findings and recommendations put forward in this PSLA have three primary audiences:

- SEAFDEC and CTI-CFF: to identify potential PSE opportunities for these two fisheries management organizations to better meet their viability and programmatic targets
- Regional Fisheries Stakeholders: to document key findings and lessons for identifying, designing, and executing partnerships with the private sector for sustainable fisheries management and practices in the region
- USAID/RDMA: to provide PSE approaches and ideas for future fishery support programs in the region

2. Research Scope and Methodology

The PSLA report is a SUFIA LCD deliverable due at the project's midpoint so that it can be used to improve SEAFDEC and CTI-CFF ability, tools, and willingness for engaging the private sector in technical and policy initiatives. The findings of this report are also a starting point for identification of concrete opportunities for joint project implementation between the SUFIA LCD partners and private sector entities.

The scope of the PSLA report is quite broad and includes:

- Research and analysis on all 14 member countries of SEAFDEC and CTI-CFF
- Interviews and surveys of more than 170 Asia fisheries industry stakeholders
- Core elements of the report that include a contextual overview, country-level industry snapshots, PSE opportunity identification for SEAFDEC and CTI-CFF, key lessons and findings for future PSE, and recommendations

The PSLA team included:

- Ms. Patchareeboon Sakulpitakphon, SUFIA LCD PSE Specialist
- Mr. Mark Granius, RTI Governance Specialist
- Mr. Frengky Sihombing, Independent Researcher

The **analytical framework** for SUFIA LCD's PSLA is rooted in RTI's Nature, Wealth, Power (NWP) framework developed for USAID. NWP integrates natural resources (*Nature*), economic (*Wealth*), and socio-political-institutional (*Power*) dimensions of complex development problems in an integrated manner, emphasizing women, youth, and other marginalized groups; ecosystem resilience; and opportunities for growth. SUFIA LCD used this framework in identifying stakeholders for consultations, developing the survey instrument, analyzing PSLA findings, and formulating the recommendations.

Additionally, SUFIA LCD utilized the activity's **theory of change** and further customized it for this private sector research and analysis as shown in Exhibit 2.

Exhibit 2: Theory of Change

If private sector stakeholder interests and incentives are identified

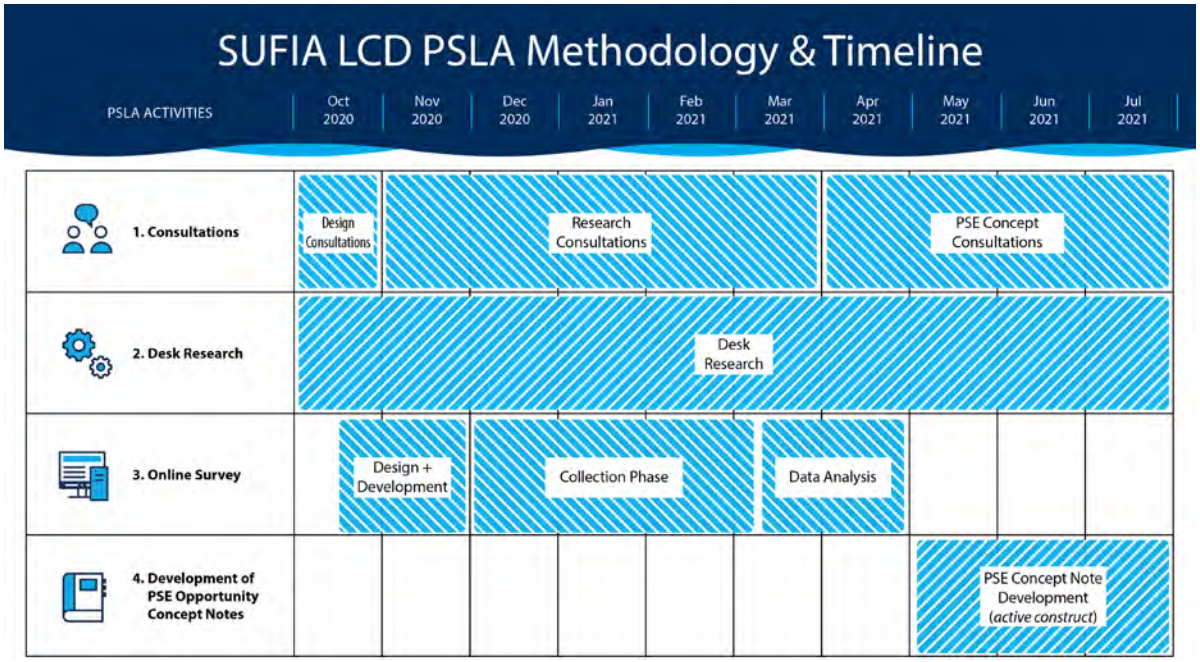
If government authentically involves private sector entities to policy and regulatory discussions

If non-governmental organizations (NGOs) can design and pitch credible partnership and investment opportunities to private sector entities

Then, industry investment in sustainable fishing (including fair labor) will be increased.

PSLA Methodology & Timeline

Exhibit 3: PSLA Methodology & Timeline



The methodology behind the PSLA consisted of four key activities:

1. **Consultations:** As noted above, SUFIA LCD conducted consultations with USAID/RDMA, CTI-CFF, and SEAFDEC to clarify the scope and plan the PSLA in October 2020. The scope of this PSLA report is to focus on the 14 countries in the Southeast Asia and Pacific region that make up the members of CTI-CFF (6 countries: Indonesia, Malaysia, Philippines, Papua New Guinea, Solomon Islands, and Timor-Leste) and SEAFDEC (11 countries: Brunei Darussalam, Cambodia, Indonesia, Japan, Lao People's Democratic Republic [PDR], Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam). For this PSLA process, SUFIA LCD aimed to reach out to as many stakeholders as possible, including the various sub-sectors within the fishing and seafood industry (e.g., commercial fisheries, small-scale/artisanal fisheries, aquaculture, and processing businesses).

2. **Desk research:** The desk research, from October 2020 through July 2021, was guided by consultations with USAID/RDMA, CTI-CFF, SEAFDEC, and other key stakeholders (e.g., current, and past partners collaborating with CTI-CFF, SEAFDEC, and USAID/RDMA). SUFIA LCD engaged a PSLA Research Associate to conduct research specifically focusing on the fishing sector of the 14 countries (please see Annexes for the situational context, the country profiles, full annotated bibliography, and report endnotes).

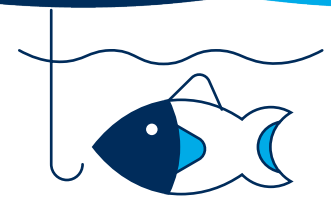
3. **Online PSLA survey:** From December 2020 to March 2021, SUFIA LCD conducted an online PSLA survey to collect information for this report. The survey design and questions were developed in consultation with USAID/RDMA, CTI-CFF, and SEAFDEC. The online PSLA survey was distributed to CTI-CFF and SEAFDEC's member countries, partners, and promoted publicly through social media (with the goal to reach as many stakeholders as possible; the survey was voluntary). The survey received a total of 172 responses from 26 countries; 32% of which 32% were from fisheries or environmental governmental agencies, 31% from the private sector, 18% from NGOs, 12% from universities/academia, 4% from international development (e.g., other USAID projects, UN agencies, or intergovernmental organizations), and 3% from government agencies working on international development.

4. **Development of PSE opportunity concept notes and additional consultations:** SUFIA LCD presented the results of the PSLA survey to USAID as well as CTI-CFF and SEAFDEC for their consideration in April 2021. Through a consultative process (May – July 2021), SUFIA LCD supported both partners in drafting six PSE concept notes that integrated the findings from the PSLA survey. These PSE concept notes were designed to maximize CTI-CFF and SEAFDEC's work priorities. Each partner determined the number of concept notes developed, thematic focus areas, and detailed activities. SUFIA LCD provided support to ensure that each concept note aligned with RDMA's priority areas to promote sustainable fisheries management and practices and combat IUU fishing. From the start of the PSLA process and in parallel to the desk research and online survey, SUFIA LCD conducted a total of 34 consultations with SUFIA LCD partners and private sector representatives and other key stakeholders. SUFIA LCD continues to support both CTI-CFF and SEAFDEC in engaging companies to turn these PSE concept notes into formal partnerships (partnership can be defined as joint-activities on a project, provision of technical assistance, provision of funds or in-kind support etc.)

The assumptions, constraints, and limitations of this PSLA report include:

- An initial assumption by USAID/RDMA in designing SUFIA LCD activity is that both CTI-CFF and SEAFDEC had the ability to directly engage the private sector and that each organization could prioritize the development of partnerships with the industry. However, it is important to note that while both partner organizations have worked in some capacity with some industry members or companies, it was usually on specific projects and through their members, government counterparts, or partner organizations. Both CTI-CFF and SEAFDEC do not prioritize the direct engagement of the private sector and have limited capacity to do. In response, SUFIA LCD provided extensive technical support to CTI-CFF and SEAFDEC during the PSLA process, specifically to develop the PSE concept notes and brokering potential partnerships with companies.
- The coronavirus disease 2019 (COVID-19) pandemic also impacted this activity in two ways: (1) restricted the ability of the SUFIA LCD team to travel or conduct in-person consultations, and (2) limited companies' ability to participate beyond the online survey (most had other business priorities and pandemic response).
- SUFIA LCD has a project timeline of two years (September 2020 until August 2022), and this PSLA report is a project mid-point output due in September 2021.

The SUFIA LCD team has created an online survey for readers of this report (it is open to the public as well as key stakeholders that have supported CTI-CFF, SEAFDEC, SUFIA LCD, and USAID RDMA). SUFIA welcomes readers' feedback, especially on the quality, clarity, and utility of this report. SUFIA LCD will use the feedback to update this report based on suggested improvements from key stakeholders.



3. Private Sector and Multistakeholder Initiatives

Given the complexity and the scale of the unsustainable fishing practices and IUU fishing globally, collaboration between key stakeholders is essential to solving problems, improving relationships (including trust), and foster sharing of information, expertise, or building capacity. In recent years, there has been an increase in the number of multistakeholder platforms supporting sustainable fishing that are organized by or include active participation of the private sector. SUFIA LCD conducted a high-level mapping of these initiatives with hopes that key stakeholders, including SEAFDEC and CTI-CFF, will leverage and/or engage some of them. To summarize, these initiatives seek to ensure sustainable seafood production, address IUU fishing, and ensure a healthy ocean. While the initiatives may work under the broader umbrella of "sustainable seafood," each has its own specific goals and way of working. For example, two initiatives focus specifically on the tuna supply chain. Another positive observation is that of the 15 initiatives highlighted in this report, 9 specifically highlight their work to improve human rights and working conditions and to eliminate forced labor for workers. All the initiatives also recognize the importance of collaboration, encouraging active engagement between companies, governments, NGOs, and academia. A summary of these initiatives is listed below.

Asian Seafood Improvement Collaborative (ASIC)
A multistakeholder initiative to support Asian stakeholders in becoming agents of their own empowerment and through collaboration, create pathways for seafood improvement that accounts for social, environmental, and traceability challenges facing in the region.

The Conservation Alliance for Seafood Solutions
A global community of stakeholders working together to improve sustainability and responsibility of the seafood supply chain. Founded in 2008, the group first focused on communication and coordination among conservation organizations to promote sustainable seafood, but in the past decade, the activities have included fishery improvements and cross-sector partnerships.

FishChoice
An NGO that creates online tools to support businesses to achieve sustainability in the fisheries and seafood sector. FishChoice manages two multistakeholder online platforms: (1) Fishchoice.com, an interactive platform that provides tools for businesses to learn about sustainability, track their status and progress, share information with customers, and find seafood that meets their sustainability requirements; and (2) FisheryProgress.org, a "one-stop" shop for reliable information about the progress of global FIPs.

Global Dialogue on Seafood Traceability (GDST)
An international, business-to-business platform established to advance a unified framework for interoperable seafood traceability practices and works with seafood industry stakeholders from all parts of the supply chain and relevant civil society experts. The goal of GDST is for industry standards to be universally applied around the world and to improve reliability of seafood information, reduce the cost of seafood traceability, reduce supply chain risk, and contribute to long-term sustainability for the sector.

Global Sustainable Seafood Initiative (GSSI)
A public-private partnership on seafood sustainability with 90+ stakeholders across the industry that works to ensure confidence in the supply and promotion of certified seafood and promote improvement in the seafood certification schemes.

Global Tuna Alliance (GTA)
An independent group of 66 companies, including retailers and tuna supply chain companies, working to ensure that "tuna ultimately meets the highest standards of environmental performance and social responsibility".

The High-Level Panel for Sustainable Ocean Economy (The Ocean Panel)
Developed in 2018, a multistakeholder group led by 14 "serving" world leaders from Australia, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Palau, and Portugal that works with governments, business, financial institutions, the science community, and civil society to catalyze and scale bold, pragmatic solutions across policy, governance, technology and finance to develop an action agenda to transition into a sustainable ocean economy.

International Seafood Sustainability Foundation (ISSF)
Launched in 2009 by scientists, leaders in industry, and environmental champions to address their shared concerns about the future of global tuna fisheries and to act and facilitate science-based initiatives for long-term conservation and sustainable use of global tuna stocks, reducing bycatch, and promoting tuna ecosystem health.

Monterey Bay Aquarium Seafood Watch
A program that began 20 years ago that advises consumers and works directly with businesses and governments for sustainable seafood. The goal is to have 75% of global seafood production assessed by 2030 through an integrated approach that spans across the seafood industry.

The Roadmap for Implementing Seafood Ethics (RISE)
A free, online resource and tool created by FishWise, with the support of the Walmart foundation, to help companies address improve seafood ethics, especially respecting human rights and labor rights by focusing on responsible recruitment of workers, meaningful worker engagement, and decent work at sea.

Seafood Alliance for Legality & Traceability (SALT)
SALT was created as a global community of governments, seafood industry, and NGOs to focuses on building connection, sharing ideas, and collaborate on solutions for legal and sustainable seafood, especially focusing on traceability of the seafood supply chain.

Seafood Business for Ocean Stewardship (SeaBOS)
A collaboration between scientists and leading seafood companies with the following goals: Addressing IUU fishing, endangered species, and forced labor; climate resilience; working with governments; reducing ocean plastics; and to be a source of inspiration for the industry.

Seafood Stewardship Index (World Benchmarking Alliance)
In 2019, the Seafood Stewardship Index was the first benchmark to be published by the World Benchmarking Alliance, a group devoted to improving companies' performance on corporate sustainability and alignment to the UN Sustainable Development Goals.

Seafood Task Force
An international multistakeholder collaboration initiative with full supply chain participation that address the risk of forced labor, human trafficking, and IUU fishing in the Thai seafood supply chain, including publicly endorsing the Royal Thai Government's Fishery reforms.

Ship to Shore Rights Initiative South East Asia
Ship to Shore Rights South East Asia is a multicounty, multi-year initiative of the EU and UN, implemented by the International Labour Organization in collaboration with International Organization for Migration and United Nations Development Programme. Its overriding objective is to promote regular and safe labor migration and decent work for all migrant workers in the fishing and seafood processing sectors in Southeast Asia.

4. Stakeholder Survey Findings

SUFIA LCD developed and conducted an online PSE survey from December 2020 to March 2021. This survey was one channel of stakeholder consultations and aimed to understand and identify existing and new partnership opportunities with the businesses in the fisheries and aquaculture sector. The PSLA team used the survey findings to organize further online communications, consultations, and in-person meetings (when this was possible before the COVID-19 pandemic) based on stakeholder preference. The same survey was used for all respondents (it was available in English and Thai), and respondents could select multiple "best-fit" answers in several categories, e.g., demographics or sub-type of companies (resulting in some non-alignment for some figures), etc. All responses were anonymized for this report (please see the Annexes for the survey questions).

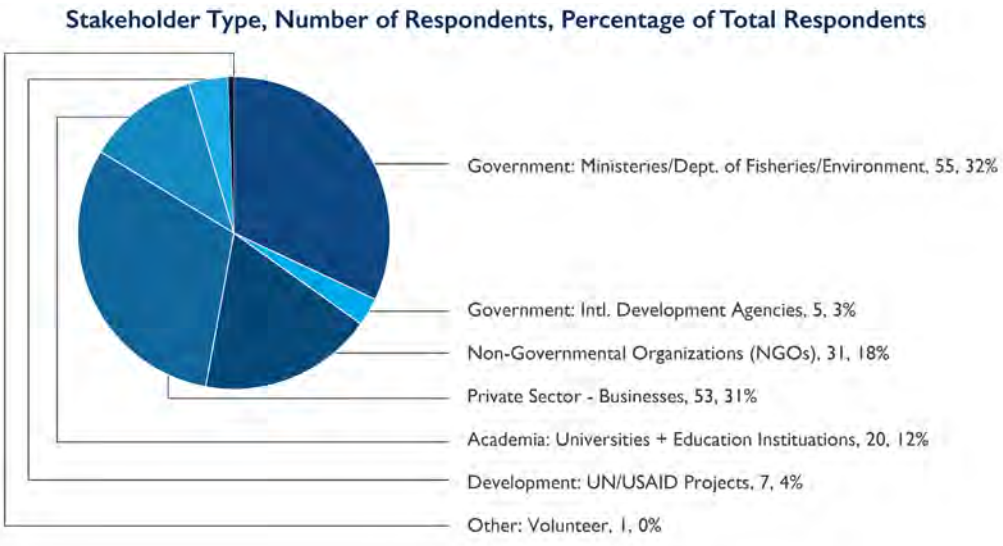
The online survey collected information from key industry stakeholders in the Asia and Pacific region, specifically to understand their current needs, interested areas for collaboration, identification of existing private sector initiatives or good practices, and identification of new partnership opportunities for CTI-CFF and SEAFDEC. Moreover, SUFIA LCD, SEAFDEC, and CTI-CFF coordinated efforts to prioritize securing respondents from all 14 countries as well as promoted the survey through professional, personal, and social networks as well as existing directories of regional fishing businesses.

At the end, the survey received a total of **172 responses from 26 countries** representing various stakeholder types (Exhibit 4):

- 55 (32%) governmental bodies (fisheries, marine resources, or environmental)
- 53 (31%) private sector entities
- 31 (18%) non-governmental and/or nonprofit organizations
- 20 (12%) universities or academic institutions
- 7 (4%) international development organizations or projects
- 5 (3%) governmental international development agencies
- 1 volunteer

The survey had relative gender balance with 77 respondents self-identified as women, 96 as men, and 4 self-identifying as LGBTQ. In addition, when asked if they currently had a private sector partnership, 29 government and 17 NGO representatives reported "yes." Most respondents had heard of SEAFDEC (97%) and CTI-CFF (62%), and of those, 42% had collaborated with SEAFDEC and 14% with CTI-CFF.

Exhibit 4: PSLA Stakeholder Survey Participants by Stakeholder Types



Responses from the private sector showed that most companies expressed interest in collaborating with SEAFDEC and/or CTI-CFF, especially to develop joint projects or provide in-kind services through technical assistance or funding. This is an important point for both SEAFDEC and CTI-CFF to note and consider that the opportunities to collaborate with the companies exists, but it requires action and leadership from both organization to leverage these partnerships. At present, neither SEAFDEC nor CTI-CFF have PSE specialists as staff specifically dedicated to developing strategic private sector partnerships. This response from the private sector is important for both organizations as they plan future strategies and activities. Another important finding was that thirteen respondents from the private sector noted that they were unable to engage with the SUFIA LCD team or SEAFDEC/CTI-CFF beyond participating in this survey due to other priorities, including responding to the ongoing COVID-19 pandemic.

Exhibit 5: PSLA Survey Private Sector Respondents from the Fisheries Sector

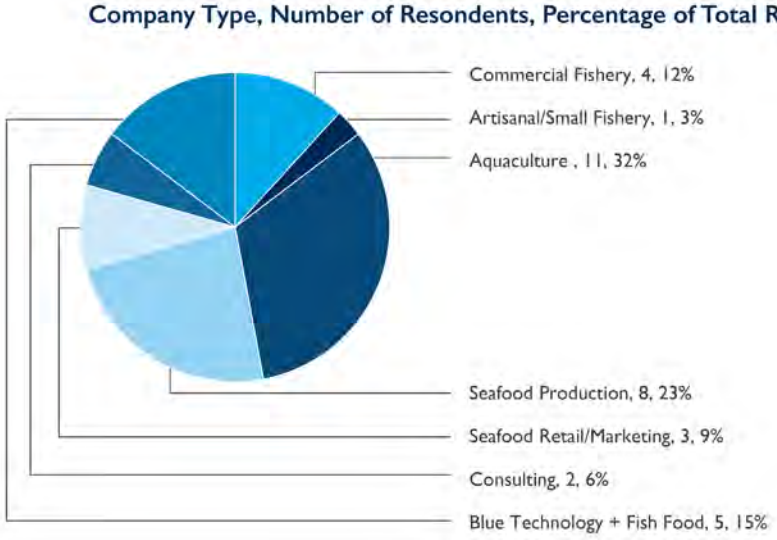


Exhibit 6: PSLA Survey Private Sector Respondents from Non-Fisheries Sectors

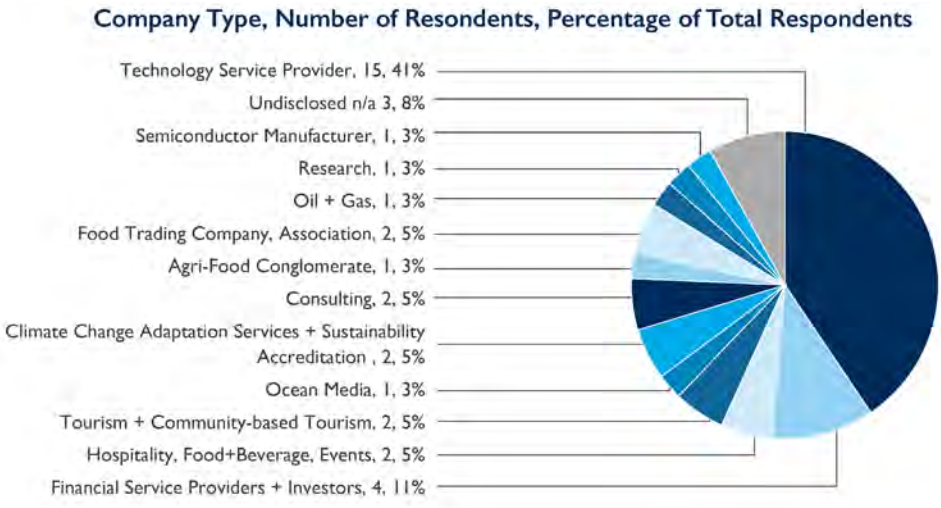
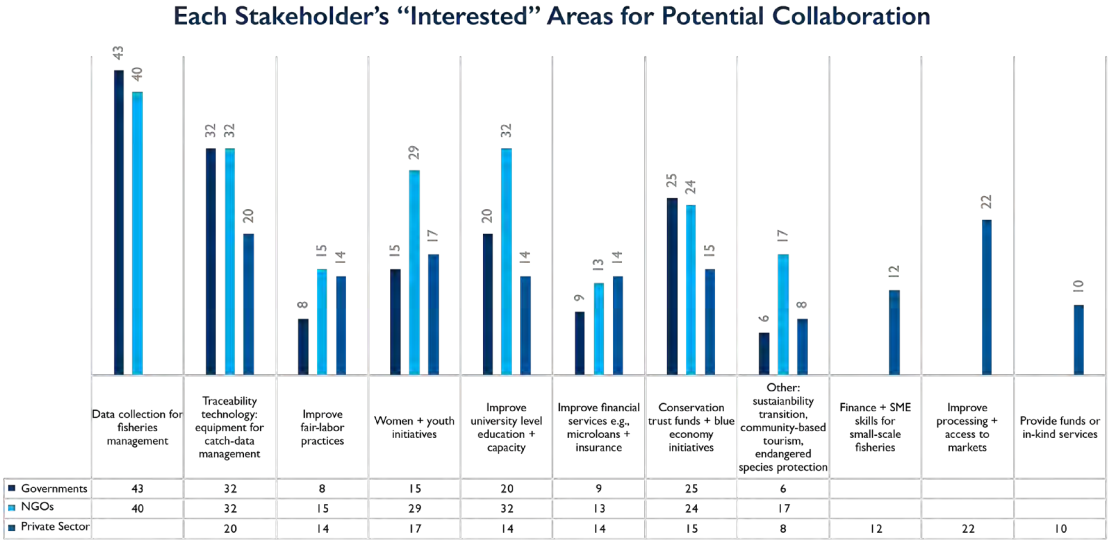


Exhibit 7: PSLA Survey Results Regarding Each Stakeholder's Interested Areas for Collaboration



The PSLA survey specifically asked respondents about the potential areas of interest for collaboration. The PSLA survey's results shared insights to what potential areas for collaboration were of interest to governments, NGOs, and the private sector. Exhibit 8 lists the different focus areas.

The government respondents' top three focus areas for potential collaboration were:

- Data collection for fisheries management (43 respondents)
- Traceability technology and equipment for catch-data management (32 respondents)
- Conservation trust funds and blue economy initiatives (25 respondents)

For the private sector, the top three focus areas for potential collaboration were:

- Improve processing and access to markets (22 respondents)
- Traceability technology and equipment for catch-data management (20 respondents)
- Women and youth initiatives (17 respondents)

Lastly, NGO representatives prioritized the following for their top three:

- Data collection for fisheries management (40 respondents)
- Traceability technology and equipment for catch-data management (32 respondents)
- Improve university-level education and capacity (32 respondents)

The PSLA team identified specific areas in which all three stakeholder groups had a high interest in collaborating – including traceability technology and equipment for catch data management. Meanwhile, government and NGOs were both interested in data collection for fisheries management. The private sector also expressed an urgent need for financial services and small and medium enterprise development skills for small-scale fisheries, as well as processing improvements. Regarding the types of collaboration, government and NGOs expressed high interest in developing joint projects. NGOs were also willing to provide technical assistance, though governments were less keen to do so. The private sector was open to considering all types of collaboration (Exhibit 8).

Exhibit 8: PSLA Survey Results Regarding Each Stakeholder's Expectations for the Type of Collaboration

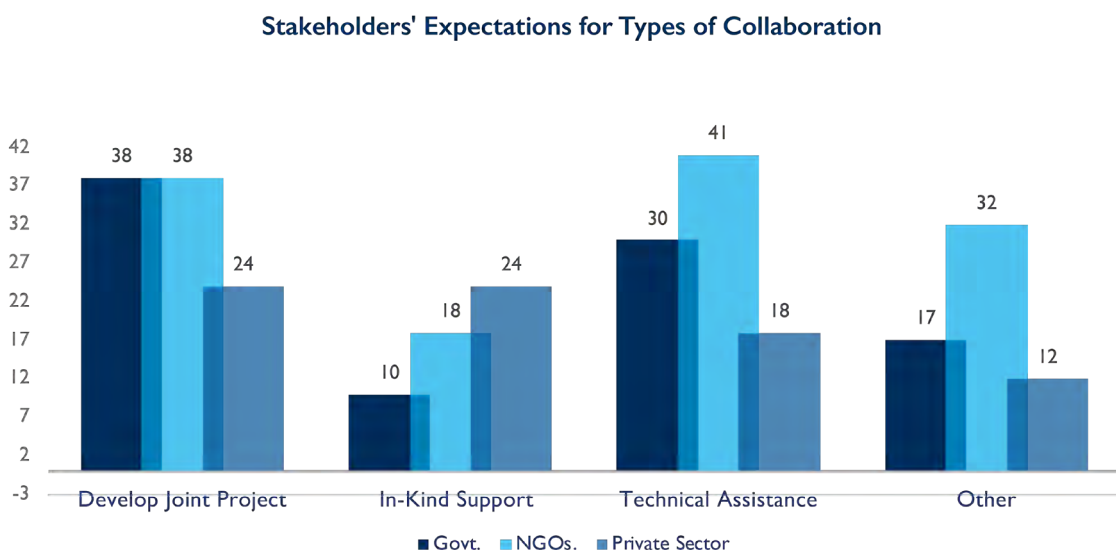


Exhibit 9: PSLA Survey Results Regarding Each Stakeholder's 'Other' Ideas for Collaboration

SUFIA LCD asked each stakeholder group to share ideas, as shown in Exhibit 9. Among respondents, 12 private sector entities and 8 NGOs shared additional ideas related to improving traceability capacity, fish handling, seafood processing, and coastal aquaculture. Similarly, 10 private sector entities and 7 NGOs wanted to focus on gear, resources, and technology enhancement, including those for sea waste management. Among government respondents, 6 specifically mentioned enhancing the ASEAN (regional level) catch-data collection mechanism. Another interesting finding was that 5-private sector, 5 NGOs, and government representatives were interested in activities that protected Marine Protected Areas, conservation trust fund and payment for ecosystem services (blue economy), scholarships/education, and alternative livelihoods, including supporting women and youth to achieve sustainable livelihoods in fishing communities.

Private Sector Perspectives on Collaborations

Organizations proposing projects to the private sector:

"We are interested in EAFM, marine conservation, biodiversity protection, and specifically, how projects will integrate the outcome-based contribution and success indicators to demonstrate impact."

– Director of Sustainability in one of the world's leading seafood companies.

For organizations seeking to engage investors for funding e.g., conservation trust funds:

"Organizations need a strong profile, or they need partners that have secured investors' trust and experience in managing trust funds. Specific information about the governance, management, credible partners, and the fund's goals/plans are essential."

– Managing Partner at a company that advises on climate change transition and impact investments.

Linking small-scale fisheries to 'gastro-tourism':

"Since our company works with restaurants and chefs that promote the importance of traditional foodways and sustainable sourcing, we are interested in working with small-scale fisheries and communities. For us, it is important to convey 'storytelling' and show the true value of fishers' work to consumers. We would be interested to work on a project that focuses on promoting 'gastro-tourism' and linking fishing communities with restaurants."

– Managing Director of a Thai-based business working with top chefs to create sustainable food education programs and experiences.

Respondents from 11 universities and educational institutions were interested in research projects, including research at sea, population studies, testing bycatch reduction devices in artisanal shrimp fisheries, species-specific conservation efforts, stock assessment and species management, fishing gear and equipment improvements, and human impact on marine ecosystems, among others. Two representatives from the tourism industry wanted to support initiatives that strengthen the linkages between sustainable tourism and sustainable fishing communities. In addition, two NGOs were already working with the industry to strengthen the policy and legislative frameworks governing sustainable fishing and biodiversity. However, they were looking for additional partners in the region to support their advocacy work. As for the private sector, a fair number of companies (13 companies) that participated in the PSE survey informed us that they could not do any partnership activities at this time because of the ongoing COVID-19 pandemic, conflicting priorities, or inability to do so. Even with the companies that were interested, it will require additional discussions about specific projects, resource requirements, and time frame. Many of the companies may consider providing technical assistance or developing a joint project, where they are proactive partners (involved in the project design, implementation, and project management).

5. Summary of Private Sector Partnership Concept Notes

The six PSE concept notes listed in Exhibit 11 were co-developed with CTI-CFF and SEAFDEC through a consultative process, utilizing the information collected through this PSLA process. Ultimately, the goal is to turn the potential collaboration opportunities into formal partnerships between SUFIA LCD's partners, CTI-CFF and SEAFDEC, with the private sector. For SUFIA LCD and our partners, a partnership with the private sector is considered formed when there is a clear agreement, usually written, between two or more formal entities to work together to achieve a common objective. There must be either a cash or in-kind significant contribution to the effort by both parties to the partnership. Potentially, examples of a private sector partnership on a USAID project can include partners collaborating to develop and implement market-based approaches (activities that leverage and apply respective assets and expertise to advance core business interest), facilitate development activities lead by the private sector while achieving both parties' development objectives, and increasing the impact of USAID's investment by making it sustainable.

For the purposes of SEAFDEC and CTI-CFF, we prioritized partnerships where: (1) The objective of the partnership agreement between the partners and private sector entities is to achieve a common good, (2) The private sector partner's contribution to the partnership goes beyond their immediate commercial interests, and (3) The partner contribution is leveraging private resources that the private entity would not otherwise be contributing. To count as a partnership with the private sector, the private entity must spend or contribute something that is additional, or above and beyond what it would normally spend/contribute as a usual cost of doing business.

SUFIA LCD provided guidance and worked closely with CTI-CFF and SEAFDEC to co-draft the six concept notes after multiple discussions with each partner, with **consideration of their needs, work priorities, organizational protocols, and current capabilities**. CTI-CFF, SEAFDEC, and SUFIA LCD also ensured alignment to USAID RDMA's new Regional Development Cooperation Strategy, which includes the increase in the adoption of fair labor and sustainable fishing practices by fishery businesses, marine conservation, and biodiversity protection. While the six concept notes are activities to be piloted in a particular country or two, SEAFDEC believes they can be duplicated, scaled-up, and the learnings can be shared across the region. SUFIA LCD has circulated the six concept notes with several leading companies, private sector foundations, and other stakeholders that have expressed interest in partnering with CTI-CFF and SEAFDEC.

Exhibit 10: Six PSE Concept Notes Co-Developed from the Identified Opportunities from the PSLA Process

Summary of the Six PSE Concept Notes Co-Developed with CTI-CFF and SEAFDEC

1. SEAFDEC: Baan Nai Nang EAFM Infrastructure Support Project

Location: Krabi Province, Thailand
Estimated PSE investment value: $15,000

Objective: To support Baan Nai Nang fishing community in Krabi Province in its implementation of EAFM by providing support to key infrastructure (e.g., catch-data record, solar cells for the crab bank, food processing facilities for their social enterprise, and a fish landing bridge) and serve as a model for replication in Krabi Province and potentially in other parts of Thailand. This initiative touches upon improving sustainable fishing practices (catch-data record and management of crab banks) and supports alternative livelihoods (e.g., including women-led social enterprises) that benefit the mangrove ecosystem and prevent overfishing or IUU fishing. Baan Nai Nang's implementation of EAFM has inspired the Thai Department of Fisheries in Krabi Province to propose expansion into other communities across the province, and SUFIA LCD and SEAFDEC believe it can also be duplicated abroad in the region and provide regional level learnings.

Type of private sector companies: Commercial fisheries company and business, technology companies e.g., fisheries software, companies producing solar cells and construction, and any other companies interested

Potential roles and responsibilities: SEAFDEC will coordinate and work with the companies to provide the support to the fishing community as part of its CSR or corporate sustainability initiatives, for example: one company has expressed interest to provide funding contribution in exchange to learn more about EAFM and its implementation by the fishers to duplicate elsewhere; and another company is interested to support the catch-data activities as it can provide the company insights into the process.

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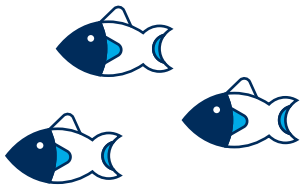
2. SEAFDEC: Comparative Study to Reduce Trawler Gear Negative Impacts

Location: Thailand
Estimated PSE investment value: $31,200

Objective: To reduce the negative impacts of trawling vessels by examining how to improve efficiency and energy-saving ability and reduce the negative impact to the seabed by examining the gear design, e.g., the otter board. SEAFDEC staff also believe that improved gear can reduce work intensity for the crew and improve labor conditions as well. In addition, this concept note aligns to USAID's aim to promote initiatives for climate change, specifically reduction of carbon emissions and adoption of more sustainable fishing gear. SUFIA LCD and SEAFDEC believe it can provide regional level learnings for potential duplication.

Type of private sector companies: Commercial fishing company, vessel owners, or seafood producer and any other company interested.

Potential roles and responsibilities: SEAFDEC will conduct the comparative study but welcomes the engagement from the private sector. A company has reviewed the concept note has expressed interest to offer funding and participate (the company is interested to see the findings can demonstrate reduction of negative impacts and track reduction of carbon emissions). Similarly, SEAFDEC has also shared that several vessel owners have also expressed interest to participate in the study.



Summary of the Six PSE Concept Notes Co-Developed with CTI-CFF and SEAFDEC

3. CTI-CFF: Coral Triangle (CT) Atlas Upgrade Project

Location: Virtual and/or six countries of CTI-CFF members
Estimated PSE investment value: $189,000

Objectives: CTI-CFF is seeking private sector partners to upgrade the CT Atlas database by providing programming, related GIS data, and training services to improve capacity and data quality. This upgrade will enable the CT Atlas to be a crucial monitoring and evaluation (M&E) mechanism for two key activities:

- Monitoring the implementation and progress of CTI-CFF RPOA 1.0 and 2.0 by member countries and partners. The CTI-CFF RPOA 1.0 and 2.0 are key strategic plans to guide the work of CTI-CFF as an organization, its members, and partners in the current decade until 2030 to protect the marine eco system, promote sustainable fisheries management and practices, and focus on urgent issues such as climate change adaptation, consideration of gender equality and social inclusion, and combating IUU fishing.
- The design, planning, and management of MPAs and Locally Managed Marine Areas networks in the region using GIS and spatial data. The CT Atlas can improve conservation initiatives by various stakeholders and avoid duplication of efforts, enabling valuable time and resources to be allocated to other initiatives. Thus, the CT Atlas requires an update and expansion of both input data as well as database structure to provide the latest up-to date high-quality, regional-scale spatial database outputs with varied types of data from diverse sources.

Type of private sector companies: Companies related to GIS and spatial data software, programming, and any other companies interested.

Potential roles and responsibilities: CTI-CFF welcomes to work with interested companies to upgrade the CT Atlas database and integrate the GIS and spatial data functions. Companies can potentially provide software, consultation services, and/or capacity building to CTI-CFF staff and its member countries.

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4. SEAFDEC: Mangrove Crab Bank Pilot

Location: Nakhon Si Thammarat, Thailand
Estimated PSE investment value: $2,000

Objective: This concept note proposes the establishment of a mangrove crab bank for a small fishing community called Thong Kongkang Fishing Community, Pak Phanang District, Nakhon Si Thammarat Province. The community currently does not have any initiatives that promote sustainable fishing practice linked to biodiversity and marine conservation. SEAFDEC recognize this opportunity to introduce EAFM and pilot a mangrove crab bank in the area (it's rare in Thailand). The pilot can be replicated and especially during the ***pandemic, can provide economic benefits, livelihood, and ecological wellbeing.***

Type of private sector companies: Commercial fishing company, vessel owners, or seafood producer and any other company interested.

Potential roles and responsibilities: SEAFDEC will coordinate and will work with the companies to support this small-scale fisher to understand and implement sustainable fishing practices, especially introducing EAFM and the connection to biodiversity protection, marine conservation, and supporting their livelihoods (indirectly reducing IUU fishing). Companies are interested in this activity as part of their CSR or corporate sustainability activities, even the duplication of the project to support local communities near their production sites or suppliers in their value chain.

Summary of the Six PSE Concept Notes Co-Developed with CTI-CFF and SEAFDEC

5. SEAFDEC: Sandfish and Sea Cucumber Stock Assessment

Location: Libong Island, Thailand
Estimated PSE investment value: $12,500

Objective: A stock assessment to determine the status of the sandfish and sea cucumber has not yet been conducted, and thus, it is difficult to determine whether this species is endangered from overfishing. The SEAFDEC Training Department (TD) believes that such an assessment is crucial and a prerequisite to developing sustainable management of the sandfish and sea cucumber with the local community.

Type of private sector companies: Local business in the area link to the sandfish and sea cucumber trade, commercial fishing company, vessel owners, or seafood producer and any other company interested.

Potential roles and responsibilities: SEAFDEC will conduct the stock assessment and welcomes interested companies to take part by supporting the funding, participating in the stock assessment, and learn about the situation of sandfish and the sea cucumber. Local companies and some seafood trade companies are interested as the sandfish is a highly value fish product and ensuring a sustainable management is crucial to ensure future supply.

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6. SEAFDEC: Automatic Catch-Data (e-CDT) Software Using Artificial Intelligence (AI)

Location: Thailand
Estimated PSE investment value: TBD

Objective: The current catch declaration process, where fishers report catch data to authorized officials, requires manual data entry (either on paper or via app/computer), is not convenient, and leaves room for mistakes, including incorrect report of species. The SEAFDEC TD believes that having an automated catch-data record can also improve data accuracy and transparency and help eliminate IUU fishing. Using AI technology through user-friendly software (or application) for automatic catch reporting will encourage commercial and small-scale fishers to report their catch. Such software can also ensure and confirm that fish and fishery products are not from IUU fishing, which is key compliance to current laws and increases the value of the products. The objective is to develop or modify an existing AI software to enable automatic catch-data recording and pilot it in Thailand with the possibility to scale it regionally in the ASEAN region later.

Type of private sector companies: AI and technology companies that have experience in developing catch data or e-CDT software.

Potential roles and responsibilities: SEAFDEC welcome the opportunity to partner with a company to develop this new tool and pilot it.

As SUFIA LCD enters its second year (2022), it will continue to support both partner organizations to turn these concept notes into PSE partnership activities for implementation. However, each concept note's status will be dependent on the interest and buy-in from the private sector and other potential partners – see Exhibit 11 below. Due to the pandemic, most of the activities may be piloted in one location due to limited travel. However, SUFIA LCD, CTI-CFF, and SEAFDEC are very aware of the importance of regional application, i.e., cross-learning, and potential scaling in region.

Exhibit 11: SUFIA LCD Private Sector Partnership Development Process

6. Key Learnings

In addition to the online survey, SUFIA LCD also conducted further research and continuous stakeholder consultations for this PSLA report from October 2020 until July 2021. The desk research was guided by meetings with USAID RDMA, CTI-CFF, SEAFDEC, and other key stakeholders e.g., current, and past partners collaborating with CTI-CFF, SEAFDEC, and USAID RDMA. The full annotated bibliography and stakeholder list is in the Annex. From the PSLA research and consultations, several notable learnings related to ongoing challenges, potential incentives, and good practices were identified for developing public-private sector partnerships or to improve fisheries practices to be more sustainable. These learnings were selected as they are directly tied to SUFIA LCD's theory of change as well as the NWP conceptual framework.

Persistent Challenges Identified from the Consultations

Distrust and Weak Relationships

Distrust and weak relationships between stakeholders prevents unity, meaningful action, and regional collaboration needed for sustainable fishing. This challenge was noted by participants at the APFIC Regional Workshop on Mainstreaming Fisheries Co-Management in 2005. Through SUFIA LCD's consultations, stakeholders have noted that a key action should be to "foster participation, partnerships and trust among governments, NGOs, financial institutions etc."[3] Through SUFIA LCD's consultations, stakeholders have noted that past and current pilots testing the technologies indicated that the lack of trust and cooperation between fishers and the key stakeholders resulted in stagnation and inability to scale up or make the initiatives sustainable.

An example that demonstrates distrust at the national level can be observed between the Thai Department of Fisheries and the National Fisheries Association of Thailand (NFAT), the largest fisheries association of big commercial trawlers in 22 coastal provinces. In June 2020, when the Thai Department of Fisheries organized a meeting to discuss setting a sustainable catch quota, or the Maximum Sustainable Yield, to prevent overfishing, an agreement could not be reached. The NFAT representatives walked out and threatened to launch nationwide protests as they believed the quota was miscalculated, is not "suitable for Thailand", and that they "want to catch fish the old way" according to the NFAT Chairman.[4] To provide further context of this example, Thai vessel owners have voiced their struggle to adjust to the new regulations that now require multiple systemic changes: vessel design, equipment, monitoring systems, fishing practices, and crew welfare; they noted the lack of assistance from the Thai government for this transition, especially financial assistance.

Slow Transition to Sustainable Fishing Practices

The promotion of responsible fisheries at the global level started in the 1990s, and 30 years later, the adoption and implementation of sustainable fishing management and practices in the Southeast Asia and Pacific region remains a work in progress. Considering the urgency of climate change, IUU fishing, and increasing demand for seafood products, this slow transition and adoption of sustainable fishing management and practices, especially by the industry, is a key challenge. A contributing factor is the lack sufficient transition budget, support services, and financial assistance (specifically for sustainable fisheries and marine conservation) to key governmental agencies and the fishing industry, especially for medium and small-scale fisheries (priority was the energy sector as part of their climate change mitigation, not fisheries[5]). In SUFIA LCD's consultations, the project reached out to more than 10 major financial institutions, banks, and organizations in the region, but they did not accept the invitation to participate in the online survey or answer the questions regarding financial services for the fisheries and seafood industry. Overall, SUFIA LCD has also noted that governments and industry are not effectively working together to comprehensively prioritize the integration of the sustainable fisheries management with the blue economy as part of national and regional agendas, especially the linking to climate change initiatives and across all relevant sectors, including fisheries and aquaculture, oil and gas, sea mining, energy, manufacturing, marine construction, shipping and ports, and tourism.

Also, there is a lack of public, national-level data to track the progress of the transition to sustainability, i.e., what percentage of fisheries sector are actively implementing electronic catch data and traceability (e-CDT), traceability, and initiatives against IUU fishing, socio-economic and gender equality related information etc. In addition, SUFIA LCD's research shows that financial services for small-scale fisheries in the region are very limited because in general, financial institutions target lower risk sectors and look for high growth target clients. This lack of financial services contributes to the slow transition. Small-scale fisheries are not seen as such by the financial sector traditionally.[6] The research noted that this may be due to a combination of factors: regulatory or political context, risks attached to small fisheries, illiteracy and low financial knowledge of fishers, and the fact that small-scale fisheries are less attractive because they are not the high earners within the fishing value chain. There are several factors why fishers are not insured: low awareness of insurance needs and process; insurance policy premiums are too high and coverage inadequate; lack of trust by fishers; lack of access to financial services, and income is based on seasonal fishing. This situation is particularly marginalizing those in vulnerable positions in the fisheries value chain (e.g., women in low positions or informal occupations, migrant workers, indigenous communities, youth, among others).

Weak Monitoring and Data-Sharing

As noted earlier, key challenges in combating IUU fishing are the monitoring of the vessels at sea and data-sharing among key stakeholders to enable timely action. A large-scale, cohesive strategy, and effective collaboration in monitoring and data-sharing of key information in the Asia-Pacific region is still a work in progress. Commissioned by The Pew Charitable Trust, a recent issue brief that highlighted a United Kingdom Centre for Economics and Business Research study examining the "likely impacts of sharing fishing activity data among neighboring coastal states."[7] The key findings were that: any countries that share data and information will benefit, even if other states do not share; even if one country that only has limited capacity for reciprocity increases information sharing, it will help improve fish stocks in both countries; and it is "crucial" to improve the technology, operations, and institutional capacity for states to collect, analyze, and share information for success in combating IUU fishing. However, the brief also noted that agencies mandated to address IUU fishing are "reluctant" to share information about vessels' position, identity, authorization, and catch records with neighboring countries. In addition, many agencies still require additional support to have "sufficient technological, operational, and institutional capacity" for them to act on the data collected. It is a welcome sign that October 2020, ASEAN has acknowledged that it needs to strengthen its efforts on monitoring and data-sharing among its members and has initiated the *Cooperation Framework on ASEAN Network for Combating Illegal, Unreported, Unregulated (IUU) Fishing*.[8] This framework specifically aims to enhance regional cooperation on Monitoring, Control and Surveillance information sharing and use in real-time and aims to improve each member capacity through sharing best practices on maritime surveillance and investigations.

CTI-CFF and SEAFDEC, as Regional Intergovernmental Fishery Organizations, have Limited Mandate and Capacity to Directly Engage the Private Sector

After better understanding the structure and internal pressures on SEAFDEC and CTI-CFF, SUFIA LCD notes that both organizations have limited mandate, experience, and models to work directly with private sector entities. Currently, CTI-CFF and SEAFDEC do not prioritize the direct engagement of the private sector, have an overarching PSE strategy, or specialized staff for PSE/partnership activities. While both partner organizations have worked in some capacity with some the private sector entity and/or specific companies, it was usually for specific-projects and through their members, government counterparts, or partner organizations. This approach limits PSE engagement to project level activities and holds back both organizations to really leverage private sector engagement towards maximizing their work across the region.

Small Scale Fisheries are Struggling

Small scale fisheries are struggling to adopt sustainable fishing practices and partake in fisheries improvement efforts despite wanting to improve. The struggle is fundamentally linked to competing priorities (livelihood and short-term gains vs. investing for long-term sustainability), the lack of financial services and support to enable the purchase of the required equipment and technology (e.g., catch-data, traceability, and vessel monitoring), inability to identify a trust partner organization to guide them in the transition, and lack of technical materials in local languages that simplifies the technical jargons for the fishers. Through the PSLA consultation process, the needs clearly highlighted from representatives from small scale fishers was fishery improvement technical support (equipment and know-how), access to financial services such as low interest loans, training for basic business skills (bookkeeping, selling products online etc.), accessing new markets, and alternative income generation.

Some Progress is Being Made in Protecting Worker's Rights

Globally, the fishing and seafood sector has made progress regarding human rights especially in terms of policies, framework, and corporate guidance, e.g., adoption of the UN Guiding Principles on Business and Human Rights or human rights and social policies. These efforts were made to ensure protection of workers' rights since cases of forced labor, human trafficking, and other abuses continue to persist in the fishing and seafood industry. In 2019, the World Benchmarking Alliance assessed the top 30 seafood companies in the world on their sustainability performance using the Seafood Stewardship Index. A key finding was that 22 of the 30 companies assessed had committed to improve human rights, but only 20% could demonstrate that they had a remediation protocol to resolve possible cases[9] (meaning despite the commitment, there is room for improvement of their actions to ensure action).

Through the PSLA consultation with key stakeholders, especially those that work on labor issues, the consensus was clear: there is still much work to be done by companies and key decision-makers in the industry, especially vessel owners. To illustrate, a stakeholder participating in SUFIA LCD's consultation shared that several vessel owners in Thailand did not allow migrant crew members to use the piloted tool, which enabled free communication at sea (for emergencies or keeping in touch with their family). In addition, organizations that work with migrant workers on labor/human rights cases, shared that it can be difficult to obtain information and answers transparently from companies. To illustrate using a recent case, ***The Guardian*** and Human Rights at Sea recently released a podcast in June 2021 regarding the death of Mr. Eritara Aati Kaierua, an Observer on Board from Kiribati to monitor against IUU fishing on the Taiwanese flagged fishing vessel in March 2020[10]. Even with videos of what transpired, there are no clear explanation as to his death, and to date no charges have been filed. His family continues their quest to obtain answers, help advocate for increased protection for observers at sea, and calling for accountability from companies, fisheries organization, and governments. Other persistent human rights and labor issues faced by workers in the seafood supply chain are linked to discrimination (including gender equality), illegal recruitment practices (recruitment fees, false contracts), and forced labor (debt bondage, withholding wages).

Incentives Identified from the Consultations

Good Data in Policymaking Leads to More Sustainable Results

One of SUFIA LCD's key learnings is the importance of using evidence-based data to empower key decision-makers (e.g., investors, industry leaders, vessel owners, fishers, and government officials, etc.) to make informed-decisions and enable change. An additional value of using good data is that private sector stakeholders will be more willing to support and comply with catch restrictions and other regulations if they trust the data and are involved in policy and regulatory dialogue prior to the imposition of new restrictions.

An incentive identified to address the issue of weak data collection and sharing, is the provision of data science and analytics expertise and support via capacity development to key decision makers and policy stakeholders. For example, there is an opportunity to use evidence-based data and sustainability

data and results to target investors for their engagement and support for sustainable fisheries and blue economy projects. In 2020, Credit Suisse and the Responsible Investor Research group released a market-assessment of investors' perception and interest in the blue economy (including sustainable fisheries). The assessment found an information gap: a "lack of investment grade projects, no internal expertise and, for asset owners, their managers do not offer any products, nor raise the issue."[11] The report also noted that key drivers in attracting investors are: "positive effect of sustainable blue economy investment on financial performance" and "sustainability achievements" or impacts, especially those aligned to the UN Sustainable Development Goals. Sustainable fisheries and aquaculture sector is among the "best investment opportunities" among the investors, especially the prioritization of blended finance and technical assistance.[12]

Beyond investors, evidence-based data from sustainable fisheries initiatives can articulate the case for improving action by the industry, especially if the data can demonstrate the benefits over the short, medium, and long term for businesses. An example of how fishers can change their actions through better decision-making is from The Nature Conservancy pilot in New England to test AI catch monitoring.[13] The pilot aimed to improve catch-data quality and indirectly help resolved conflicts between fishers, scientist, and regulators stemming from distrust. The fishers were unhappy with having onboard inspectors due to higher costs involved. Thus, they accepted the pilot to use the AI and camera technology instead of having an inspector onboard. After using the AI technology, the fishers realized the benefits e.g., ease of use and reporting, reduce cost, but most importantly learned and understood about the importance of having fish stock information. The pilot also helped to improve the fishers' relationship with regulators. As the relationship improved, regulators granted fishers more flexibility based on the data submitted e.g., fishers can submit the data without having to return to port. Lastly, fishers' recommendation about this AI technology to their peers was a key factor to increase adoption of the new technology.[14]

Shared Value Partnerships

One of the major findings of this PSLA process is that there is a real appetite among private sector entities in forging partnerships on sustainable fishing initiatives. SUFIA LCD noted that companies are looking for partners to improve their implementation of sustainability commitments (e.g., labor, or environmental compliance) and they often view USAID's PSE and partnership activities as an incentive. This is the case for global companies that seeks out and recognized the importance of shared value partnerships with key stakeholders, such as NGOs or governments, to also advance their corporate sustainability commitments. These companies recognize they need technical expertise outside their ability and the possibility to access additional funds, especially if they are trying to solve an issue linked to the value chain, communities, or the larger industry. USAID's strategy to utilized shared value partnerships developed through a participatory, co-creation process involving key stakeholders, including companies, is a welcome incentive to the private sector. SUFIA LCD has found that companies increase their interest and commitment and speed up the overall partnership development process if it is for a shared value partnership opportunity with matching or seed funds. In addition, shared value partnership by design is based on the five elements of collective impact that brings large-scale social change: "a common agenda, a shared measurement system, mutually reinforcing activities, constant communications, and a dedicated 'backbone' support from one or more independent organizations."[15] SUFIA LCD has identified a wide array of partnership models (such as in-kind, sponsorship, donations, and joint projects) and will continue to refine these approaches and work to forge private sector entry points for joining sustainable fishing efforts at a modest cost.

Technology Solutions to Small-Scale Fisheries as Local Change Agents

Technology solutions for sustainable fisheries management and post-harvest production are potential incentives for small-scale fisheries and local change agents. Many smaller companies or small-scale fisheries that participated in SUFIA LCD's PSLA process expressed their interest in such technology solutions but face barriers such as inability to access or inability to finance. This includes technology in the application of scientific knowledge/practices and required equipment (e.g., how to conduct fish

stock assessments and related equipment). SUFIA LCD consultations and the survey results revealed a large demand from local actors for technology solutions to improve efficiency, such as vessel equipment, fish handling, or seafood processing. Small-scale fisheries currently do not have knowledge and skills on their own to improve their systems and lack access to the technologies. Learnings from past initiatives have also noted that the adoption of new technologies is impeded by barriers, including the resistance to change or to learning new tools by local fishers because of the cost of adopting these new tools, inability to use the technology (because of language limitations or lack of skills), and the lack of trust or ability to scale-up or link to existing systems, including connectivity. The lack of considerations relevant to gender and social inclusion in technology development could marginalize groups that will benefit from their use. Despite these challenges, technology plays an important role in enabling small-scale fishers to improve their sustainable fishing practices and related fisheries activities.

Good Practices Identified from the Consultations

USAID Oceans Workshops to Review Available Electronic Catch-Data Technology Solutions and Advance Regional Guidance for Fisheries Traceability

USAID's Oceans and Fisheries Partnership (USAID Oceans) conducted a three-day workshop in Timor-Leste in June 2019 for the CTI-CFF's three Pacific member countries: PNG, Solomon Islands, and Timor-Leste. The workshop focused on assisting the Pacific countries to conduct a gap analysis to assess the state of their respective catch-data and traceability capabilities for wild capture fisheries and review the available e-CDT technology and systems. With the support of technology and other stakeholder partners, the workshop increased each member country's officials' knowledge of e-CDT and technology solutions and resulted in inputs for the development of a regional e-CDT guidance document that included initial CDT profiles for all three countries and recommendations. USAID Oceans was implemented by Tetra Tech, and while the project has closed, its website and the resources are available online, including this workshop report. This workshop is considered a good practice as it brought cross-sector stakeholders together to share expertise, close knowledge gaps, and help governments improve their performance for sustainable fisheries management.

Baan Nai Nang Fishing Community's Adoption of EAFM

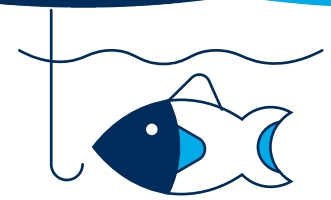
Baan Nai Nang Fishing Village in Krabi Province is the first community in Thailand to adopt the EAFM approach back in 2017 with the support of SEAFDEC TD and implemented by the community and the Thai Department of Fisheries.[16] Together with the community, a customized EAFM plan was developed to sustainably manage the local fisheries resource, with emphasis on the community's ownership of the initiative, to meet the ultimate goals of ecological abundance, societal well-being, and good governance. In December 2019 and before the COVID-19 pandemic, SUFIA LCD and SEAFDEC TD conducted a field visit to Baan Nai Nang to learn about its EAFM implementation, noting successes and ongoing challenges.

Baan Nai Nang's fishermen cooperative has been around for more than 100 years, and it currently has approximately 50–70 members (some are seasonal fishers, mostly men but there are also some women). From the coastal area of the village, their catch is usually shrimp, crab, horse crab and different types of fish, including the short mackerel, which have been hard to find previously due to overfishing (it is a very popular fish). The crab bank has also contributed greatly to the local crab population in the area. The estimate is that one crab deposited at the bank will result in an interest between 250,000–2,000,000 crabs. In addition to the crab bank and fishing, the success of Baan Nai Nang EAFM model has improved the livelihoods of the villagers through diversification of income (rubber and palm oil trees, beekeeping, and ecotourism), proactive restoration of mangrove and ecosystems, and enhanced relationship with government stakeholders, especially the Department of Fisheries. Ten percent of the village's social enterprise income goes back into marine conservation efforts in the village, such as plastic waste pick-up, etc. In addition, the village's initiatives involve active participation or are led by women; the seafood production cooperative is led by women, and

the beekeeping members are mostly women. This case is highlighted as a good practice for its cross-sector collaboration to specifically support small-scale fishers to transition to sustainable fisheries management, with emphasis on strong community engagement, empowering women, and marine conservation activities.

Sustainable Blue Economy Investment Initiatives

The United Nations Environmental Program (UNEP), Asian Development Bank, World Resource Institute, World Economic Forum and other civil society and private sector entities have worked to push for a systemic approach to investing in ocean health and sustainable coastal communities (Blue Finance or Ocean Finance). They have published guidebooks, handbooks, and staged public events on this topic. This collective action works with banks, insurers, and investors to take on a larger role in financing the transition to a sustainable blue economy, helping to rebuild ocean prosperity and restore biodiversity to the ocean. Finance institutions are in a unique position to lend, underwrite, and invest in activities that promote (or at least don't diminish) ocean health. While this has yet to fully materialize and trickle down to small-scale fisheries and small and medium sized (SME) fishing business, it is a space to watch and develop by bridging the larger financial institutions with local NGOs, banks, and SMEs.



7. Recommendations

This PSLA report was conducted to identify PSE opportunities for CTI-CFF and SEAFDEC and to document key learnings relating to how to increase cross-sector collaboration and/or private sector partnerships for USAID and their partners in the region. The following recommendations were compiled based on SUFIA LCD's experience, the assessment of the PSLA survey results, research, and the discussions with various stakeholders. Four key recommendations are highlighted, listed in order of urgency, and applicable to all stakeholders. In the last section, additional recommendations are listed by specific stakeholder groups.

1. **Unite action to speed up transition to sustainable fishing and blue economy**
   While notable progress has been made in recent decades to promote sustainable fishing, the pace of adoption is too slow and effective collaboration is limited. Governments and the private sector must prioritize this transition as part of its climate change mitigation, working together, and provide the required financial services and access to technology to enable it, especially supporting medium and smaller size companies. USAID and other key stakeholders should use collective action tools to continue to advocate for this transition. This could include supporting regional and national platforms and tools such as benchmarking and publicizing significant transitions by sector, country, and as a region. Currently there is no clear or agreed upon measurement system and formal recognition of major financing, innovation, or regulatory shifts at the national or regional levels.

2. **Strengthen trust-based relationships**
   While there are several enablers that are essential to developing private sector partnerships for natural resource management, the essential enabling factor is the *ability to form a trust-based relationship* between key stakeholders. Studies have noted that "higher levels of trust are associated with greater compliance, reduced conflict, and support for management plans."[17] This is much harder to cultivate if organizations do not trust and proactively engage with each other with the intent to collaborate. Key stakeholders in the fisheries sector should reexamine if they are doing enough or have the capacity to foster trust-based relationships for cross-sector collaboration and partnerships. Is there a specific strategy or specific staff assigned to focus on cross-sector collaboration? SUFIA LCD believes that, fundamentally, a trust-based relationship is built through strengthening familiarity, effective communications, and educating each other about different perspectives while coming together to address a common issue. USAID can play a vital role in supporting key stakeholders in the region to strengthen relationships, trust, and foster cross-sector partnerships by sharing its expertise through provision of experts and conducting workshops about behavior change, negotiation, and shared value partnerships.

3. **Strengthen data collection and evidence-based decision-making**
   Moving forward, stakeholders, especially governments and the private sector in the region, must strengthen the way the data are collected, analyzed, utilized, and shared among key stakeholders (nationally and regionally). Better quality data can lead to more evidence-based decision making, strategic policy and action, and clear up misunderstandings that erode trust. Specifically, the focus should be on scaling-up of data collection (especially from the industry to track progress), preventing data errors (or fraud), and how the data are analyzed, considering the blue economy, climate change, international maritime crimes, and other factors. The solutions must be adaptable for use in the local context as well as flexible enough to ensure interoperability across stakeholders or regionally.

4. **Protect human rights, prioritize workers' welfare, and integrate gender equality and social inclusion**
   Governments and the private sector must do more to protect and respect fishers and workers' human rights and welfare. An example indicator to note the slow progress of ensuring workers' rights in the sector is the ratification of the International Labor Organization's Convention 188 Work in Fisheries. To date, only one country in the Southeast Asia and Pacific region has ratified the convention (Thailand in 2019).[18] Specifically for the private sector, companies must implement

human rights due diligence, ensure their recruitment practice is free from exploitation (e.g., paying for jobs, debt bondage, informal/illegal brokers), prevent exploitative labor conditions, improve monitoring of welfare conditions at sea, and conduct transparent investigations if an incident occurs. Regarding gender equality and social inclusion (GESI), more work can be done to promote the understanding of this technical approach and application to the fisheries and seafood sector as they conduct their broader human rights and labor initiatives, especially to disclose information in their corporate social responsibility, sustainability, or human rights reporting.

Exhibit 12: Specific Recommendations Grouped by Stakeholder Types

Recommendations
Private Sector • Fisheries, seafood industry groups, and associations in the region to act as strategic leaders to enable and guide the transition to sustainable fisheries management and the blue economy. Their key priority activities are to strengthen data collection and transparency (publicly share data about progress toward sustainability) and strategic planning and collaboration with other key stakeholders. • Financial institutions and other investors should consider blended financing, insurance, and investment services for medium and small-scale fisheries. • Impact investors and financial institutions should develop initiatives specifically for sustainable fisheries management, EAFM, marine conservation, and the blue economy. • Fisheries sector companies, especially vessel operators, should improve operations and compliance to ensure it meets the sustainability, anti-IUU fishing, human rights, and GESI requirements.
Governments • Governments need the political will and urgency to elevate sustainable fisheries and the blue economy as priorities, as part of its climate change mitigation activities, including in allocation of appropriate budgets. • Governments must invest in strengthening the trust and relationship with the fisheries industry to enable collaboration. • Governments should strengthen data collection and measure the progress of sustainable fisheries management (including combating IUU fishing, implementing FIPs, and collecting traceability data at the national level) and ensure transparency (make data public and updated continuously) to enable evidence-based decision-making/strategic planning. • Governments should strengthen the enforcement of legislations and policies, especially those that apply to serious crimes, such as IUU fishing and labor exploitation in the fishing and seafood sector. • Governments should develop and support financial services to support the fisheries industries, especially for medium and small-scale fisheries (to enable transition). • Governments should continue technical and material investments in small scale fisheries and scaling of the ecosystem approach to fisheries management.
Regional Intergovernmental Fishery Organizations • CTI-CFF and SEAFDEC should expand their mandate to include direct engagement with the private sector and invest in organizational capacity to do so, with specialized staff for PSE and partnerships with the private sector. • Organizations should prioritize data collection and management to enable tracking of progress for sustainable fisheries management and providing capacity-building support to governments. • Organizations should continue to support the scale-up of initiatives that support FIPs, traceability, EAFM, and assistance to small-scale fisheries. • Organizations should consider more initiatives that support women and youth (and GESI) and blue economy transition.

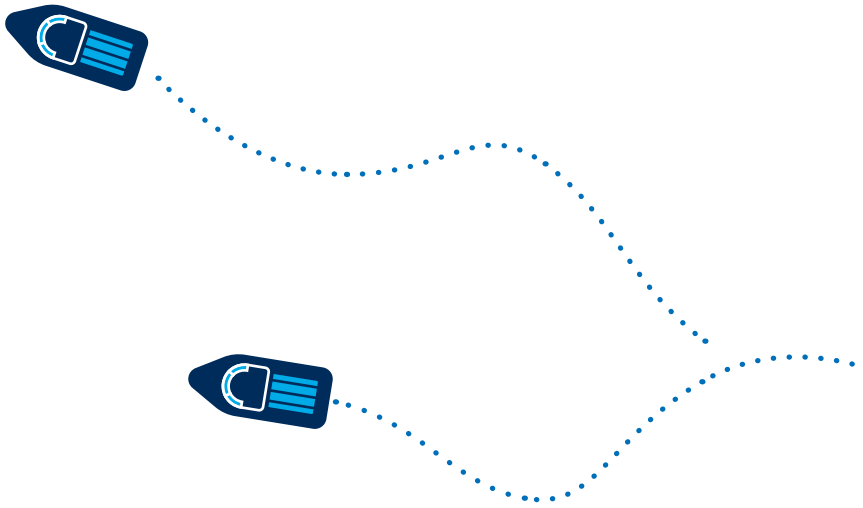
Recommendations

Civil Society and Academia

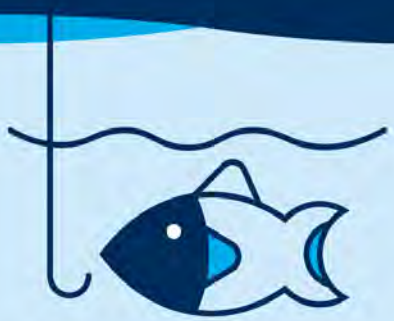
- Civil society should continue initiatives to engage governments and the private sector to improve their efforts to ensure sustainable fisheries management and practices, including capacity-building.
- Organizations should continue advocacy and services to promote human rights, workers' welfare, and GESI (women and youth initiatives), and highlight any bad practices by governments and the industry.
- Academia should assess knowledge gaps and needs of the fisheries sector in collaboration with public and private sectors and civil society and conduct participatory research to address those needs and provide solutions.
- Institutions should support the advocacy to promote sustainable fisheries management, marine biodiversity conservation, human rights approaches, workers' welfare, and GESI (women and youth initiatives) in the fisheries industry and fishing communities, through curriculum development and engagement of youth.

USAID and Other Donor Agencies

- Donors must lend expertise and facilitation to help governments and industry in their transition to sustainable fisheries management and the blue economy, including prioritizing this sector within climate change mitigation plans.
- Agencies should lend their expertise to help regional and local stakeholders develop trust building relationships and/or shared value partnerships.
- Donors should continue to support regional and national cross-sector platforms to keep sustainable fisheries and the blue economy in the political spotlight.
- Agencies should continue technical and material investments in small scale fisheries and scaling of the ecosystem approach to fisheries management
- Donors should utilize political economy analysis (PEA) and behavioral science tools to better understand the incentives, impediments, and opportunities toward sustainable fishing
- Donors must continue to share and promote good practices, especially innovative solutions that have been demonstrated in the US/USAID funded projects, such as technologies, data science, PSE, finance solutions, and GESI.



Annexes



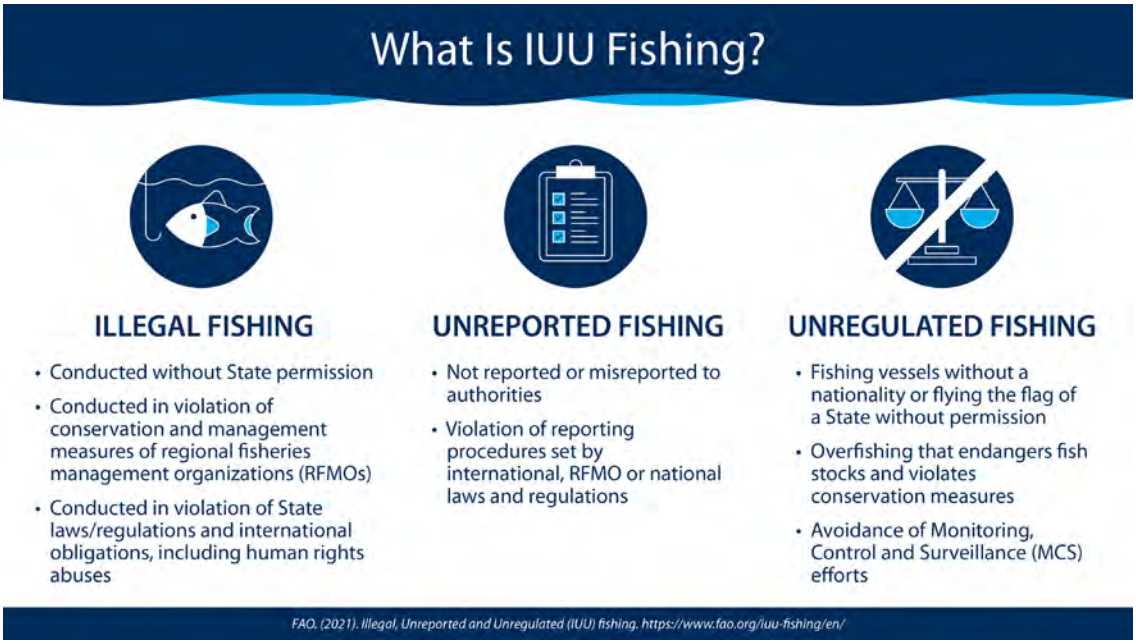
Annex A: Situational Context

As noted in the project overview and methodology section, SUFIA LCD's activities are specifically focused on mitigating threats to biodiversity from unsustainable and IUU fishing by supporting both CTI-CFF and SEAFDEC. Although the main objective of this PSLA process is to identify potential PSE opportunities for CTI-CFF and SEAFDEC, it was important to document information relating to the current situational context of how key stakeholders are addressing unsustainable fishing practices, including IUU fishing.

Global and regional information on fish stock, revenue, and IUU fishing

According to the World Bank 2017 data, almost 90% of global marine fish stocks are now fully exploited or overfished.[19] This crisis of overfishing has the potential to ruin coastal economies, adversely impact health and nutrition outcomes, and set off a chain reaction of coral reef and ecosystem degradation around the world. The FAO's State of World Fisheries and Aquaculture 2020 states that the fishing industry provides about 3.3 billion people with approximately 20% of their average intake of animal protein. The report noted that total global fish consumption increased by 122% from 1990 to 2018.[20] This number is expected to rise along with population growth, increased global prosperity, and an increasing awareness of the health benefits of fish. While global marine fisheries production increased by 14% over the past 30 years, aquaculture has also helped satiate the rapidly growing demand, evidenced by a 527% increase in global aquaculture production.[21]

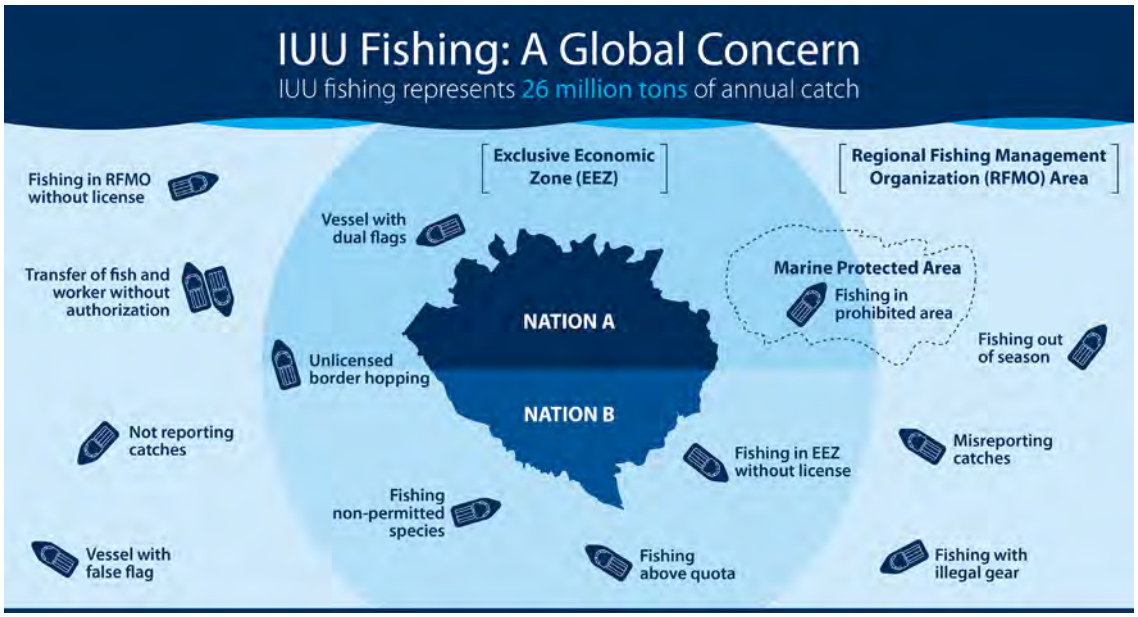
The FAO noted that when fisheries are managed properly, fish stocks can be maintained at a biologically sustainable level—meaning fish are replenished at or above the rate at which they are caught. However, the success in some countries or regions could not overcome the global trend of overfished stocks: in 1990, 90% of fish stocks were within biologically sustainable level; this decreased to 65.8% in 2017.[22] The total global capture fisheries production reached 96.4 million tons in 2018, which is the highest level ever recorded in history and was driven by marine capture fisheries. The report also found that seven countries (China, Indonesia, Peru, India, Russia, United States, and Vietnam) accounted for almost 50% of the total global capture production, of which four are from the Asia region.[23] The economic impact of fishing is also hard to overstate. In 2018, 67 million tons of fish were trade globally, with a total export value of $164 billion.[24] The FAO asserts that the total fish production is expected to continue its growth from 179 million tons in 2018 to 204 million tons in 2030, and that human consumption of fish is also expected to increase.[25]



Given that there seems to be no slowing down of both fish production and demand, there are concerns regarding food security and overfishing especially since as the world population heading toward 10 billion people. According to the 2019 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) report on global biodiversity, it notes that fishing has caused the greatest impact on marine biodiversity in the past 50 years,[26] and the industrial fishing covers approximately 55% of the ocean.[27] Overfishing, where fish are caught faster than they can replenish themselves, is exacerbated by the prevalence of IUU fishing.[28]

IUU fishing is one of the key barriers to achieving sustainable fishing and a healthy ocean ecosystem. According to the FAO, IUU fishing is estimated to make up about 26 million tons of fish caught each year,[29] and sometimes it is associated with other criminal activities, classified into two main types: (1) fisheries related crimes, which are tied to the fishing operations, e.g., forged fishing licenses, money laundering, use of illegal fishing gears, and exploitative working conditions, and (2) crimes that are associated with the fisheries sector, not tied directly to fishing operations but can take place on vessels, e.g., drug, human, and arms trafficking and piracy,[30] etc.

Although the extent of IUU fishing is global, its impact is felt by individual countries. According to an article from The *ASEAN Post* regarding IUU fishing in the Asia Pacific region, three areas identified as severely at-risk are the Gulf of Thailand, Indonesian waters, and Malaysia's exclusive economic zone (EEZ). An illustrative estimated loss to IUU fishing for Malaysia alone was estimated at $1.4 billion.[31] Some examples of IUU fishing are when a fishing vessel catches fish outside its approved jurisdiction, not reporting or misreporting the catch to relevant authorities, illegally fishing in marine protected areas, using illegal fishing gear, and labor abuses along the fisheries value chain. In addition, it undermines regional and national initiatives to conserve and manage fish stocks, especially the most vulnerable stocks that are restricted to ensure protection of a threatened marine species and to preserve biodiversity, food security, and the livelihood of those involved in the sector.



Key policies and legal frameworks

Since the 1980s, governments, the private sector, and relevant key stakeholders (e.g., international organizations and academia) have engaged in global efforts to address IUU fishing and promote sustainable and responsible fisheries management. Several key international frameworks and tools were developed by the FAO. After the 1982 United Nations Convention on the Law of the Sea (UNCLOS), the FAO developed the Code of Conduct for Responsible Fisheries in 1995, which is a voluntary international instrument that has been widely adopted by 96 member countries.[32] The FAO Committee on Fisheries then adopted the voluntary International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) in 2001.[33] The IPOA-IUU outlined the member states' responsibilities to combat IUU fishing and encouraged each to develop their own National Plan of Action for sustainable fisheries management and combating IUU fishing. After the IPOA-IUU, three important key international frameworks were developed by the FAO to combat IUU fishing:

- **Agreement on Port State Measures (PSMA)** was the first binding international agreement to specifically target IUU fishing, and it entered into force on June 5, 2016.
- **Voluntary Guidelines for Flag State Performance (2014)** aim to "strengthen and monitor compliance by flag states with their international duties and obligations regarding flagging and control of fishing vessels."[34]
- **Voluntary Guidelines for Catch Documentation Schemes (2017)** is the first international policy documentation with specific guidance for developing and implementing catch documentation schemes, including harmonizing, or reviewing existing ones. The FAO defines catch documentation schemes as "a system to determine throughout the supply chain whether fish originate from catches consistent with applicable national, regional, and international conservation and management measures, established in accordance with relevant international obligations."[35]

Linking this global framework to the Asia and Pacific region, SUFIA LCD detailed the region's adoption of the PSMA by CTI-CFF and SEAFDEC member countries. We found that only half of the countries are party to the PSMA to date (see Exhibit 13). Despite this, it is noted that all 14 countries are active members in the development and implementation of several regional frameworks, plans of actions, and initiatives.

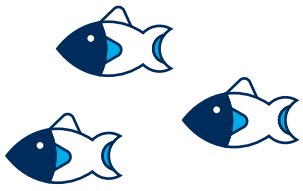
Exhibit 13: Member Countries of CTI-CFF and SEAFDEC and Their Status to UNCLOS, PSMA, and Asia-Pacific Fishery Commission (APFIC)

Countries	Parties to the UNCLOS[36] (Year-Month-Date)	Parties to the PSMA[37] (Year-Month-Date)	Members of CTI-CFF and SEAFDEC	FAO APFIC Members[38]
Brunei Darussalam	Signed 1984-12-5 Ratified 1996-11-5	Not yet a member	SEAFDEC	Not yet a member
Cambodia	Signed 1983-07-1	Accession 2019-11-06	SEAFDEC	Yes
Indonesia	Signed 1982-12-10 Ratified 1986-02-03	Signed 2009-11-22 Ratified 2016-06-23	CTI-CFF and SEAFDEC	Yes
Japan	Signed 1983-02-07 Ratified 1996-06-20	Accession 2017-05-19	SEAFDEC	Yes
Lao PDR	Signed 1982-12-10 Ratified 1998-06-05	Not yet a member	SEAFDEC	Not yet a member
Malaysia	Signed 1982-12-10 Ratified 1996-10-14	Not yet a member	CTI-CFF and SEAFDEC	Yes

Countries	Parties to the UNCLOS[36] (Year-Month-Date)	Parties to the PSMA[37] (Year-Month-Date)	Members of CTI-CFF and SEAFDEC	FAO APFIC Members[38]
Myanmar	Signed 1982-12-10 Ratified 1996-05-21	Accession 2010-11-22	SEAFDEC	Yes
Papua New Guinea	Signed 1982-12-10 Ratified 1997-01-14	Not yet a member	CTI-CFF	Not yet a member
Philippines	Signed 1982-12-10 Ratified 1984-05-08	Accession 2018-04-26	CTI-CFF and SEAFDEC	Yes
Singapore	Signed 1982-12-10 Ratified 1994-11-17	Not yet a member	SEAFDEC	Not yet a member
Solomon Islands	Signed 1982-12-10 Ratified 1997-06-23	Not yet a member	CTI-CFF	Not yet a member
Thailand	Signed 1982-12-10 Ratified 2011-05-15	Accession 2016-05-06	SEAFDEC	Yes
Timor-Leste	Accession 2013-01-08	Not yet a member	CTI-CFF	Yes
Vietnam	Signed 1982-12-10 Ratified 1994-07-25	Accession 2019-01-03	SEAFDEC	Yes

In the Asia Pacific region, several key policies, and guidelines (both formal and voluntary) have been developed by the Association of Southeast Asian Nations (ASEAN), FAO, SEAFDEC, and CTI-CFF toward promoting sustainable fisheries management and combating IUU fishing in the region. Since 2011, SEAFDEC and its member countries have developed and updated guidelines to prevent IUU fishing. In 2015, through a consultative and participatory process with its members, ASEAN and SEAFDEC developed the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain[39], especially focusing on the forms of IUU fishing activities found in Southeast Asia and providing guidance on what each country can do to identify and prevent IUU fish and fisheries products. More recently, in 2019, ASEAN held its Meeting on Combating IUU Fishing in Partnership with the European Union (EU)[40] in Bangkok. At this meeting, representatives discussed developing a regional ASEAN Cooperation on Sustainable Fisheries platform, including a specific group to focus on IUU fishing.

With this momentum for increased collaboration among their member countries, ASEAN and SEAFDEC developed the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030[41] and worked to develop the Cooperation Framework on ASEAN Network for Combating IUU Fishing[42] in 2020. The former is a plan of action to improve food security, alleviate poverty, increase implementation of sustainable fisheries management, and strengthen combating of IUU fishing through regional and international collaboration. The latter is a new cooperation framework for ASEAN member countries to strengthen regional cooperation by focusing on the sharing of information, capacity-building, and dissemination of best practices for improved maritime surveillance and investigations. In addition, there is also the Regional Plan of Action to Promote Responsible Fishing Practice including Combating IUU Fishing (RPOA-IUU) Committee



that continues to host events to discuss fisheries management challenges, priorities, and coordinating IUU fishing efforts. The last meeting was held in November 2020, with participation of 11 countries (Australia, Brunei Darussalam, Cambodia, Indonesia, Malaysia, Papua New Guinea, Philippine, Singapore, Thailand, Timor-Leste, and Vietnam).[43] The RPOA-IUU website also has an online channel for reporting IUU fishing[44] as well.

Three ASEAN members (Indonesia, Malaysia, and the Philippines) are also members of CTI-CFF, which specifically focuses on the marine territories around Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor-Leste, and the Solomon Islands – a combined area that has approximately one-third of the world's coral reefs. The six member countries of CTI-CFF have adopted the CTI Regional Plan of Action (RPOA), a non-binding commitment that focuses on five main goals:

1. Priority seascapes designated and effectively managed
2. EAFM and other marine resources fully applied
3. Marine Protected Areas (MPAs) established and effectively managed
4. Climate change adaptation measures achieved
5. Threatened species status improving

Currently, CTI-CFF and its member countries are finalizing the RPOA 2.0, which is expected to be finalized and released by early 2022.

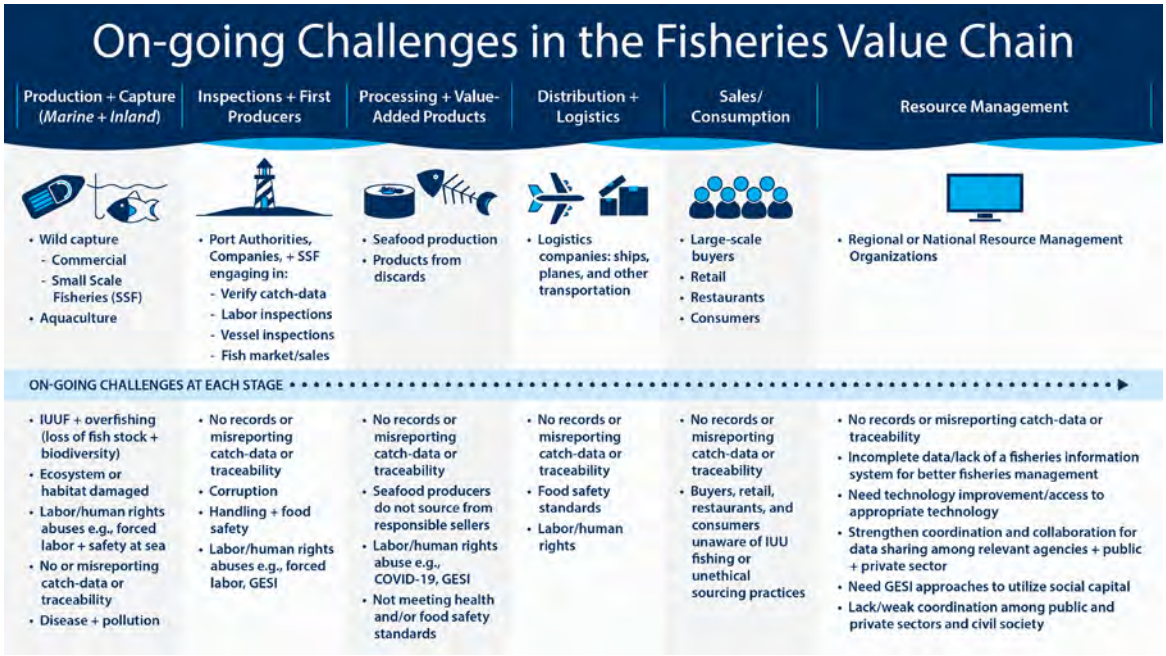
In addition to ASEAN, CTI-CFF and SEAFDEC, another key regional intergovernmental organization is the Asia-Pacific Fishery Commission (APFIC), which was established by the FAO in 1948. As one of the longest established regional fisheries bodies, the organization's purpose is to "promote the full and proper utilization of living aquatic resources by the development and management of fishing and culture operations and by development of related processing and marketing activities in conformity with the objectives of its members."[45]. In 2018, APFIC hosted a regional consultative forum to promote "sustainable development for resilient blue growth of fisheries and aquaculture" in the Philippines. The FAO/APIC also held a regional consultative workshop on building climate-resilient fisheries and aquaculture in 2019 as well. In addition to convening its members and key stakeholders for these regional consultations, APFIC also provides training tools and advisory materials and guidelines to its members.[46]

Challenges and data limitation

Exhibit 14: Fisheries and Seafood Supply Chain and Challenges

Exhibit 14 depicts the complexity and size of the fisheries and seafood supply chain and highlights several ongoing challenges at each part of the value chain. A pressing challenge at the macro-level is the lack of integrated data collection or large-scale traceability of the seafood value chain. At present in the Asia-Pacific region, data management at the national level remains a work in progress, with

governments setting up systems or fine tuning to ensure interoperability. However, based on each country's public data about its fisheries and seafood sector, SUFIA LCD found that it is not possible to determine an accurate level of 'progress' of sustainable fisheries management or adoption of



sustainable fishing practices by the industry at regional or national level.

Public data that are continuously updated about the progress of sustainable fisheries management and combating IUU fishing are difficult to identify and not always publicly reported by governments. For example, only Japan (out of the 14 countries assessed) reported specifically about its number of IUU fishing investigations as part of its annual report on sustainable fisheries management. Similarly, for some countries, there are limited public data at the national level regarding cross-sector partnerships between governments and the private sector to specifically combat IUU fishing, promote sustainable fishing practices, and related initiatives such as enforcing fair labor standards. Currently from SUFIA LCD's assessment of publicly available data, it seems that only a portion of the fishing sector is proactive and in regular dialogue with governments, NGOs, and related stakeholders. SUFIA LCD conducted a high-level mapping of key private sector led or multistakeholder initiatives that focused on cross-sector collaboration for sustainable fisheries management (detailed in Exhibit 4).

Due to data limitations, SUFIA LCD utilized multiple methods to assess the progress of adoption of sustainable fishing practices (e.g., Fishery Improvement Projects [FIPs]), action to combat IUU fishing, and human trafficking and labor exploitation of workers in the sector for the 14 countries. The FIP Directory at FisheryProgress.org was used to demonstrate private sector action toward sustainable fishing practices. SUFIA LCD used the IUU Fishing Index and the 2021 US State Department's Trafficking in Persons (TIP) Report to assess the progress combating IUU fishing and human trafficking in the fishing sector.

Summary of identified FIPs and progress

Launched in 2016, FisheryProgress.org is a "one-stop shop" for information on the progress of global FIPs managed by FishChoice.[47] A FIP Directory is accessible to the public at FisheryProgress.org and can show 'active' or 'inactive' FIPs by country. The search results yield FIP information such as name,

type (either basic or comprehensive), and a Progress Rating. The Progress Rating is scored from A (advanced progress) through E (negligible progress) and are assessed periodically with a six-month report, annual report, and a three-year audit. SUFIA LCD used the FIP Directory to search for active FIPs by country for each member of CTI-CFF and SEAFDEC. Results are listed in Exhibit 15 as of September 2021. Of the 14 countries, a total of 38 FIPs were identified for 7 countries listed below (while Brunei Darussalam, Cambodia, Lao PDR, Malaysia, Myanmar, Singapore, and Timor-Leste had no FIPs listed in the directory). Indonesia led with the most FIPs–17 in total. Regarding progress status of each FIP, of the total 38, the breakdown of ratings are as follows:

- 16 (42%) were rated A – Advanced progress
- 6 (16%) were rated B – Good progress
- 9 (24%) were rated C – Some recent progress
- 1 was rated E – Negligible progress
- 6 had no information available for a progress rating

Exhibit 15: Identified FIPs from FIP Directory at FisheryProgress.org

Countries	FIP Directory Search Results[48]		
	FIP Name	FIP Type	Progress Rating
Indonesia – 17 FIP	Indonesia blue swimming crab – trap & gillnet	Comprehensive	A – Advance Progress
	Indonesia Central Java white prawn – tammel net + trap	Comprehensive	n/a
	Indonesia deepwater groundfish - dropline, longline, trap and gillnet	Comprehensive	B - Good Progress
	Indonesia Indian Ocean and Western Central Pacific Ocean tuna and large pelagic - longline	Comprehensive	A - Advanced Progress
	Indonesia Indian Ocean and Western Central Pacific Ocean wahoo, cobia, and mahi-mahi - longline	Basic	n/a
	Indonesia Indian Ocean skipjack tuna - pole & line	Comprehensive	A - Advanced Progress
	Indonesia Indian Ocean yellowfin tuna - handline	Comprehensive	A - Advanced Progress
	Indonesia Indian Ocean yellowfin tuna - pole & line	Comprehensive	A - Advanced Progress
	Indonesia North Sumatra squid - handline	Comprehensive	C - Some Recent Progress
	Indonesia snapper and grouper - bottom longline, dropline, trap, and gillnet (ADI)	Comprehensive	C - Some Recent Progress
	Indonesia South Kalimantan shrimp - trammel net	Comprehensive	C - Some Recent Progress
	Indonesia Southeast Sulawesi yellowfin tuna and skipjack tuna - purse seine	Comprehensive	A - Advanced Progress
	Indonesia Western and Central Pacific Ocean skipjack tuna - pole & line	Comprehensive	A - Advanced Progress
	Indonesia Western and Central Pacific Ocean yellowfin tuna - handline (AP2HI, IPNLF, MDPI)	Comprehensive	B - Good Progress
	Indonesia Western and Central Pacific Ocean yellowfin tuna - handline (IPNLF)	Comprehensive	A - Advanced Progress
	Indonesia Western and Central Pacific Ocean yellowfin tuna - pole & line	Comprehensive	A - Advanced Progress
	Western and Central Pacific Ocean skipjack & yellowfin tuna - purse seine (General Tuna Corporation)	Comprehensive	n/a
Japan – 3 FIP	Japan Tokyo Bay sea perch - purse seine	Comprehensive	A - Advanced Progress
	Japan Tomamae giant Pacific octopus - barrel flowing	Comprehensive	A - Advanced Progress
	North Pacific blue shark and swordfish - longline	Comprehensive	n/a

Countries	FIP Directory Search Results[48]		
	FIP Name	FIP Type	Progress Rating
Papua New Guinea -5 FIP	Western and Central Pacific Ocean skipjack & yellowfin tuna - purse seine (CFC)	Basic	C - Some Recent Progress
	Western and Central Pacific Ocean skipjack & yellowfin tuna - purse seine (General Tuna Corporation)	Comprehensive	n/a
	Western and Central Pacific Ocean tuna - purse seine (Dongwon Industries)	Comprehensive	A - Advanced Progress
	Western and Central Pacific Ocean tuna - purse seine (Thai Union)	Comprehensive	C - Some Recent Progress
	Western and Central Pacific Ocean tuna – longline (Yaizu)	Basic	B - Good Progress
Philippines – 3 FIP	Philippines blue swimming crab - bottom-set gillnet & pot/trap (PACPI)	Comprehensive	A - Advanced Progress
	Philippines blue swimming crab - pot (Saravia Blue Crab)	Basic	E - Negligible Progress
	Philippines yellowfin tuna - handline	Comprehensive	B - Good Progress
Solomon Islands – 5 FIP	Western and Central Pacific Ocean albacore and yellowfin tuna - longline (Bumble Bee/FCF Co., Ltd)	Comprehensive	C - Some Recent Progress
	Western and Central Pacific Ocean skipjack & yellowfin tuna - purse seine (CFC)	Basic	C - Some Recent Progress
	Western and Central Pacific Ocean tuna - longline (Hangton)	Comprehensive	C - Some Recent Progress
	Western and Central Pacific Ocean tuna - purse seine (Dongwon Industries)	Comprehensive	A - Advanced Progress
	Western and Central Pacific Ocean tuna - purse seine (Thai Union)	Comprehensive	C - Some Recent Progress
Thailand – 2 FIP	Thailand blue swimming crab - bottom gillnet/trap	Comprehensive	A - Advanced Progress
	Thailand longtail tuna - purse seine	Comprehensive	B - Good Progress
Viet Nam – 3 FIP	Vietnam mixed species - trawl	Basic	n/a
	Vietnam swordfish - handline	Comprehensive	A - Advanced Progress
	Vietnam yellowfin tuna – handline	Comprehensive	B - Good Progress

Summary of the 2019 IUU Fishing Index

The IUU Fishing Index was developed by Poseidon Aquatic Resource Management Ltd., a consultancy company, and the Global Initiative Against Transnational Organized Crime, an NGO based in Geneva. This initiative was funded by the Norwegian Ministry of Foreign Affairs. The IUU Fishing Index is a benchmarking tool to help all stakeholders understand the progress of various measures to date and offers a comparison between countries and regions (Exhibit 16).

Exhibit 16: IUU Fishing Index Indicators

IUU Fishing Index's 40 Indicators[49]	
Responsibilities Indicators	**Types Indicators**
8 coastal indicators	13 vulnerability indicators
10 flag indicators	10 prevalence indicators
7 port indicators	17 responsible indicators
15 general indicators	

The IUU Fishing Index's scoring system makes 1 the best, and 5 the lowest score. In the 2019 assessment, the Asia region is the most vulnerable and has the highest IUU score. SUFIA LCD also summarized the score and performance of each member country of CTI-CFF and SEAFDEC from the IUU Fishing Index 2019 assessment.[50] More details are included in the country profiles in Annex C.

Exhibit 17: 2019 IUU Fishing Index Scores for the Focus Countries

CTI-CFF and SEAFDEC Member Countries	IUU Fishing Index Score (1 = best, 5 = lowest)	Rank by Best Performance
Brunei Darussalam	2.22	1. Solomon Island
Cambodia	3.23	2. Brunei Darussalam
Indonesia	2.70	3. Papua New Guinea
Japan	2.63	4. Thailand
Lao PDR	Not applicable (no marine borders)	5. Singapore
Malaysia	2.52	6. Malaysia
Myanmar	2.73	7. Timor-Leste
Papua New Guinea	2.23	8. Japan
Philippines	2.71	9. Indonesia
Singapore	2.46	10. Philippines
Solomon Islands	2.10 – Best Score	11. Myanmar
Thailand	2.33	12. Viet Nam
Timor-Leste	2.61	13. Cambodia
Viet Nam	3.16	

Please note that right before the publication of this report, the 2021 IUU Fishing Index was released in December 2021.

Summary of the 2021 US TIP Report

Another key concern related to IUU fishing is the abuse of workers' rights and, in extreme cases, forced labor and human trafficking. The United States Government has produced an annual Trafficking in Persons Report (TIP Report) that gives an overview of the situation in each country, particularly focusing on what each government has done to combat human trafficking. Southeast Asia has long been recognized as a regional hub of human trafficking. The ranking is determined by assessing whether governments have made efforts to address the problems that meet the minimum standards

of the Trafficking Victims Protection Act (TVPA) and not the scale or presence of the crime. The TIP Report ranks countries using a system of four tiers:

- Tier 1: country fully meets TVPA minimum standards
- Tier 2: country does not meet the TVPA minimum standards but is making significant effort
- Tier 2 Watch List: country does not meet TVPA minimum standards; there is limited effort but identified victims, lack of country-level action, and failure to provide evidence
- Tier 3: country does not meet TVPA minimum standards and is not making significant effort

Exhibit 18 summarizes the tier ranking of each of the 14 countries for the latest 2021 report and noted if existing cases relating to the fisheries sector have been identified (additional information is included in the country profiles in Annex C).

Exhibit 18: Focus Countries' 2021 TIP Report Rankings and Summary of Information Relating to Cases or Vulnerabilities of Workers

CTI-CFF and SEAFDEC Member Country	2021 TIP Report Ranking [51]	TIP Cases in Fisheries + Seafood Sector
Brunei Darussalam	Tier 2 Watch List	No specific fisheries and seafood cases identified in this report. However, the report did note the vulnerability of foreign migrant workers in the fishing crew to being exploited due to weak labor laws regulating contracts.[52]
Cambodia	Tier 2 Watch List	Cambodian men are subjected to trafficking in the fishing industry, e.g., in Thai-owned and -operated vessels and as forced labor in Japanese companies in food processing and fishing.[53]
Indonesia	Tier 2	Indonesian men are subjected to trafficking in the fishing industry domestically and abroad. Indonesian government repatriated 589 Indonesian fishermen who complained about working conditions from 98 Chinese-flagged fishing vessels in 2020. Traffickers also exploit Indonesian women, men, and children in fish processing as well.[54]
Japan	Tier 2	Concerns of possible cases of forced labor tied to the government-operated Technical Intern Training Program for foreign workers, including in the fishing and seafood processing sector.[55]
Lao PDR	Tier 2	Many Lao migrant workers worked in Malaysia's fishing industry, but the government did not screen to identify abuse or trafficking. In the past, there were cases of Lao men and boys exploited in forced labor in Thailand's fishing, construction, and agriculture sectors.[56]
Malaysia	Tier 3	No specific cases link to fisheries and seafood identified in this report.
Myanmar	Tier 3	Burmese fishermen exploited and trafficked for both the domestic fishing industry and abroad, in Thailand, Indonesia, Malaysia, Taiwan, and Japan, for employment in the fishing sector.[57]
Papua New Guinea (PNG)	Tier 2 Watch List	Cases of foreign workers forced labor/debt bondage on vessels in PNG's EEZ, especially for tuna fishing. Government seized one foreign fishing vessel and arrested nine crew members for illegal fishing, but no clear report on labor exploitation and whether human trafficking was involved.[58]

CTI-CFF and SEAFDEC Member Country	2021 TIP Report Ranking [51]	TIP Cases in Fisheries + Seafood Sector
Philippines	Tier 1	Filipino migrant workers were victims of labor trafficking in the fishing sector domestically and abroad. The government hosted a webinar to raise awareness of forced labor in the fishing industry as a response.[59]
Singapore	Tier 1	There were noted cases of long-haul fishing vessels complicit in forced labor, identified when they transited or docked at Singapore port.[60]
Solomon Islands	Tier 2	Foreign workers are trafficked for labor on fishing vessels in SI waters and ports, such as Taiwan-flagged fishing vessels. The report also noted official corruption in enabling irregular migration and trafficking.[61]
Thailand	Tier 2 Watch List	Two cases of trafficking involving the fishing sector reported. Corruption and official complicity in facilitating trafficking remains a challenge and for the fishing sector cases, with reluctance by officials to investigate influential boat owners and captains. However, in December 2020, the Thai Department of Special Investigations arrested the owner of a fishing vessel, who was also a local government official, for human trafficking charges.[62]
Timor-Leste	Tier 2 Watch List	The government acknowledges the possible cases of trafficking in the fishing vessels in Timor-Leste's waters and EEZ but lacks the capability to patrol, inspect, and investigate cases.[63]
Vietnam	Tier 2 Watch List	No specific cases linked to fisheries and seafood identified in this report. However, the report noted that perpetrators of human trafficking subject victims to forced labor in the fishing and seafood processing industry.[64]

The PSLA team researched and wrote 14 country profiles including Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, PNG, Philippines, Singapore, Solomon Islands, Thailand, Timor-Leste, and Vietnam. Each country profile provides a snapshot of the fisheries sector (such as marine geography, trade and economics, fishing vessel types, and type of catches), the summary of key national policies and legal frameworks to combat IUU fishing, and the country's ranking in the IUU Fishing Index and 2021 TIP Report.

Annex B: Private Sector-Led or Multistakeholder Fishery Initiatives

Summary of Key Private Sector Led or Multistakeholder Initiatives

Name: Asian Seafood Improvement Collaborative (ASIC)

***Goals/objectives*:** A multistakeholder initiative to support Asian stakeholders in becoming agents of their own empowerment and through collaboration, create pathways for seafood improvement that accounts for social, environmental, and traceability challenges facing in the region.

Geographic focus: Southeast Asia, namely Indonesia, Myanmar, Philippines, Thailand, and Vietnam.

Stakeholders: Private sector stakeholders in aquaculture and fisheries (i.e., producer, processors), NGOs, and local certification bodies. ASIC provide additional information about their projects with key stakeholders in several countries in the region: Indonesia, Myanmar, Philippines, Thailand, and Vietnam.

Relevance and notes: ASIC's approach for cross-sector collaboration focuses on incentives as part of improvement, provision of different tools (governance; risk management, like identification of human trafficking; and compliance, etc.) for companies to use, and co-creation of practical plans for achieving sustainability. While it aims to engage all stakeholders, it has demonstrated strong experience in working with small-scale aquaculture farms (especially shrimp) in the region.

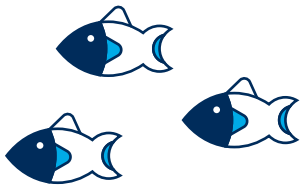
Name: The Conservation Alliance for Seafood Solutions

Goals/objectives:A global community of stakeholders working together to improve sustainability and responsibility of the seafood supply chain. Founded in 2008, the group first focused on communication and coordination among conservation organizations to promote sustainable seafood, but in the past decade, the activities have included fishery improvements and cross-sector partnerships.

Geographic focus: Global

Stakeholders: The Alliance refers to their members as the Global Hub, which consists of NGOs, businesses, academics, human rights experts, and other specialists.

Relevance and notes: The initiative aims to support and amplify existing initiatives, identify areas where no one is working, and promote collaboration for change by including diverse perspectives. For instance, in June 2021, it developed a new tool to support seafood businesses in protecting human rights. The initiative has demonstrated a strong performance in North America and the EU in engaging retailers to partner with nonprofit members and it has expanded to Asia, starting in Japan.



Summary of Key Private Sector Led or Multistakeholder Initiatives

Name: FishChoice

Goals/objectives: An NGO that creates online tools to support businesses to achieve sustainability in the fisheries and seafood sector. FishChoice manages two multistakeholder online platforms: (1) Fishchoice.com, an interactive platform that provides tools for businesses to learn about sustainability, track their status and progress, share information with customers, and find seafood that meets their sustainability requirements; and (2) FisheryProgress.org, a "one-stop" shop for reliable information about the progress of global FIPs.

Geographic focus: Global

Stakeholders: Businesses and NGOs. The FisheryProgress.org is also overseen by several committees with members from business and NGOs (links to current members): Advisory Committee, Technical Oversight Committee, and Social Advisory Committee.

Relevance and notes: The partner directory at Fishchoice.com and the FIP Directory at FisheryProgress.org are both excellent tools for the public, but especially for companies that are seeking examples of FIPs or seeking to identify partners. In addition to the public FIP Directory, FisheryProgress.org provides guidance for buyers, promotes a human rights and social responsibility policy, highlights early adopters, and provides updates on new FIP profiles added to the directory.

Name: Global Dialogue on Seafood Traceability (GDST)

Goals/objectives: An international, business-to-business platform established to advance a unified framework for interoperable seafood traceability practices and works with seafood industry stakeholders from all parts of the supply chain and relevant civil society experts. The goal of GDST is for industry standards to be universally applied around the world and to improve reliability of seafood information, reduce the cost of seafood traceability, reduce supply chain risk, and contribute to long-term sustainability for the sector.

Geographic focus: Global

Stakeholders: Businesses in the seafood supply chain, governments, and NGOs. Company participation is important and some companies have formally adopted or endorsed GDST 1.0.

Relevance and notes: Provide guidance and support for the industry adoption of the GDST 1.0 Standards and material packet. It is open to any company in the seafood supply chain to join, as well as non-supply chain companies and other stakeholders to also become members. Current list of 60+ companies that have adopted the GDST 1.0 standards.

Name: Global Sustainable Seafood Initiative (GSSI)

Goals/objectives: A public-private partnership on seafood sustainability with 90+ stakeholders across the industry that works to ensure confidence in the supply and promotion of certified seafood and promote improvement in the seafood certification schemes.

Geographic focus: Global

Stakeholders: Companies, NGOs, governments, and international organizations e.g., FAO. GSSI's partners number more than a hundred stakeholders from around the world.

Relevance and notes: GSSI operates a global benchmark tool that measures compliance to FAO's guidelines, provides a global, multistakeholder platform for collaboration and exchanges, and works with other initiatives such as the Consumer Goods Forum's Sustainable Supply Chain Initiatives.

Summary of Key Private Sector Led or Multistakeholder Initiatives

Name: Global Tuna Alliance (GTA)

Goals/objectives: An independent group of 66 companies, including retailers and tuna supply chain companies, working to ensure that "tuna ultimately meets the highest standards of environmental performance and social responsibility".

Geographic focus: Global

Stakeholders: A sector-wide, multistakeholder initiative with the aim to build a shared, global, and non-competitive solution to sustainability issues in the global tuna supply chain. GTA regularly updates its list of 'current partners' on a regular basis.

Relevance and notes: With over 70 countries involved in the tuna supply chain and with tuna being overfished, GTA is specifically focused on the sustainable management of tuna, as 'an economic and environmental priority.' The key areas it works on is harvest strategies, improve traceability, environmental sustainability, promoting human rights in tuna fisheries, and implement the World Economic Forum's Tuna 2020 Traceability Declaration.

Name: The High-Level Panel for Sustainable Ocean Economy (The Ocean Panel)

Goals/objectives: Developed in 2018, a multistakeholder group led by 14 "serving" world leaders from Australia, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Palau, and Portugal that works with governments, business, financial institutions, the science community, and civil society to catalyze and scale bold, pragmatic solutions across policy, governance, technology and finance to develop an action agenda to transition into a sustainable ocean economy.

Geographic focus: Global

Stakeholders: In addition to the 14 member countries, the Ocean Panel has an Advisory Network that is comprised of 135+ private sector, NGOs, and intergovernmental organizations across 35 countries.

Relevance and notes: Unlike other multistakeholder initiatives, this one is driven by the government leaders to urge other leaders from government/countries, industry, civil society, the financial community, and other sectors to prioritize the transition to a sustainable ocean economy. In December 2020, it launched its New Ocean Action Agenda and the "Give It 100%" campaign to highlight the urgency of action required to protect the ocean.

Name: International Seafood Sustainability Foundation (ISSF)

Goals/objectives: Launched in 2009 by scientists, leaders in industry, and environmental champions to address their shared concerns about the future of global tuna fisheries and to act and facilitate science-based initiatives for long-term conservation and sustainable use of global tuna stocks, reducing bycatch, and promoting tuna ecosystem health.

Geographic focus: Global

Stakeholders: The stakeholders currently working with ISSF include scientists and scientific agencies, RFMOs, NGOs, charitable foundations, retailers and food service companies, companies participating in ISSF (e.g., tuna companies), and the fishing vessel community. ISSF highlights the participating companies by grouping them into three categories of membership: Founding, Full, and Associate.

Relevance and notes: ISSF's focus areas of research and advocacy are tuna conservation, bycatch reduction, illegal fishing elimination, and capacity management. The initiative provides various, valuable sustainable fishing resources and tools, e.g., interactive tuna stock status tools, IUU related databases (unique vessel identifiers, ProActive Vessel Register, IUU Vessel List), guides, workshops, a FIP resource finder, and publications.

Summary of Key Private Sector Led or Multistakeholder Initiatives

Name: Monterey Bay Aquarium Seafood Watch

Goals/objectives: A program that began 20 years ago that advises consumers and works directly with businesses and governments for sustainable seafood. The goal is to have 75% of global seafood production assessed by 2030 through an integrated approach that spans across the seafood industry.

Geographic focus: Global

Stakeholders: The Monterey Bay Aquarium Seafood Watch prioritize collaborations with the seafood industry, from working with restaurants, retailers, seafood suppliers, to chefs and other key stakeholders, such as conservation experts and NGOs.

Relevance and notes: One of the few initiatives that directly engages public consumers to make an informed choice of their seafood based on the species' status. The program allows consumers and buyers to search seafood, by species or sushi name, and provides recommendations according to criteria: best choice, certified, good alternative, and avoid.[1] The program also developed standards for fishing and aquaculture practices, including salmon fisheries, and works with business and chefs to source seafood responsibly.

Name: The Roadmap for Implementing Seafood Ethics (RISE)

Goals/objectives: A free, online resource and tool created by FishWise, with the support of the Walmart foundation, to help companies address improve seafood ethics, especially respecting human rights and labor rights by focusing on responsible recruitment of workers, meaningful worker engagement, and decent work at sea.

Geographic focus: Global

Stakeholders: RISE also has a community database that links interested companies to human right experts and organizations.

Relevance and notes: The RISE Roadmap is a free, online resource tool that was specifically designed to help seafood companies understand the responsibility of businesses to address adverse impact to human rights by focusing on six steps: commit, learn, assess, build, collaborate, and remediate. It provides additional resources and access to a group of human and labor rights experts.

Name: Seafood Alliance for Legality & Traceability (SALT)

Goals/objectives: SALT was created as a global community of governments, seafood industry, and NGOs to focuses on building connection, sharing ideas, and collaborate on solutions for legal and sustainable seafood, especially focusing on traceability of the seafood supply chain.

Geographic focus: Global

Stakeholders: Governments, NGOs, and the seafood industry are participating in SALT to improve cross-sector collaborations. Several companies and private sector related organizations are on the advisory committee of SALT.

Relevance and notes: In response to disconnection and difficulty in collaborating among the various sustainable seafood efforts around the word, SALT as an initiative aimed to fill this role, and its ability to convene key cross-sector stakeholders is important. SALT is also a public-private partnership between USAID and the Packard, Moore, and Walton Family Foundations with implementation by FishWise, a sustainable seafood consultancy.

Summary of Key Private Sector Led or Multistakeholder Initiatives

Name: Seafood Business for Ocean Stewardship (SeaBOS)

Goals/objectives: A collaboration between scientists and leading seafood companies with the following goals: Addressing IUU fishing, endangered species, and forced labor; climate resilience; working with governments; reducing ocean plastics; and to be a source of inspiration for the industry.

Geographic focus: Global

Stakeholders: The group is coordinated by the Stockholm Resilience Centre at Stockholm University with key partners from the Beijer Institute of Ecological Economics at the Royal Swedish Academy of Science, the University of Lancaster, and the Sandford Center for Ocean Solutions; the scientific work is independently funded by the Walton Family Foundation, the Moore Foundation, and the Packard Foundation. The SeaBOS companies represent 10% of the world's seafood production and comprise over 600 subsidiary companies.

Relevance and notes: Led by the chief executive officers of the world's leading seafood companies and scientists, the initiative aims to demonstrate the industry's commitment for sustainability. Within SeaBOS, there are six task forces that focuses on several key priorities:

- Addressing IUU fishing, endangered species, and forced labor
- Communications (promote and illustrate leadership and best practices in terms of seafood traceability)
- Working with governments
- Transparency and governance of SeaBOS
- Reducing ocean plastics
- Climate resilience

Name: Seafood Stewardship Index (World Benchmarking Alliance)

Goals/objectives: In 2019, the Seafood Stewardship Index was the first benchmark to be published by the World Benchmarking Alliance, a group devoted to improving companies' performance on corporate sustainability and alignment to the UN Sustainable Development Goals.

Geographic focus: Global

Stakeholders: For this benchmark, they assessed the 30 most influential companies in the seafood industry due to their size, influence, and reach. While this benchmarking only looked at these 30-seafood companies, it is an important start to understanding the industry's transition to sustainability.

Relevance and notes: One of the first public benchmarks that focuses exclusively on what the leading seafood companies have achieved in their sustainability commitments. The key findings were that most of the companies are committed to sustainability and trying to improve human rights measures; however, more can be done to address IUU fishing by improving on transparency. The organization is conducting a methodology review and aims to release updates in later 2021 and 2022.

Summary of Key Private Sector Led or Multistakeholder Initiatives

Name: Seafood Task Force

Goals/objectives: an international multistakeholder collaboration initiative with full supply chain participation that address the risk of forced labor, human trafficking, and IUU fishing in the Thai seafood supply chain, including publicly endorsing the Royal Thai Government's Fishery reforms.

Geographic focus: Thailand, with plans to expand into India, Indonesia, and Vietnam.

Stakeholders: The Seafood Task Force members are European and American retailers, their suppliers, NGOs, and the major Thai seafood processors and feed companies.

Relevance and notes: A key multistakeholder initiative in Thailand and Southeast Asia. Recently, the Seafood Task Force (STF) released its "10 Point Action Plan 2021: Briefer and Progress Update Report" with priority areas: increase accountability, enhance tuna supply chain oversight, improve worker recruitment supply chain practices, launch innovative and scalable STF oversight program, create a culture of improvement through direct vessel owner engagement, protect against conversion of natural habitat to shrimp farms, cocreate a vessel behavior monitoring program with the Royal Thai Government, develop and deploy an STF environmental code of conduct, expand STF oversight to level the playing field in Asia, and strengthen governmental leverage for reform through international market engagement.

Name: Ship to Shore Rights Initiative South East Asia

Goals/objectives: Ship to Shore Rights South East Asia is a multicounty, multi-year initiative of the EU and UN, implemented by the International Labour Organization in collaboration with International Organization for Migration and United Nations Development Programme. Its overriding objective is to promote regular and safe labor migration and decent work for all migrant workers in the fishing and seafood processing sectors in Southeast Asia.

Geographic focus: Southeast Asia

Stakeholders: The country specific initiative engages migrant workers in the fishing and seafood processing sectors, national government authorities, worker organizations, recruitment agencies, employers, and civil society and community-based organizations.

Relevance and notes: The initiative specifically prioritizes working with current, potential, and returnee migrant workers in the fishing and seafood processing sectors, their families, and communities.

Annex C: Country Profiles

As part of the Sustainable Fish Asia (SUFIA) Local Capacity Development (LCD) Activity Private Sector Landscape Analysis, we conducted extensive country-level research along the following areas:

- Marine Geography–including location, size, aquatic zones, and other geographic factors
- Trade and Economics–including vessel size, revenues, and catch/production information
- Fisheries Policy and Legislation–including domestic policy and laws as well as the regional and international treaties, conventions, and commitments to which they are a party
- Illegal, Unreported, and Unregulated (IUU) Fishing – including each country's ranking on the 2019 IUU Fishing Index. Please note that right before the publication of this report, the 2021 IUU Fishing Index was released in December 2021.
- Labor and Human Trafficking–including ranking on State Department 2021 Trafficking in Persons (TIP) Report

The information for these country profiles came from Southeast Asian Fisheries Development Center (SEAFDEC) and United Nations (UN) Food and Agriculture Organizations (FAO) county reports, the IUU Fishing Index, U.S. State Department TIP Report, and government publications and interviews.

The 14 countries included in our study are: Brunei Darussalam, Cambodia, Indonesia, Japan, Lao People's Democratic Republic (PDR), Malaysia, Myanmar, Papua New Guinea, Philippines, Singapore, Solomon Islands, Thailand, Timor-Leste, and Vietnam.

The countries were selected because they are the member countries of SEAFDEC and Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF) and therefore most relevant to future SUFIA LCD project activities.

Brunei Darussalam

Marine Geography

Located in the northwestern part of the island of Borneo, Brunei Darussalam has 161 kilometers of coastline along the South China Sea. The total marine territorial area is estimated at 38,600 square kilometers covering the Brunei Fisheries Limits. Brunei Darussalam's water is partially on continental shelves (about 8,600 square kilometers). Fishing areas are divided into four zones.[65] These four zones are divided by nautical miles: Zone 1 is 0–3 miles; Zone 2 is 3–20 miles; Zone 3 is 20–45 miles; and Zone 4 is 45–200 miles. Brunei Darussalam coastal rivers flow into the sea. The Brunei Bay is populated with mangroves, representing one of the largest tracts of relatively undisturbed forest in the country.

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

In 2019, the contribution of agriculture, forestry, and fisheries to Brunei's Gross Domestic Product (GDP) was 146.3 million Brunei dollars.[66] When broken down further, the fishing sector contributed 47 million Brunei dollars[67] to the economy in 2019. Data from Brunei Darussalam Department of Fisheries' 2018 Report[68] noted the following information:

2018 Data	Number of Companies	Gross Output of Fisheries Product (Metric Tons)		Gross Output of Fisheries Production Value (Brunei$ Million)	
		Target	Actual	Target	Actual
Capture	23 Commercial 1,925 Small-Scale	21,330	13,566	112.3	73.81
Aquaculture	88 Commercial	15,929	1,248	226.5	13.77
Seafood Processing	14 Commercial 52 Small-Scale	9,303	3,853	64.6	21.94
Total	125 Commercial 1,977 Small-Scale	58,974	18,666 (31.65%)	403.4	109.52 (27.15%)

For commercial fisheries, the 23 companies operate a total of 37 vessels that are categorized as: trawlers (Zone 2, 3); purse seiners (Zone 2, 3); hooks and line, long lines, and traps (Zone 2, 3); tuna purse seiners (Zone 4); and hook and line (Zone 4). For small-scale fishers, 470 were listed as part of a company, 435 listed full-time, and 1,020 as part-time.[69] There is limited information about the specific type of marine catch in Brunei, except tuna (but no specific data on how much tuna is caught). However, based on the information about seafood production, the items were frozen seafood, crackers, comminuted, fish fillet, and trash fish products.[70] For aquaculture, the key products are marine shrimp, marine finfishes, and freshwater fishes.

Fisheries Policy and Legislation

As noted earlier, Brunei Darussalam is not yet a signatory to the FAO's Agreement on Port State Measures (PSMA). At the regional level, Brunei Darussalam is a member of The Coordination Committee of the Regional Plan of Action (RPOA) to combat IUU fishing, participating in the East Asia Summit Track II study on enhancing food security through sustainable fisheries management and marine environment conservation, and is a member of SEAFDEC. The Fisheries Order 2009 and the Brunei Fishery Limit Act Chapter 130 are the two-key national-level strategic policy instruments for fisheries management. In 2011, the National Plan of Action to Prevent, Deter, and Eliminate IUU Fishing was launched. The enforcement of IUU fishing in Brunei is a joint operation between the Royal Brunei Navy, Marine Police of the Royal Brunei Police Force, and the Internal Security Department that conducts the monitor, control, and surveillance (MCS).[71]

Illegal, Unreported, and Unregulated Fishing

Brunei Darussalam's IUU Fishing Index score is 2.22 (1 is best score and 5 is lowest score), which is slightly better than the world overall IUU score of 2.29. The sub-scores are as follows:

- Coastal = 2.82
- Flag = 1.50
- Port = 2.67
- General = 2.21[72]

Brunei scored the best on the flag indicators, which include vessels on IUU lists, view of fisheries observers and MCS on flag state compliance incidents. The country's costal and port indicators are the weakest. Brunei scored very poorly (4/5) on the following indicators: (1) agreement on all maritime boundaries; (2) dependency on fish protein; (3) MSC-certified fisheries; (4) port visits by foreign fishing or carrier vessels; and (5) being party to the PSMA.

There is also a lack of data regarding authorization of foreign vessels to operate in the Exclusive Economic Zone (EEZ), operation of national VMS/FMC center, and designated port for foreign vessels.

Labor and Human Trafficking

Brunei Darussalam is listed as a Tier 2 Watch List in the latest U.S. State Department TIP Report. The country has a large population of foreign migrant workers, 140,000, mainly from Indonesia, Philippines, Bangladesh, and China. Most migrants work in domestic service, retail, and construction. However, while no cases of human trafficking were reported in the fisheries sector, foreign workers are at-risk of exploitation due to weak labor protection—for example, requiring employers to provide contracts for fishing crew.[73]

Cambodia

Marine Geography

Cambodia has 440 km coastline along the Gulf of Thailand and is covered with mangrove forests. Rivers, lakes, floodplains, reservoirs, dams, and wetlands make up the main bodies of water. The Tonle Sap Lake is a natural reservoir for the Mekong River system, and it can double in size during the wet season with its flood coverage.[74] In addition, Cambodia has 69 offshore islands and an EEZ covering 55,600 km of the Gulf of Thailand.[75] The fish production is mostly from inland and freshwater capture. Marine fishing is divided into two areas: inshore fishing area—coastline to 20-meter-deep line and offshore fishing area—from the 20-meter-deep line to the outer limits of the EEZ.

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

The fisheries sector in Cambodia provides work for approximately 6 million people (both full and part-time in fisheries and fisheries-related). The value of fishery products is about USD$1.5 billion annually and is approximately 8%–12% of the total GDP.[76] Data from 2018 show that inland capture (535,005 tons, or 59%) makes up most fish production, followed by aquaculture (28%), and then marine capture 13%). Aquaculture overtook marine capture in terms of production in 2015 and has been expanding each year. For marine fishing, vessels are mackerel purse seines, anchovy purse seines, crab gillnets, shrimp gillnets, crab traps, hook line, and squid traps.[77] The latest data about the number of fishing vessels in Cambodia are from 2011 and grouped vessels by three types.[78]

Vessel Types	Number (2011)
Inboard engine (>33 Horsepower)	2,485
Outboard engine (<33 Horsepower)	47,263
Non-powered	43,650
Total	93,398

For commercial fisheries, the 23 companies operate a total of 37 vessels that are categorized as: Cambodia has approximately 500 inland fish species and 520 marine fish species.[79] Most fish products in Cambodia are for local consumption, and the most common products are traditional products: fish paste, fermented fish, dry salted fish, smoked fish, fish sauce, and dried fish for animal feed. Some inland species that are important were noted as several types of catfish, barb, carp, and snakeheads.[80] Marine commercial species are mackerel, scads, anchovies, snappers, shrimps, blue swimming crab, cuttlefish, squid, green mussels, oysters, and blood cockles.[81]

Fisheries Policy and Legislation

Cambodia is a party to the FAO's PSMA. At the regional level, Cambodia is a member of The Coordination Committee of the RPOA to combat IUU fishing and is a member of SEAFDEC. At the national level, the key legislation related to fisheries is the Fisheries Law of Cambodia (2006), which regulates trade and transport of fish and fishery products.

Illegal, Unreported, and Unregulated Fishing

Cambodia's IUU Fishing Index score is 3.23 (1 is best score and 5 is lowest score). However, the IUU Fishing Index assessment was released in 2019 just before Cambodia joined the PSMA. The sub-scores are as follows:

- Coastal = 4.00
- Flag = 1.88
- Port = 3.87
- General = 3.23[82]

Cambodia scored the best on the flag indicators: vessels on IUU lists, view of fisheries observers on flag state compliance incidents, etc. Costal and port indicators are the weakest. Cambodia scored very poorly (4/5) on the following indicators:

- agreement over all maritime boundaries
- dependency on fish protein
- authorize foreign vessels to operate in EEZ
- MSC-certified fisheries
- operate a national VMS/FMC center
- port visits by foreign fishing or carrier vessels
- party to the PSMA
- designation of ports for entry by foreign vessels

In the general category, it also scored a 5 for gross national income per capita, carded under European Union (EU) IUU regulation, mandatory vessel tracking for commercial seagoing fleet, demand for MSC products, and ratification/accession of UN Convention on the Law of the Sea (UNCLOS).

Labor and Human Trafficking

For the U.S. 2021 TIP Report, Cambodia was categorized as a Tier 2 Watch List country. Cambodian men are subjected to trafficking in the fishing industry–most commonly by Thai owned and operated vessels and forced labor in Japanese companies in food processing and fishing. The government has provided vocational training and programs to help male trafficking victims from the commercial fishing industry obtain new employment, but it was unclear how many benefited from this initiative[83].

Indonesia

Marine Geography

Located between the Indian Ocean and the Pacific Ocean, Indonesia is composed of 17,504 islands and 108,000 square kilometers of coastline.[84] The national waters of Indonesia are divided into 11 fisheries management areas called Wilayah Pengelolaan Perikanan, based on fishery characteristics and resources. Indonesia has a total of 814 fishing ports divided into four types: Oceanic (Type A), Archipelagic (B), Coastal (C), and Fish Landing (D). These are managed by the Ministry of Marine Affairs and Fisheries, cooperatives, and private companies. Type A ports service the international market and export bound products while Type B, C, and D serve the domestic fish market with Type D being the most common type across the country.[85]

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

Capture fisheries and aquaculture make up Indonesia's fishing sector. In 2017, the Indonesia fishing industry produced 23.19 million tons worth $ 27.27 billion (capture produced 7.07 million tons worth $ 14.04 billion; aquaculture produced 16.11 million tons worth $13.24 billion).[86] Fishing licenses issued by the central government for vessels greater than 30 gross tons (GT) are mostly owned by individual fishers (64.5%), business groups (24.5%), private companies (9.8%), foreign investors (0.78%), and cooperatives (0.38%) according to data from 2015.[87] As for fishing vessels used in Indonesia, records from 2015 show:

Vessel Types	Number (2015)
Non-powered	143,135
Outboard motor	246,882
Inboard motor	178,312
Total	568,329

The types of marine fishing gears are, listed from greatest number to lowest, purse seines (small boat–1,226), lift net (636), purse seine (large boat–432), drift long line (376), squid jig (301), gillnet (295), carrier (287), bun net (162), set long line (110), tuna hand line (95), pole and line (77), pots (5), bottom long line (2), and hand line (2).[88] Indonesia's capture fisheries' top species are skipjack tuna, Eastern little tuna, shrimp, and tuna. For aquaculture, the key products and/or species are seaweed, shrimp, tilapia, catfish, grouper.[89] The top 10 fish and fisher products based on highest price per kilogram ($/kg) are pearl ($5,401), blue swimming crab ($17), fish liver and eggs ($11), shrimp ($8.8), grouper ($6), tilapia ($5.5), tuna ($4), squid, cuttlefish, octopus ($3.6), belt fish ($1.6), and seaweed ($1.4)[90].

Fisheries Policy and Legislation

Indonesia was one of the first countries in the region to sign and ratify the PSMA. Regionally, it is a member of CTI-CFF, SEAFDEC, and the RPOA-IUU. At the national level, Indonesia has extensive legislation and policies regarding fishery management and trade. The key ones are the Bill of The Republic of Indonesia Number 31 of 2004 on Fisheries and the Law of The Republic of Indonesia Number 45 of 2009 Regarding Amendment to Law Number 31 of 2004 Regarding Fishery.[91] At the regional level, Indonesia is a member of The Coordination Committee of the RPOA to combat IUU fishing. IUU fishing by foreign vessels in the EEZ of Indonesia generates a loss of approximately $3-20 billion/year as it also links to other international criminal activities such as money laundering, human trafficking (prevalent), tax fraud, and the smuggling of illegal drugs, weapons, and endangered species[92].

Illegal, Unreported, and Unregulated Fishing

Indonesia's IUU Fishing Index score of 2.70 is just above the world average of 2.29 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 2.63
- Flag = 2.87
- Port = 2.72
- General = 2.60[93]

Indonesia scored twos across most indicators. Flag and port indicators are the weakest and Indonesia scored most poorly on the following indicators:

- size of EEZ (vulnerability)
- agreement over maritime boundaries
- MSC-certified fisheries
- accepted FAO Compliance
- Regional Fisheries Management Organizations (RFMO) flag state obligations
- number of fishing ports
- ports visit by foreign vessels
- •trade balance for fisheries products
- volume of catches
- demand for MSC products

Labor and Human Trafficking

Indonesia was ranked as a Tier 2 country in the 2021 US State Department TIP Report. Indonesian men are subjected to trafficking in the fishing industry domestically and abroad. The Indonesian government arrested and charged 16 Indonesian labor recruiters for human trafficking with six being sentenced (1–4.5 years imprisonment and pay restitution). Two Chinese nationals who were part of vessel leadership were also arrested for "torturing" Indonesian fishermen, and their case is still in progress. In addition, there are ongoing investigations of several Chinese-flagged ships for forced labor, slavery, and torture of more than 150 Indonesian fishermen with two deaths. Lastly, the government repatriated 589 Indonesian fishermen who complained about working conditions from 98 Chinese-flagged fishing vessels in 2020. Traffickers also exploit Indonesian women, men, and children in fish processing as well.[94]

Japan

Marine Geography

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

An island nation, Japan has an intricate coastline of 29,751 kilometers. Japan groups its marine fisheries into three primary categories: (1) Distant water fisheries that operate on the high seas and foreign countries' EEZ; (2) Offshore fisheries that operate in the domestic and neighboring countries' EEZ; and (3) Coastal fisheries that operate mainly in the waters of fishing villages. In addition to the marine fisheries, Japan has a long history of marine aquaculture and a smaller inland water fisheries and aquaculture sector.[95]

Trade and Economics

According to Japan's Ministry of Agriculture, Forestry, and Fisheries' 2018 report, the total production volume was 4.42 million tons with a value of 1,557.9 billion yen.[96] Fisheries are grouped in three categories and in 2018 the number for each are as follows: large fisheries (54), medium and small fisheries (4,862), and coastal fisheries (74,151). Compared to 1988, there was a decrease of 59% of coastal fisheries, 50% of medium and small fisheries, and 75% of large fisheries. There was also a 61% decrease in number of fishers (151,701). With the decrease of fishers in Japan, the government has accepted foreign nationals that meets the requirements through the Specified Skilled Worker system for work in the fisheries and fishery processing sector. In addition, women have increasingly worked in the fishery processing sector as well.[97]

Fisheries and Aquaculture Type	2018 Production Volume (1,000 tons)	2018 Production Value (100 million yen)
Total	**4,421**	**15,579**
Marine Total	**4,364**	**14,439**
Marine Fisheries	3,359	9,379
Distant Water Fisheries	349	
Offshore Fisheries	2,042	
Coastal Fisheries	968	
Marine Aquaculture	1,005	5,060

Fishing vessels are grouped by size into four groups as follow:[98]

Vessel Types	Number (2018)
200 tons +	313
20 – 199 tons	596
10 – 19 tons	7,368
Less than 10 tons	6,200
Total	14,477

The most popular fish in Japan is tuna (Pacific Bluefin, Atlantic, Yellowfin) and it a member of five regional tuna regional management organizations where it works to secure tuna quotas for catch-limits. In 2019, Japan withdrew from the International Convention for the Regulation of Whaling and will resume commercial whaling of large whales. Japan generated a total of 287.3 billion yen with the following species exports: scallop (15.5%), pearl (11.5%), yellowtail tuna (8%), processed sea cucumber (7.2%), mackerels (7.2%), skipjacks and other tunas (5.3%), and other (45.3%).[99]

Fisheries Policy and Legislation

Japan ratified the UN Convention on the Law of the Sea in 1996, established the Act on Preservation and Control of Living Marine Resources in 1997, Fisheries Basic Act in 2001, amended the Fishing Port Act in 2001, and the Act to Promote Fishing in Inland Waters in 2014. Japan also completed its accession to the PSMA in 2017. The Japanese government also reports on its enforcement against illegal fishing. In 2018, Japan made 1,569 arrests for violations against fisheries laws and regulations. In 2019, the Fishing Agency conducted 8 investigations, confiscated 37 illegal fishing gears, and captured one foreign vessel for illegal fishing.[100] Japan also provides financial and technical assistance to SEAFDEC and is a member country.

Illegal, Unreported, and Unregulated Fishing

Japan's IUU Fishing Index score is 2.63 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 2.63
- Flag = 3.38
- Port = 2.72
- General = 1.97[101]

Japan scored higher than average across all indicators except the general category. Flag and port indicators are the weakest. The weakest indicators follow:

- size and authorization of foreign vessel in EZZ
- agreement over all maritime boundaries
- dependency on fish for protein
- distant water vessels on RFMO RAVs
- authorized vessel data to FAO HSVAR
- provision of vessel data for inclusion in Global Record
- compliance with RFMO flag and port state obligations
- number of fishing ports/catch volume and port visits by foreign or carrier vessels
- share of global imports

Labor and Human Trafficking

In the 2021 US TIP Report, Japan was categorized as a Tier 2 country. There are concerns of possible cases of forced labor tied to the government-operated Technical Intern Training Program (TITP) for foreign workers, including in the fishing and seafood processing sector. The program allowed 15,663 foreign workers in 2020 to work in Japan for 5 years in sectors with labor shortages. TITP participants from 15 countries across Asia pay thousands of dollars to secure placement in this program (including jobs in fish processing). This practice goes against labor standards of "paying for work" which can lead to debt bondage. Workers that participated in TITP reported restriction of movement, confiscation of passports and legal documents, threats of deportation, poor living conditions, and other forced labor conditions.[102]

Lao PDR

Marine Geography

Lao PDR is a landlocked country in Southeast Asia that borders five countries: Cambodia, China, Myanmar, Thailand, and Vietnam. The aquatic ecosystem consists of the Mekong River and its tributaries, hydropower and irrigation reservoirs, diversion weirs, small lakes, flood plains, and wet season rice fields. It is estimated that 80% of the 6.9 million total population lives in rural areas and is dependent on fishery resources and aquatic animals for protein. The fishing sector in Lao PDR is composed of inland fisheries and aquaculture[103].

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

The fishing sector in Lao PDR is still in-development with unstable profit for fish producers, weak coordination among supply chain stakeholders, poor transportation and processing facilities, and unreliable statistical information about the industry.[104] The FAO database shows that in 2018, there were an estimated 55,200 workers engaged in aquaculture and 15,300 inland fishers.[105] In Lao PDR, aquaculture production uses fishpond, community fish, rice-fish, and fish-cage culture. For capture fisheries, fishing gears include cast net, trap, hook and line, gillnet, and large gillnet for giant catfish. There is no official collection of the number and types of vessels used for inland capture. In 2018, aquaculture produced 114,957 tons, capture fisheries produced 64,243 tons, and a total of 179,200 tons. Most of the production is for domestic consumption, with fish and fish products are sold at markets. Data from 2017 show that Lao PDR exported 12 tons of freshwater fish, crustaceans, and mollusks (all of which were a combination of fresh, chilled, frozen, dried/salted/smoke, canned), valued at $44,000 to neighboring countries.[106]

Fisheries Policy and Legislation

Lao PDR is not a party to the PSMA and was not assessed for the IUU Fishing Index because it is a landlocked country. At the regional level, Lao PDR is a member of SEAFDEC and The Coordination Committee of the RPOA-IUU to combat IUU fishing. From SUFIA LCD's consultation with a representative from Lao PDR's Division of Fisheries, an ongoing challenge for Lao PDR regarding illegal fishing is the use of prohibited gears such as electro fishing or use of chemicals. The representative also shared that government's focus is to promote sustainable community-based fisheries management and work with a few companies to improve the processing of fish products. At the national level there are three laws that regulate the industry:

- Law No. 03/NA 2009–Fisheries Strategy on Fisheries of Lao PDR for 2015–2020
- Law No. 0356–Regulates the import, export, re-export, or transit of wildlife and aquatic animals or parts of as authorized by the Ministry of Agriculture and Fisheries and at designated border points
- Law No. 03/NA 2009 Article 55–Defines responsibilities of key agencies: Department of Livestock and Fisheries, Living Aquatic Resource Research Center, Provincial Livestock and Fisheries Office and District Livestock, and Fisheries Office

Illegal, Unreported, and Unregulated Fishing

As Lao PDR has no marine fisheries, it was not assessed for the IUU Fishing Index

Labor and Human Trafficking

Lao PDR was categorized as Tier 2 in the 2021 U.S. State Department TIP Report. It noted that Lao migrant workers in the fishing industry in Malaysia may be at-risk of being used in forced labor. In 2020, the Lao PDR government facilitated the return of more than 300 Lao migrant workers from Malaysia, many of whom worked in the fishing sector. However, the government did not screen this group to see if there were any cases of forced labor or trafficking. The report also noted the vulnerability of Lao men and youth to forced labor also in Thailand's fishing, construction, and agriculture industries.[107]

Malaysia

Marine Geography

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Malaysia has two geographical regions divided by the South China Sea. Peninsular Malaysia (West Malaysia) shares a border with Thailand to the north and Singapore to the south. Malaysian Borneo (East Malaysia) is located on the northern section of Borneo Island and shares a border with Indonesia and Brunei Darussalam. Malaysia also shares maritime borders with the Philippines and Vietnam. In 2014, Malaysia revised its marine capture fishing zones to as follows:

- Conservation zone: 0–1 nautical mile
- Zone A: 1–8 nautical miles
- Zone B1: 8–15 nautical miles
- Zone C and C2: 15 nautical miles–EEZ
- Zone C3: Indian Ocean[108]

Trade and Economics

The fishing sector in Malaysia is composed mostly of marine capture, followed by aquaculture, and small inland capture production. In 2017, the total export earnings were $714 million with the total fishery production of 1.7 million tons.[109] Also from the same year, there were 132,305 fishers and 21,156 people engaged in aquaculture. In Malaysia, artisanal fishers used outboard engine or no-engine vessels; it was reported that there were 2,867 non-motorized vessels under 12m length overall and 49,640 decked, motorized vessels (trawlers and purse seine) in 2017.[110] Records from 2016 show that for motorized vessels, trawlers were the most common, followed by purse seine, drift net, and hook and lines.[111] In 2014, the main seafood exported from Malaysia was valued at $0.87 billion: shrimp ($304.5 million), squid ($ 72.8 million), "live fish" ($37 million), and ornamental fishes ($19.8 million).[112] FAO's database noted that Malaysia exports high value shrimp and sashimi tuna, earning $714.1 million in 2017.[113] In addition, Malaysia is also noted for its production of farmed seaweeds as the world's seventh largest producer.

Fisheries Policy and Legislation

Malaysia is not yet a party to the PSMA nor the UN Fish Stock Agreement (UNFSA). However, at the regional level, Malaysia is a member of CTI-CFF, SEAFDEC, the RPOA-IUU, and hosts the secretariat of INFOFISH. At the national level, the Fisheries Act 1985 (Part IV) and Vessel Policy and Procedure Handbook are two important pieces of national legislation and guidance by the Department of Fisheries regulating license of fishing activities in Malaysia, types of resources, categories of vessels, and profile of ownership. Malaysia has also enacted the Strategic Plan of Department of Fisheries Malaysia 2011–2020; Capture Fisheries Strategic Plan Malaysia 2015–2020; and Malaysia's National Plan of Action to Prevent, Deter, and Eliminate IUU Fishing.[114]

Illegal, Unreported, and Unregulated Fishing

Malaysia's IUU Fishing Index score of 2.52 is a little higher than the world overall IUU score of 2.29 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 3.63
- Flag = 1.91
- Port = 3.07
- General = 2.38[115]

Malaysia scored higher than average across all indicators except the flag category. Coastal and port indicators are the weakest. Malaysia scored poorest in the following indicators:

- agreement over all maritime boundaries
- dependency on fish for protein
- has MSC-certified fisheries
- accepted FAO Compliance Agreement
- provision of vessel data for inclusion in Global Record
- port visit by foreign fishing or carrier vessels
- party to the PSMA
- ratification/accession of the UNFSA

Labor and Human Trafficking

In the 2021 US TIP Report, Malaysia was categorized as Tier 3. The report did not specifically highlight information relating to the fisheries sector. As more than 30% of the Malaysian workforce are migrant workers from across Asia, there is a risk of forced labor and human trafficking, as the recruitment process is still tied to recruitment fees (increasing risk to debt bondage) and labor laws do not prioritize the protection of migrant workers, e.g., confiscation of passports/legal documents, delayed wages, and involuntary overtime work etc. Lastly, the report noted the corruption and involvement of officials, who may be complicit in taking bribes from brokers and smugglers to cross borders, even at airports.

Myanmar

Marine Geography

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Myanmar has an EEZ that is about 486,000 km2 and has a coastline of 2,138 km along the Indian Ocean, Bay of Bengal, and the Andaman Sea.[116] The coastal area is divided into three regions: the Rakhine Coastal, Ayeyarwaddy and Gulf of Mottama (Mataban), and Tanintharyi regions. Inland bodies of water consist of lakes, rivers (Ayeyarwaddy–2,000 km, Chindwin, Sittatung, and Thanlwin Rivers), and reservoirs.[117] The fisheries sector is made up of aquaculture, inland fisheries, and marine fisheries.

Trade and Economics

Data from the Department of Fisheries in 2017 noted that the livestock and fisheries sectors generated 8% of the national GDP. In 2018, the fish production totaled 5.88 million tons with the breakdown detailed in the table below.[118] Leasable fisheries and open fisheries are inland. Marine fisheries are further categorized as 'offshore' and 'inshore'. Inshore is for traditional fishing boats not more than 30 feet, with less than 25 horsepower engines, and operating within the area from shoreline to 10 nautical miles. Offshore are for fishing vessels larger than 30 feet, with 25 horsepower engines, that operate in the outer limit of the inshore fishing zone to the EEZ.

Category	2017 – 2018 (tons)
Aquaculture	1,130,350
Leasable Fisheries (Inland)	341,020
Open Fisheries (Inland)	1,253,950
Marine Fisheries	3,152,140
Total	5,877,460

In 2018, the major fish/fishery products exported totaled 568, 227 tons at $711,720; they are grouped as fish (394,136 tons; $385,810 value), prawns (15,905 tons; $60,780), and others (crab, eel, dried prawn, fish meal) (158,186 tons; $265,130). By highest price in dollars per kilogram, the top 10 species were soft shell crab, tiger shrimp, live eel, live mud crab, hilsa, pink shrimp, squid, ribbon fish, rohu, and fish meal.[119]

Fisheries Policy and Legislation

Myanmar adheres to the International Code of Conduct for Responsible Fisheries. Regionally, it is a member of SEAFDEC and engages with other Association of Southeast Asian Nations (ASEAN) members on sustainable fisheries management initiatives. At the national level, there are several important laws: Law Relating to the Fishing Rights of Foreign Fishing Vessels (1989), Aquaculture Law (1989), Myanmar Marine Fisheries Law (1990), Freshwater Fisheries Law (1991), Law Amending the Myanmar Marine Fisheries Law (1993), and Law Amending the Law Relating to the Fishing Rights of Foreign Fishing Vessels (1993).

Illegal, Unreported, and Unregulated Fishing

Myanmar's IUU Fishing Index score is 2.72, which is higher than the world overall IUU score of 2.29 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 3.63
- Flag = 1.67
- Port = 2.73
- General = 2.90[120]

Myanmar scored higher than average across all indicators except the flag category. Coastal and port indicators were the weakest. Myanmar scored the lowest in the following indicators:

- dependency on fish for protein
- authorize foreign vessels to operate in EEZ
- has MSC-certified fisheries
- operate a national VMS/FMC center
- authorized vessel data provided to FAO HSVAR
- provision of vessel data for inclusion in global record
- port visits by foreign fishing or carrier vessels
- designated ports specified for entry by foreign vessels
- trade balance for fisheries products
- gross national income per capita
- mandatory vessel tracking for commercial seagoing fleet
- demand for MSC products
- ratification of the UNFSA
- mentions in media reports to combat IUU fishing

Labor and Human Trafficking

Myanmar was categorized as a Tier 3 country in the latest U.S. TIP Report. The report noted that Burmese fishermen have been exploited and trafficked for both domestic fishing and fishing abroad, e.g., in Thailand, Indonesia, Malaysia, Taiwan, and Japan, for employment in the fishing sector. Trafficking operations act as recruitment agencies to lure Burmese fishers. In addition to charging various recruitment fees, they produce fake identify and labor permits documents and send Burmese fishermen to work on remote vessels "operating under complex multinational flagging and ownership arrangements.".[121]

Papua New Guinea

Marine Geography

Located in the western edge of the Pacific Ocean, Papua New Guinea (PNG) is composed of the eastern half of the island of New Guinea and the islands of New Ireland, New Britain, Bougainville, and smaller nearby islands. It shares a land border with Indonesia and shares maritime borders with Australia, Solomon Islands, Palau, and Indonesia. The country has a coastline of 17,000 square kilometers and EEZ of 3.12 million square kilometers.[122] According to the National Fishing Authority, the fisheries zones is the largest in the South Pacific area at 2.4 million square kilometers. PNG is a member country of the Coral Triangle marine area, noted for its biodiversity of corals.

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

PNG's fishing sector is composed of marine capture, inland capture, and aquaculture. In 2019, the total production including capture and aquaculture was 286,599 tons. The total export for fish and fishery products in 2018 was $2.59 million. Tuna is the largest PNG fisheries and focuses mainly on skipjack and yellowfin but also bigeye and albacore. In 2016, tuna made up 94% of the catch (primary longline and purse seine vessels). The remainder of marine capture are shrimp trawlers and harvesting invertebrates (e.g., beche-de-mer, trochus, and other shells) for both commercial and subsistence purposes.[123] Fresh water aquaculture produces common carp, eels, catfish, gourami, perch, tilapia, and trout. Usually there are also about 130 foreign purse seine vessels also fishing in PNG waters each year.[124] PNG has "access agreements" with Taiwan, Korea, Philippines, and China and they are negotiated on an annual basis, while the United States has a multilateral agreement. Tuna product is exported in various forms (chilled, canned, fishmeal, or frozen). Chilled tuna is for the sashimi market in Japan; frozen tuna is sent to the Philippines and Taiwan; canned tuna to the United States, Germany, and the United Kingdom; and fishmeal to Australia and Japan.[125]

Fisheries Policy and Legislation

PNG is not yet a party member to the PSMA but adheres to the FAO Code of Conduct for Responsible Fisheries. At the regional level, PNG is a member of the Pacific Islands Forum Fisheries Agency and has several regional agreements that control or manage the tuna fishery in the Western and Central Pacific Ocean. It is also a member of CTI-CFF and the RPOA-IUU. At the national level, the key legal instrument is the Fisheries Management Act 1998 that defines the role of the National Fisheries Authority, along with 28 other laws relevant to the fisheries sector, environment, maritime zone, safety, and compliance by the private sector. The Fishing Industry Association in PNG (FIA PNG) was formed in 1991 and continues to represent the industry and engage the National Fisheries Authority. According to FIA PNG, the key areas that it works on are policy reviews and collaboration on assistance programs, and areas of concern are import tariffs, infrastructure and utilities, and marine litter.

Illegal, Unreported, and Unregulated Fishing

PNG's IUU Fishing Index score is 2.23, which is just slightly better than the world IUU average score of 2.29 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 3.06
- Flag = 1.78
- Port = 2.28
- General = 2.10[126]

PNG's performance on the IUU Fishing Index is better than the global average. Costal and port indicators are the weakest. PNG scored a 5, the lowest score, for the following indicators:

- size of EEZ
- authorize foreign vessels to operate in EEZ
- acceptance of FAO Compliance Agreement
- provision of vessel data for inclusion in global record
- port visits by foreign fishing or carrier vessels
- party to the PSMA
- demand for MSC products

Labor and Human Trafficking

PNG was categorized as Tier 2 Watch List in the 2021 U.S. TIP Report. The report noted cases of local men, boys, and foreign workers as victims of forced labor/debt bondage on vessels in PNG's waters and EEZ, especially for tuna fishing. Most victims were under debt bondage due to recruitment fees owed to vessel owners and senior crew who "coerced" them to force labor. Issues are "little or no pay, contract switching, wage withholding, harsh work and living conditions, limited communications, and threats to retain labor." The government seized one foreign fishing vessel and arrested nine crew members for illegal fishing, but there was no clear report that labor exploitation and human trafficking were involved.[127]

Philippines

Marine Geography

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

The Philippines is in the Coral Triangle region, considered to be the area with the greatest marine biodiversity. The archipelago is composed of 7,641 islands and has a total coastline of 36,289 km. The reefs of the Coral Triangle area are home to nearly 60% of the world's fish with over 300 species of corals[128]. It is also surrounded by the Pacific Ocean, South China Sea, Luzon Strait, and Celebes Sea. In these territorial waters, the EEZ is approximately 2.2 million km2. There are a total of 12 fisheries management areas (FMAs) established under the Fisheries Administrative Order 263 Series in 2019.[129]

Trade and Economics

The Philippines categorizes its fishing sector into commercial, municipal, and aquaculture sectors. Commercial refers to capture fishing operations with vessels over 3 GT outside the municipal waters (beyond 15 km from shoreline) and must secure commercial fishing vessel license from the Bureau of Fisheries and Aquatic Resources every three years.[130] Municipal fisheries are under the jurisdiction of local government units and for operations of boats 3 GT or less or other forms of fishing using traditional or artisanal small-scale fishing gears.[131] Aquaculture in the Philippines includes both inland and marine waters. In 2018, the total production was 4.36 million tons with the value of $5.26 million; breakdown by sub-sector as follows:

Fisheries Sub-Sector	2018 Production (tons)	2018 Value ($1,000)
Commercial	946,438	$1,209.20
Municipal	1,106,072	$1,861.62
Aquaculture	2,304,365	$2,185.60
Total	4,356,875	$5,256.51

Data about the number and types of vessels are slighted dated. For commercial fishing, there were 3,473 vessels licensed by the government in 2016. They used commercial gear such as ring net, trawl, handline, purse seine, bag net, and longline. For municipal fishing vessels, there were 247,146 registered in 2017 (of which 64% were motorized and 37% were non-motorized). Common fishing gears used by municipal fisheries were gillnets, hook and line, traps/pots, cast nets, beach seine, and fish corral.[132] There are eight specific species that made the list of top catch by both commercial and municipal fisheries (highlighted in bold in the table below). In terms of which species have the highest retail value ($/kg) in 2018: tiger prawn ($11.56), endeavor prawn ($7.58), blue crab ($5.79), threadfin bream ($5.02), caesio ($4.83), slipmouth ($4.14), Indian mackerel ($3.77), milkfish ($3.09), roundscad ($2.86), frigate tuna ($2.76), tilapia ($2.30), and anchovies ($2.21).[133]

Sub-Sector Type	2018 Top Catch Species and Quantity (tons)
Commercial	Skipjack (229,348.87); Indian sardines (193,835.77); Roundscad (120,364.80); Yellowfin tuna (59,913.42); Frigate tuna (57,954.97); Big-eyed scad (41,368.73); Fimbriated sardines (45,131.38); Indian mackerel (20,071.18); Eastern little tuna (21,362.01); Slipmouth (10,619.37); Indo-Pacific mackerel (10,614.93)
Municipal Marine	Bigeye scad (69,556); Indian sardines (65,298.70); Frigate tuna (53,961.61); Roundscad (50,941.61); Fimbriated sardines (42,446.43); Slipmouth (37,331.94); Squid (36,089.04); Indian mackerel (35,703.42); Yellowfin tuna (34,523.77); Anchovy (34,220.79)

Sub-Sector Type	2018 Top Catch Species and Quantity (tons)
Aquaculture	Seaweed (1,478,301); Milkfish (303,402); Tilapia (277,006); Shrimp/prawn (47,060)
Municipal Inland	Tilapia (44,070.89); Carp (14,659.10); Mudfish (9,666.04); Freshwater catfish (5,814.51); Milkfish (4,988.47)

Fisheries Policy and Legislation

Philippines is party to the PSMA and supports measures and regulations by the RFMOs, such as the Western and Central Pacific Commission. At the regional level, the Philippines is a member of CTI-CFF, SEAFDEC, and the RPOA-IUU. Important national legislation includes: The Republic Act 10654 amending the Fisheries Code of 1998, the Local Government Code of 1991, and the Agriculture and Fisheries Modernization Act of 1997. Previously, the country had a 5-year Fisheries Development Plan 2016 – 2020 that focused on sustainable fisheries management and compliance with international standards.

Illegal, Unreported, and Unregulated Fishing

The Philippines' IUU Fishing Index score is 2.71 (1 is best score and 5 is lowest score). The sub-scores are as follow:

- Coastal = 3.50
- Flag = 2.48
- Port = 2.89
- General = 2.37[134]

Philippines scored higher than average across all indicator's categories. Coastal and port indicators are the weakest. The Philippines scored lowest in the following indicators:

- size of EEZ
- agreement over maritime boundaries
- authorize foreign vessel operation in EEZ
- has MSC-certified fisheries
- accepted FAO Compliance Agreement
- compliance with RFMO flag and port state obligations
- number of fishing ports
- port visits by foreign fishing or carrier vessels
- market state in contracting party or cooperating non-contracting part to relevant RFMOs

Labor and Human Trafficking

The Philippines was categorized as a Tier 1 country in the 2021 U.S. TIP Report. The report also noted that Filipino migrant workers were victims of labor trafficking in the fishing sector domestically and abroad. There was no specific case highlighted in the report although the report did note that the government hosted a webinar to raise awareness of forced labor in the fishing industry as a response.[135]

Singapore

Marine Geography

The island of Singapore is situated at the tip of the Malay Peninsula bordered by several bodies of water: the Strait of Malacca, Singapore Strait, South China Sea, and the Indian Ocean. Singapore has one main island and 63 offshore islets, with the larger ones being Pulau Tekong, Pulau Ubin, and Sentosa. Singapore is undertaking massive land reclamation and since 1960, land grew from 581.5 sq km to 697.2 sq km and is estimated to grow another 100 sq km by 2030. Due to limited sources of natural fresh water, Singapore has artificial reservoirs and water catchment areas and in addition to rainfall (50% of island's water) the country also imports water from Malaysia.[136]

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

Singapore's fishing industry is mainly aquaculture with a smaller local capture fishery. In 2019, there were 109 sea-based farms with majority in the Straits of Johor area, of which 2 are deep sea farms in the Southern Waters. Fish species that are cultured are milk fish, mullet, snapper, trevally, groupers, tilapia, pompano, threadfin, and seabass.[137] From SUFIA LCD's consultation with a representative from Singapore's Food Agency, as of February 2021, there are currently 167 registered fishing vessels and only 8 of those are used for commercial fishing while the rest are for support/transport vessels for the fish culture farms. In addition to fish production for consumption, Singapore is also globally known for its ornamental fish and aquatic plants domestically and for export. Thus, Singapore's fishery sector is categorized as production of seafood, local landings of seafood, imports, exports, and seafood wholesale. The table below lists the production volume in tons[138]

Sub-Sector Types:	2019 Production	2020 Production
Local Production of Seafood	5,335	4,567
Local Landings of Seafood	1,418	356
Imports of Seafood	125,403	128,508
Exports of Seafood	17,160	17,556
Seafood Wholesale	40,910	43,053

Fisheries Policy and Legislation

At the international level, Singapore is not yet a member party to the PSMA. However, it supports several ASEAN regional initiatives, e.g., meetings of the ASEAN Ministers on Agriculture and Forestry, ASEAN Sectoral Working Group on Fisheries, and ASEAN Fisheries Consultative Forum. In addition to being a member of SEAFDEC, Singapore is also a part of the RPOA-IUU. At the national level, the Fisheries Act is the key legislation in Singapore for sustainable fisheries resource management and specifically focuses on the control of fishing, marketing/distribution, and fishing ports and harbors. According to the Singapore government update in January of 2021, it is amending the Fisheries Act specifically for improved measures to combat IUU fishing.[139]

Illegal, Unreported, and Unregulated Fishing

In examining the Singapore's IUU Fishing Index score of 2.41, it is a little higher than the world overall IUU score of 2.29 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 2.45
- Flag = 2.20
- Port = 3.42
- General = 2.21[140]

Singapore scored relatively close to the average score across all indicators except for port measures, where it is the weakest. Singapore scored lowest on the following indicators:

- dependency on fish for protein
- has MSC-certified fisheries
- accepted FAO Compliance Agreement
- provision of vessel data for inclusion in Global Record
- port visits by foreign fishing or carrier vessels
- party to the PSMA
- ratification/accession of the UNFSA
- mentions in the media reports to combat IUU fishing
- market state is contracting party or cooperating non-contracting part to relevant RFMOs

Labor and Human Trafficking

Singapore was categorized as a Tier 1 country in the 2021 U.S. TIP Report. In Singapore, most victims are foreign migrant workers in the construction, domestic service, performing arts, manufacturing, service, and commercial sex industry. In the report, there was no specific case of forced labor or human trafficking in the fishing sector mentioned. However, the report did note that previously cases of long-haul fishing vessels complicit in forced labor were identified when they transited or docked at Singapore port.[141]

Solomon Islands

Marine Geography

Located in the South Pacific Ocean and to the east of PNG, the Solomon Islands is an archipelago country made up of almost 1,000 islands. Guadalcanal is the largest, principal island with the capital city of Honiara. However, Malaita is the island with the largest population. The total coastline is 4,270 km and the EEZ covers 1.34 km^2.[142] The Solomon Islands is also one of the countries in the Coral Triangle marine area, noted for its large biodiversity of marine life and corals. In addition to marine capture fisheries, Solomon Islands also has a smaller aquaculture sub-sector.

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

The fisheries sector in the Solomon Island is both subsistence and commercial, offshore fisheries. The offshore fisheries are responsible for employment in the country and data from 2016 showed 5,723 subsistence fishers, 660 women and 5,076 working in marine fisheries, and 11,752 people engaged in the deep-sea fisheries sector. In addition, the license fee for foreign vessels to fish in Solomon Islands' EEZ is a substantial revenue for the government. The data for fish production for the country are grouped as capture and aquaculture. In 2019, the total capture and aquaculture production was 69,425 tons. For exports, the value was $59.65 million, and import was $2.722 million.[143] Purse seine vessels are responsible for 75% of the catch, but other vessels utilized are pole and line fishing and longlining. Just like in PNG, most of the catch is tuna–90% of total; various species 10% make up the bycatch. For aquaculture, it focuses mostly on tilapia and seaweed.

Fisheries Policy and Legislation

Solomon Islands is not yet a member of the PSMA but is a signatory to the UN Convention on the Law of the Sea, the UN Fish Stocks Agreement, and the UN Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. At the regional level, it hosts the Secretariat for the Pacific Islands Forum Fisheries Agency, and it is a member of CTI-CFF. At the national level, the key legislation is the Fisheries Management Act, Solomon Islands National Development Strategy (2016–2035), and its National Fisheries Policy 2019–2029.[144]

Illegal, Unreported, and Unregulated Fishing

Solomon Islands' IUU Fishing Index score of 2.10 is better than the world overall IUU score of 2.29 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 2.69
- Flag = 1.65
- Port = 2.28
- General = 2.03[145]

Solomon Islands scored the best IUU score among the countries featured in this report. The indicators that require improvements are coastal and port measures. Solomon Islands scored lowest in the following indicators:

- size of EEZ
- authorize foreign vessels to operate in EEZ
- accepted FAO Compliance Agreement
- provision of vessel data for inclusion in global record
- port visit by foreign fishing or carrier vessels
- party to the PSMA
- trade balance for fisheries products
- gross national income per capita
- demand for MSC products

Labor and Human Trafficking

In the 2021 U.S. TIP Report, Solomon Islands ranked in the Tier 2 category. The report noted foreign workers are trafficked for labor on fishing vessels in Solomon Islands' waters and ports, e.g., cases were reported on Taiwan-flagged fishing vessels. Fishermen from Indonesia, Philippines, Vietnam, Sri Lanka, North Korea, and Fiji all reported forced labor while working on the Taiwan-flagged vessels. The report also noted official corruption in enabling irregular migration and trafficking. As a response, the government acknowledge that its fishing sector was vulnerable to forced labor and human trafficking and publicly committed to develop a policy framework to address modern slavery on national and foreign fishing vessels operating in Solomon Islands' waters.[146]

Thailand

Marine Geography

Located in Southeast Asia, Thailand has two marine bodies of water: the Gulf of Thailand in the east and Andaman Sea in the west. It has a coastline of about 2,600 km and EEZ of approximately 299,397 km^2. For freshwater sources, Thailand has two principal river systems the Chao Phraya River, running through the center of the country, through Bangkok and into the Gulf, and the Mekong River, starting at the tripoint in the north (where Thailand, Myanmar, and Lao PDR meet), it forms an eastern border between Thailand and Lao PDR. In addition to those, Thailand also has 25 other river basins and 254 sub-basins.[147] The country's coastal marine area and rivers are both used for aquaculture.

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

In 2018, the Thai fisheries GDP was $3,560 million,[148] categorized as capture fisheries (inland and marine) and aquaculture (inland and marine). Approximately 60% of Thailand's total marine catch is from Thai waters (41% Gulf of Thailand, 19% Andaman Sea) and the other 40% from beyond Thailand's EEZ[149]

Fisheries Sub-Sector	2017 Production (tons)	2017 Value ($1,000)
Marine Capture	1,300,400	1,785.95
Inland Capture	192,600	315.13
Marine Aquaculture	480,700	2,123.60
Inland Aquaculture	413,300	692.45
Total	2,389,017	4,917.14

Data from 2018 from the Thai Department of Fisheries recorded a total of 36,996 fishing vessels of which 10,652 were commercial (bottom trawls, purse seine, and falling nets) and 26,344 were small-scale fishing vessels (using gillnets, falling nets, traps, and hook and line). In terms of labor in the commercial fishing sector, 135,407 people were employed, of whom 62,910 were Thai nationals and 72,497 were migrant workers. For the fisheries processing sector, there were a total of 237,735 people employed, 132,879 Thai nationals and 104,857 migrant workers.[150]

The main fish and fishery products exported by Thailand since 2012 are listed in the table below with a value of $6.628 billion in 2018. Japan was the top country of destination for the exported seafood products. In terms of high value catch species ($/kg) were crab meat ($30.07), Spanish mackerel (frozen $16.02), trout (frozen $14.75), lobster ($14.59), mollusks (clams and cockles $11.86), seaweed ($11.68), abalone ($10.92), mantis shrimp ($10.50), salmon (frozen $10.32), and vannamei shrimp ($9.94[151]).

Type of Catch	2018 Quantity (tons)	2018 Value ($1,000)
Shrimp	189,325	1,830.46
Canned Seafood	636,035	2,669.04
Fish	219,439	537.71
Squid	49,523	401.59
Other	466,342	1,189.66
Total	1,560,66	6,628.46

Fisheries Policy and Legislation

Thailand is party to the PSMA and the UN Convention on the Law of the Sea. At the regional level, Thailand is a member of several regional fisheries bodies: Asia-Pacific Fishery Commission, Indian Ocean Tuna Commission, Mekong River Commission, Network of Aquaculture Centers in Asia-Pacific, SEAFDEC, and the RPOA-IUU. Since the 2015 European Commissions' issue of the 'yellow card' for concerns of IUU fishing, the Thai government has implemented several reforms and in 2019, the yellow card was lifted. Key fisheries laws include the Royal Ordinance on Fisheries B.E.2558 and Ordinance on Fisheries No. 2 B.E. 2560. The Thai government established 31 Port-in Port-out Control centers in the 22 coastal provinces to inspect catch and ensure traceability of fishery products. A designation of 25 ports for foreign vessels to comply with the PSMA was initiated.[152] Thailand established a Command Center for Combating Illegal Fishing to monitor, control, and surveil vessels (all Thai state flag vessels 30+ GT must install a vessel monitoring system), and inspect for IUU and workers' welfare and protection.

IUU Fishing Index and 2021 TIP Report Rank

Thailand's IUU Fishing Index score is 2.33 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 2.44
- Flag = 1.96
- Port = 2.39
- General = 2.53[153]

Thailand scored well overall, best on flag indicators (better than world ranking) and general and coastal were the weakest categories. Thailand scored poorly on the following indicators:

- has MSC-certified fisheries
- accepted FAO Compliance
- number of fishing ports
- port visits by foreign fishing or carrier vessels
- mentions of IUU fishing in media

Labor and Human Trafficking

The 2021 U.S. TIP Report categorized Thailand as a Tier 2 Watch List country. The report noted that in 2020, the government conducted labor inspections of 55,818 fishing vessels compared to 44,322 in 2019. It identified 19 vessels that violated labor laws in 2020 but did not specify the details. The Thai government also conducted at-sea inspections of 842 vessels and found one case of labor violation. The Royal Thai Navy also identified 466 cases of migrant smuggling in 2020 but did not screen for human trafficking. Two cases of trafficking involving the fishing sector were reported. Corruption and official complicity in facilitating trafficking remains a challenge and for the fishing sector cases, with reluctance by officials to investigate influential boat owners. In December 2020, the Thai Department of Special Investigations arrested the owner of a fishing vessel, who was also a local government official, for human trafficking charges.[154]

Timor-Leste

Marine Geography

Located in Southeast Asia and in the Coral Triangle Region, Timor-Leste occupies the eastern half of the island of Timor. Other territories include an exclave on the northwestern side of Timor (surrounded by Indonesian West Timor) and the nearby islands of Ataúro, Jaco, and Oecusse. Three bodies of water surround the country, Savu Sea to the west, Banda Sea to the north, and Timor Sea to the east and south. Timor-Leste has a coastline of 730 km and an EEZ of 72,000 km2. Timor-Leste has five zones for fishery management: Zone A (<200 m for artisanal); Zone B (200 m–3 nautical miles for domestic semi-industrial); Zone C (3–12 nautical miles for national industrial–south coast); Zone D (>16 nautical miles for foreign semi-industrial–south coast); and Zone E (>18 nautical miles for foreign industrial–south coast).[155]

Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

Timor-Leste does not have a domestic commercial fishing fleet. The country has made agreements in the past to allow foreign vessels to fish in their waters. Thus, the fisheries sector does not significantly contribute to being gross national product (GNP) nor export earnings. The fisheries sector is mainly composed of artisanal fishers for coastal marine capture and small aquaculture. In the past, offshore, and coastal fisheries were dominated by Indonesian vessels.[156] Data from 2019 noted a record of 20,000 artisanal fishers using double-outrigger canoes to catch small pelagic and small reef fish. Inland capture fisheries are seasonal and for subsistence purposes. The FAO noted that in the past aquaculture farmed tilapia and carp for the rural economy.[157] According to a 2019 report by WorldFish, the top species sold based on type are sardines, short-bodied mackerel, bullet tuna, garfish, trevally, grouper, Spanish mackerel, flying fish, snapper, and long tom.[158]

Fisheries Sub-Sector	2019 Production (tons)
Marine Capture	3,234
Aquaculture – aquatic plants	1,500
Aquaculture – freshwater	114
Aquaculture – brackish water	6

Fisheries Policy and Legislation

Timor-Leste is not a member to the PSMA but is a party to the UN Convention on the Law of the Sea. At the regional level, Timor-Leste is a member of CTI-CFF, and the RPOA-IUU and engages in various ASEAN initiatives against IUU fishing. Due to challenges of lack of data/information, lack of capacity, and concerns of IUU fishing, the government is in the process of updating its legal and regulatory framework for the management of the fisheries, previously the Decree-Law No. 6/2004 of 21 April 2004 and the Government Decree No 5/2004 of July 2004. The government also encourages the local implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries, the Code of Conduct for Responsible Fisheries and EAFM.

Illegal, Unreported, and Unregulated Fishing

Timor-Leste's IUU Fishing Index score of 2.61 is higher than the world overall IUU score of 2.29. The sub-scores are as follows ((1 is best score and 5 is lowest score):

- Coastal = 3.50
- Flag = 1.50
- Port = 3.13
- General = 2.47[159]

Timor-Leste scored the highest in the flag category but higher than most across all other indicators. Timor-Leste scored low on the following indicators:

- agreement over maritime boundaries
- authorize foreign vessels to operate in EEZ
- has MSC-certified fisheries
- operate a national VMS/FMC center
- provision of vessel data for inclusion in Global Record
- port visits by foreign fishing or carrier vessels
- party to the PSMA
- designated ports specified for entry by foreign vessels
- trade balance for fisheries products
- gross national income per capita
- demand for MSC products
- ratification/accession of UNFSA
- mentions in media reports to combat IUU fishing

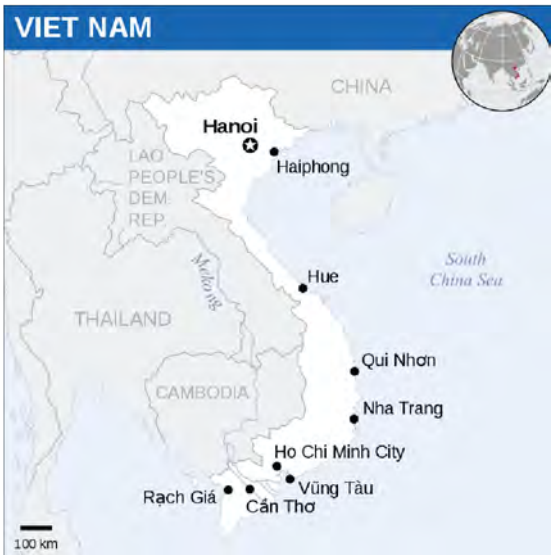
Labor and Human Trafficking

In the 2021 U.S. TIP Report, Timor-Leste was categorized as a Tier 2 Watch List country. The report did not highlight specific cases, only to note that traffickers have exploited fishing crews in forced labor on foreign-flagged vessels. The report did highlight that the Timor-Leste government acknowledges the possible cases of trafficking in the fishing vessels in Timor-Leste's waters and EEZ but lacks the capability to patrol, inspect, and investigate cases.[160]

Vietnam

Marine Geography

Vietnam is located on the eastern edge of the Indochina peninsula with China to the north, Lao PDR, and Cambodia to the west. Its entire eastern border faces the South China Sea, forming the 3,260 km coastline (a small part of its southern coastline faces the Gulf of Thailand). There are more than 4,000 islands and islets off along the coast. Vietnam's EEZ is more than 1 million km2. The Mekong River delta in the south and the Red River Delta in the north are sources for extensive fishing and fish farming as well. Vietnam has three fishing zones: coastal area (11 km from beach to coastal line for vessels with length less than 12 meter); inshore area (43 km from coastal line to inshore for 12–15-meter vessels); and offshore area (between the inshore and outer boundary of the EEZ and 15+ meter vessels).[161]



Map Credit (Creative Commons Attribution): UN Office for the Coordination of Humanitarian Affairs (OCHA)

Trade and Economics

Vietnam's fisheries sector plays a significant role in its economy, and the agriculture, forestry, and fisheries sector accounted for 14.6% of the country's GDP, and during the period of 1995 to 2018, the fisheries production sector grew 9.07% per year. Vietnam has become of the five largest seafood exporters in the world and third in fishery and aquaculture production for fish yields. The sector is composed of aquaculture, marine capture, and inland capture, and the table below shows production totals for the year 2016.[162] There are more than 500,000 aquaculture fish farms in Vietnam. In 2018, the number of registered fishing vessels was broken down by size: from 6 m–12 m (46,491); from 12 m–15 m (18,914); from 15–24 m (27,484), and more than 24 m (2,958).[163] Although there are more than 40 kinds of marine fishing gear utilized in Vietnam, they are grouped as: gillnet (44%), trawl (23%), hook and line (20%), purse seine (6%), tuna fishing gear (4%), and squid fishing gear (3%).[164]

Sub-sector Type	2016 Production (Million Tons)
Marine capture	2,876,000
Inland capture	200,000
Aquaculture	3,650,000
Total	6,726,000

In 2018, Vietnam exported $8.3 million in fish and fishery products to more than 160 countries. The top three fish products and species are: shrimp (giant tiger pawn and white leg shrimp), Pangasius, and tuna (yellowfin, bigeye, longfin, southern bluefin, and tripped melon tuna).

Fisheries Policy and Legislation

Vietnam is a member party to the PSMA and the first country in the region to ratify the UN Convention on the Law of the Sea. At the regional level, Vietnam is a member of SEAFDEC, and the RPOA-IUU. At the national level, the key legislation is the Marine Capture Fisheries Law, the Revised Fisheries Law 2017, and various decrees that regulate fishing vessels and ensuring safety for fishing activities, National Plan of Action to Combat IUU Fishing (2014), catch certification and traceability schemes, and Revised Fisheries Law 2017.

Illegal, Unreported, and Unregulated Fishing

Vietnam's IUU Fishing Index score of 3.16 is higher than the world overall IUU score of 2.29 (1 is best score and 5 is lowest score). The sub-scores are as follows:

- Coastal = 3.64
- Flag = 1.89
- Port = 3.73
- General = 3.58[165]

Vietnam scored well only for the flag category and weak across all other indicators. However, the IUU Fishing Index was conducted prior to Vietnam joining the PSMA in 2019. Vietnam scored lowest in the following indicators:

- size of EEZ
- agreement over all maritime boundaries
- has MSC-certified fisheries
- provision of vessel data for inclusion in Global Record
- port visit by foreign fishing or carrier vessels
- views of MCS practitioners on port compliance incidents
- party to the PSMAA
- volume of catches
- mentions of IUU fishing in media reports
- demand for MSC products
- ratification/accession of UNFSA

Labor and Human Trafficking

The 2021 U.S. TIP Report categorized Vietnam as a 'Tier 2 Watch List' country. It did not mention a specific case link to fisheries and seafood sector but notes the ineffective and "complicated" victim identification process. In addition, the report noted that traffickers subjected Vietnamese victims to forced labor in the fishing and seafood processing industry in several countries in Asia (e.g., Taiwan, Malaysia, Republic of Korea, Laos, Japan) and the Pacific maritime industries.[166]

Annex D: Methodology and Research Questionnaire

Sustainable Fish Asia (SUFIA) Local Capacity Development's (LCD's) methodology for this Private Sector Landscape Analysis (PSLA) report focuses on four key activities that were developed based on good practices, which combine desk research, key consultant interviews, online survey, and continuous dialogues with key stakeholders in the period from October 2020–July 2021. SUFIA LCD acknowledges and is thankful for the participation and support of our colleagues at Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF), Southeast Asian Fisheries Development Center (SEAFDEC), U.S. Agency for International Development (USAID) Regional Development Mission for Asia (RDMA), and numerous representatives from the private sector, government, no-governmental organizations (NGOs), and universities.

SUFIA LCD's Private Sector Engagement Specialist (PSES), Patchareeboon Sakulpitakphon, is responsible for all activities relating to this PSLA report and the private sector engagement activities. A short-term PSLA Research Associate, Frengky Sihombing, provided support in conducting country research. This PSLA report was further reviewed by Mark Granius, Governance Specialist and Technical Advisor for SUFIA LCD, and colleagues from the SUFIA LCD team: Arlene Nietes Satapornvanit, Project Manager, and Sara Jones, Project Manager. Additional thanks to Fletcher Wright, Managing Director, and Matthew Hensley of Planet Partnerships, for their additional review of this report.

SUFIA LCD's methodology for this PSLA report was the result of four key activities in the period from October 2020–July 2021. Prior to the four key activities, SUFIA LCD held several meetings with USAID RDMA, CTI-CFF, and SEAFDEC about the PSLA process and for their guidance regarding thematic focus areas, e.g., promoting the adoption of sustainable fishing practices by small-scale fisheries and combating IUU fishing etc. From the output of these meetings, SUFIA LCD developed a PSLA Inception Report that defined the scope of this activity (to focus on the 14 countries in Southeast Asia and the Pacific region that make up the members of CTI-CFF and SEAFDEC and to prioritize the identification of private sector engagement (PSE) opportunities for both partners) along with a specific action plan for the four key activities.

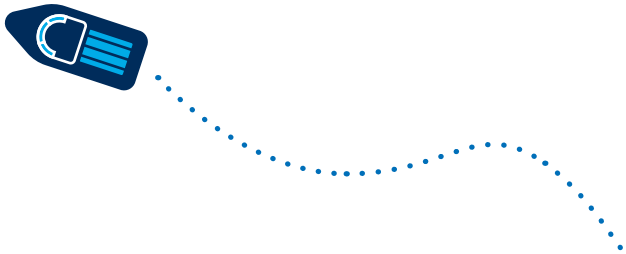
1. **Consultations:** As noted above, SUFIA LCD conducted three consultations with USAID RDMA, CTI-CFF, and SEAFDEC to clarify the scope and plan the PSLA in October 2020. The scope of this PSLA report is to focus on the 14 countries in the Southeast Asia and Pacific region that make up the members of CTI-CFF (6 countries: Indonesia, Malaysia, Philippines, Papua New Guinea, Solomon Islands, and Timor-Leste) and SEAFDEC (11 countries: Brunei Darussalam, Cambodia, Indonesia, Japan, Lao People's Democratic Republic [PDR], Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam). For this PSLA process, SUFIA LCD aimed to reach out to as many stakeholders as possible, including the various sub-sectors within the fishing and seafood industry (e.g., commercial fisheries, small-scale/artisanal fisheries, aquaculture, and processing businesses).
2. **Desk research:** The desk research, from October 2020 until July 2021, was guided by the consultations with USAID RDMA, CTI-CFF, SEAFDEC, and other key stakeholders (e.g., current, and past partners collaborating with CTI-CFF, SEAFDEC, and USAID RDMA). SUFIA LCD engaged a PSLA Research Associate to conduct research specifically focusing on the fishing sector of the 14 countries (please see Annex B. The full annotated bibliography is listed in Annex E).
3. **Online PSLA survey:** From December 2020 to March 2021, SUFIA LCD conducted an online PSLA survey to collect information for this report. The survey design and questions were developed in consultation with USAID RDMA, CTI-CFF, and SEAFDEC. The online PSLA survey was distributed to CTI-CFF and SEAFDEC's member countries, partners, and promoted publicly through social media (with the goal to reach as many stakeholders as possible; the survey was voluntary). The survey received a total of 172 responses from 26 countries; of which 32% of the responses were from fisheries or environmental governmental agencies, 31% from the private

sector, 18% from NGOs, 12% from universities/academia, 4% from international development (e.g., other USAID projects, United Nations agencies, or intergovernmental organizations), and 3% from governments agencies working on international development. The survey questions are in Annex C.

4. **Development of PSE Opportunity Concept Notes and Conduct Additional Consultations:** SUFIA LCD presented the results of the PSLA survey to both partner organizations, CTI-CFF and SEAFDEC, for their consideration in April 2021. Through a consultative process from May 2021 to July 2021, SUFIA LCD supported both partner organizations to draft six PSE) concept notes that integrated the findings from the PSLA survey (e.g., potential partner companies and interested areas for collaboration). These PSE concept notes were designed to maximize CTI-CFF and SEAFDEC's work priorities. Each partner determined the number of concept notes developed, the thematic focus area, and the activities. SUFIA LCD provided support to ensure that each concept note was also aligned to RDMA's priority areas to promote sustainable fisheries management, practices, and combat illegal, unreported, and unregulated (IUU) fishing. From the start of the PSLA process and in parallel to the desk research and online survey, SUFIA LCD conducted a total of 34 consultations specifically for the development of PSE opportunities: 19 consultations with the private sector representatives or key stakeholders who worked directly with the private sector, 9 consultations with SEAFDEC, and 6 consultations with CTI-CFF. The companies and stakeholders that participated in these consultations were identified from SUFIA LCD's network, from the PSLA survey, or they have directly approached SUFIA LCD (template questionnaire is in Annex C). SUFIA LCD continues to support both CTI-CFF and SEAFDEC in engaging companies to turn these PSE concept notes into formal partnerships (partnership can be defined as joint-activities on a project, provision of technical assistance, provision of funds or in-kind support etc.)

Assumptions, Constraints, and Limitations of this PLSA report:

- An initial assumption by USAID/RDMA in designing the SUFIA LCD activity is that both CTI-CFF and SEAFDEC had the ability to directly engage the private sector and that each organization could prioritize the development of partnerships with the industry. However, it is important to note that while both partner organizations have worked in some capacity with some industry members or companies, it was usually on specific projects and through their members, government counterparts, or partner organizations. Both CTI-CFF and SEAFDEC do not prioritize the direct engagement of the private sector and have limited capacity to do. In response, SUFIA LCD had to provide the required support for CTI-CFF and SEAFDEC in the PSLA process, specifically the development of the PSE concept notes and brokering of potential partnerships with the companies.
- The coronavirus disease 2019 (COVID-19) pandemic also impacted this activity in two ways: (1) the inability of the SUFIA LCD team to travel or conduct in-person consultations, and (2) the pandemic limited some companies' ability to participate beyond the online survey (had other priorities, like their pandemic response).
- SUFIA LCD has a project timeline of two years (September 20210 until August 2022), and this PSLA report is a required output for 2021.



Research Questionnaire – Online PSLA Stakeholder Survey

1. Your Name:

2. We are collecting demographic information to ensure gender equality and social inclusion measures. Please select all that applies. Thank you.

   □ Female
   □ Male
   □ Member of the LGBTQ group (lesbian, gay, bisexual, transgender and queer or questioning)
   □ Member of an ethnic minority group (optional please specify in "Other" field)
   □ Age group: 18-29
   □ Age group: 30-49
   □ Age group: 50-79
   □ Prefer not to say
   □ Other

3. Your Title:

4. Your Country (HQ Location):

   □ Brunei
   □ Cambodia
   □ Indonesia
   □ Japan
   □ Lao PDR
   □ Malaysia
   □ Myanmar
   □ Philippines
   □ Singapore
   □ Thailand
   □ Vietnam
   □ Papua New Guinea
   □ Solomon Islands
   □ Timor-Leste
   □ United States
   □ Other, please specify:

5. Your Organization Name:

6. Do you know of The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF)? *

   □ Yes, I have heard of CTI-CFF
   □ Yes, have collaborated with CTI-CFF in the past
   □ No

7. In what way have you collaborated with CTI-CFF in the past? Please explain.

8. Do you know of The Southeast Asian Fisheries Development Center (SEAFDEC)?

   □ Yes, I have heard of SEAFDEC
   □ Yes, I have collaborated with SEAFDEC in the past
   □ No

9. In what way have you collaborated with SEAFDEC in the past? Please explain.

10. What type of organization do you represent?

□ Government - Ministries or Department for Environment, Fisheries, Marine Resources
□ Government - Agencies for International Development
□ Non-Governmental Organization (NGO and/or Non-Profit Organization)
□ Private Sector - Businesses
□ Other, please specify:

11. Government - Does your government ministry/department/agency currently have public-private sector partnerships to implement sustainable fishing practices and/or marine conservation?

□ Yes
□ No

12. Your response indicates that your ministry/department/agency currently has public-private sector partnerships (PPPs) to implement sustainable fishing practices and/or marine conservation. Would you please share the relevant PPPs by name or by name of partner company, and briefly summarize objectives?

13. Your response indicates that your ministry/department/agency currently does NOT have public-private sector partnerships (PPPs) to implement sustainable fishing practices and/or marine conservation. If possible, would you please explain why not or key barriers (including if you have specific policies prohibiting partnership with any company/sector)?

14. If USAID, SEAFDEC and/or CTI-CFF were to collaborate with the private sector to implement sustainable fishing practices and/or marine conservation, what focus areas would your ministry/department/agency expect? Please select all that apply or specify an area not included on the list:

□ Improve data collection for fishery management at the national level
□ Improve technology and/or equipment for catch-data management and/or traceability
□ Improve fair labor practices
□ Develop new initiatives with women and youth
□ Improve education or capacity development at the university level
□ Improve financial services for the fishery sector
□ Develop a marine conservation trust fund or blue economy initiatives
□ Other, please specify:

15. If your ministry/department/agency is interested to collaborate with USAID, SEAFDEC and/or CTI-CFF, what would your expectations be in terms of our contributions? Please choose all that apply or specify something not included in our list.

□ Develop a joint project (please specify details in the 'other' box)
□ In-kind support (please specify details in the 'other' box)
□ Technical assistance e.g., skills or services (please specify details in the 'other' box)
□ Other, please specify:

16. If your ministry/department/agency would be interested in developing a joint project, would you please provide a brief description of the project to be develop?

17. Non-Profit/NGO - Does your organization currently have private sector partnerships to implement sustainable fishing practices and/or marine conservation?

□ Yes
□ No

18. Your response indicates that your organization currently has private sector partnerships to implement sustainable fishing practices and/or marine conservation. Would you please list these private sector partnerships by name of partner company, and briefly summarize objectives?

19. Your response indicates that your organization currently does NOT have private sector partnerships to implement sustainable fishing practices and/or marine conservation. If possible, would you please explain why not or the barriers (including if you have specific policies prohibiting partnership with specific companies/sector)?

20. Would your organization be interested in collaborating with USAID, SEAFDEC and/or CTI-CFF on an initiative with the private sector to improve sustainable fishing practices and/or marine conservation?

    □ Yes
    □ No

21. Your response indicates that your organization may be interested in collaborating with USAID, SEAFDEC and/or CTI-CFF. Please identify areas for potential collaboration that would most interest your organization. Select as many as apply or specify an area not included in our list.

    □ Improve data collection for fishery management
    □ Improve technology and/or equipment for catch-data management and/or traceability
    □ Improve fair labor practices
    □ Develop new initiatives with women and youth
    □ Improve education or capacity development at the university level
    □ Improve financial services for the fishery sector e.g., microfinance, insurance
    □ Develop a marine conservation trust fund or other blue economy initiatives
    □ Other, please specify:

22. Not interested - Your response indicates that your organization would not be interested in collaboration with USAID and SEAFDEC and/or CTI-CFF. If possible, can you explain why not?

23. If your organization may be interested in collaborating with USAID, SEAFDEC and/or CTI-CFF, what would your organization's expectations be in terms of our contributions? Please choose all that apply or specify something not included in our list.

    □ Develop a joint project (please specify details in the 'other' box)
    □ In-kind support (please specify details in the 'other' box)
    □ Technical assistance e.g., skills or services (please specify details in the 'other' box)
    □ Other, please specify:

24. If your organization would be interested in developing a joint project, would you please provide a brief description of the project you want to develop?

25. Business Type - Is your business in the fishing and aquaculture sector?

    □ Yes
    □ No

26. Fishing Sector Business - Please select your business type. Select all that apply.

    □ Commercial Fishery
    □ Small/Artisanal Fishery
    □ Aquaculture
    □ Fish/Seafood Production
    □ Fish/Seafood Marketing
    □ Other, please specify:

27. Non-Fishing Sector Business - Please select your business type. Select all that apply.

□ Technology Service Provider
□ Financial Service Provider, Investor(s)
□ Other, please specify:

28. Does your company currently have services or initiatives that can help fisheries businesses thrive, promote sustainable fishing practices and/or marine conservation?

□ Yes
□ No

29. Your response indicates that your company DOES have services or initiatives that can help fisheries businesses, promote sustainable fishing, and/or promote marine conservation. Would you please briefly list these services/initiatives and describe their purpose?

30. Your response indicates that your company does NOT have initiatives or services to support fisheries businesses, promote sustainable fishing, or promote marine conservation. If possible, can you please explain what services you can provide?

31. What are your company's priority areas at present? Please choose all that apply.

□ Improve operations to be more efficient
□ Improve access to new markets/customers
□ Improve sustainability - Catch data and data management
□ Improve sustainability- Traceability
□ Improve sustainability - Improve capacity of staff in sustainability knowledge
□ Improve sustainability - Reduce waste, e.g., plastics Improve sustainability
□ Improve labor conditions
□ Ensure profitability
□ Other, please specify:

32. Commitment towards sustainable fishing practices and marine conservation: What actions does your company currently implement to ensure sustainable fishing practices? Please select all that apply.

□ Installed vessel monitoring system
□ Log catch data manually
□ Log catch data digitally
□ Implementing a traceability initiative
□ Implementing two-way worker's communications on board
□ Observer on board for monitoring
□ Use cameras and AI software for catch sorting
□ Other, please specify:

33. Commitment towards sustainable fishing practices and marine conservation: Does your company currently implement any of the following additional practices to support sustainable fishing practices? Please select all that apply.

□ Collaborate with regulators and government authorities for inspections
□ Collaborate with other companies for industry initiatives to promote sustainable fishing. aquaculture, or marine conservation/protection initiatives
□ Collaborate with NGOs on fair labor initiatives

34. What challenges do you face in implementing sustainable fishing practices? Please choose all that apply.

□ Competing priorities
□ High cost of technology, equipment needed
□ Lack of staff or capacity to use technology/equipment or various tools, e.g., apps
□ Lack of microfinance services to support upgrading technology and equipment
□ Lack of insurance services to cover injuries, accidents, or disasters
□ Do not see results of sustainable fishing practices or initiatives
□ Other, please specify:

35. Would your company be interested in collaborating on an activity with USAID, SEAFDEC and/or CTI-CFF to help the fishing sector transition to sustainable fishing practices and promote marine conservation?

□ Yes
□ No

36. Your response indicates that your company may be interested in collaborating with USAID, SEAFDEC and/or CTI-CFF. Would you please identify areas for potential collaboration that interest you the most? Select all that apply.

□ Improve technology and catch-data management and equipment and/or traceability, e.g., AI, software, and hardware
□ Improve education or capacity development on fishery data management at university or community level
□ Improve digital finance and business skills for small community fisheries/SMEs
□ Empower women and youth for fishery livelihoods
□ Improve financial services for the fishery sector, e.g., access to microloans, insurance, or access to new markets
□ Develop a marine conservation trust fund or 'blue economy' initiatives
□ Improve processing and/or access to markets
□ Improve fair labor practices
□ Provide funds or in-kind services
□ Other, please specify:

37. If your company is interested in collaborating with USAID, SEAFDEC and/or CTI-CFF, what would your expectations be in terms of our contributions? Please select all that apply.

□ Develop a joint project - Please specify in "Other" field
□ In-kind support, e.g., technical expertise support, knowledge transfer
□ Funding
□ Other, please specify:

38. Your response indicates that your company would NOT be interested in collaborating with USAID, SEAFDEC and/or CTI-CFF. If possible, can you please explain why not?

39. Can we contact you for a follow-up online consultation via email and Skype to explore collaboration opportunities?

□ Yes
□ No

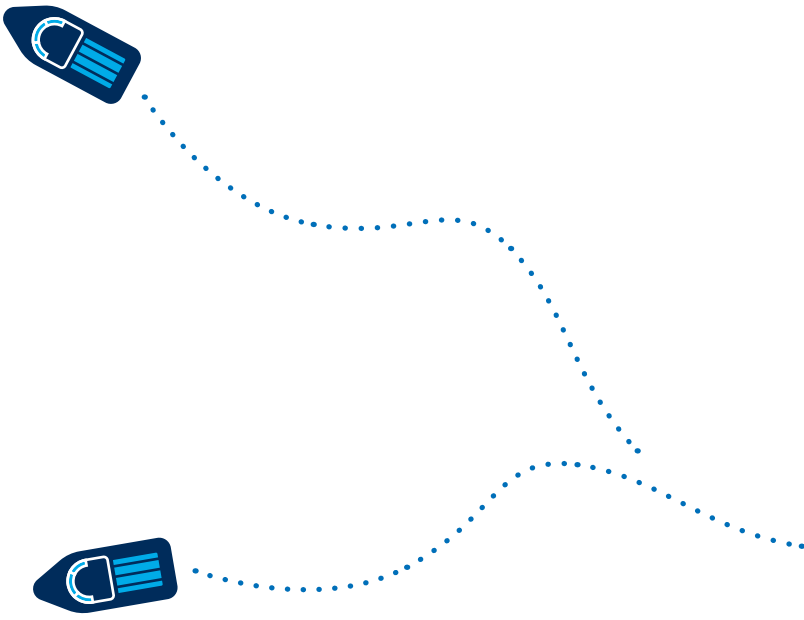
40. Thank you. Please enter your preferred email address.

41. Please enter your preferred Skype username.

Key Informant Questionnaire

Company/Organization Overview	
Name	
Sector	
Locations – Countries	
Point of Contact	
Name	
Position	
Phone	
Email	
Address	
Website	
Consultation Overview	
Date	
Location	
PSLA team	
Consultation Details	
Jobs	• What does the company do? Core and side business? • What is the industry/business environment does it operate in? • What is the company's current strategy and objectives?
Sustainability in the fishing industry	• What is the level of understanding + action on sustainable fishing management/marine conservation? Is there a formal commitment? • How does the company view industry sustainability, IUU fishing, fair labor practices, traceability or electronic traceability system for fish and fishery products (e-CDT) and other technology tools? Any interest in marine conservation trust fund/blue economy? • What does it see as viable solutions? • Does this company know of SEAFDEC and CTI-CFF?
Existing initiatives/ activities?	• Does the company have its own activities with key stakeholders or partnerships to promote sustainable fisheries, including allocation of funds on initiatives with NGOs/govt.? • Does it use traceability or e-CDT or other technologies to promote sustainable fisheries and traceability? • Does the company already work on marine conservation or trust fund type initiatives? • Does it have policies, protections, or take concrete action to promote fair labor and welfare of fishermen or employees?
Pains	• What are the principal pain points/challenges that prevents this company from effectively implementing sustainable fishing practices? • Are any of the challenges, individually, sector-wide, or applicable regionally?
Gains	• How can your company specifically contribute towards adoption of sustainable fishing practices, including use of e-CDT, fair labor practices etc.? • Does your company see opportunities that can come from adopting sustainable fishing practices – for both the company and the industry? What do you see as the benefits of contributing to sustainable fishing standards? How much value be supporting sustainable fishing have to your brand?

Company/Organization Overview	
Donor engagement	• Does this company have experience working with USAID or other international donor or charity organizations before?
Initial Partnership Reflections by PSES	
Project component	• Is the opportunity for USAID, SEAFDEC or CTI-CFF or other (maybe they do on own or with another non-profit)?
Engagement potential	• High, medium, or low
Project overlap	• Where does this company's goals/challenges/operations overlap with USAID, SEAFDEC or CTI-CFF? • How would a potential engagement help solve the key challenges? • How do we leverage the resource and capabilities of this company and vice versa?
Drawbacks	• What risks exist in engaging with this company? For USAID, SEAFDEC or CTI-CFF? • What would be involved to conduct appropriate due diligence?



Annex E: List of Stakeholders

During our research process, SUFIA LCD conducted interviews, administered surveys, or had focus group discussions with the following stakeholders.

The Private Sector (Associations, Businesses, and Community Enterprises):

Due to the companies' request for confidentiality, we have removed the names of the companies but have provided a description and their location.

- A Sustainable Food Marketing and Promotion Company (Thailand)
- Global Conglomerate for Seafood (Thailand/Global)
- Company for Feed Meal (Thailand)
- Technology Company (Philippines)
- Tour Operator (Thailand)
- Consulting Company (Indonesia)
- Fisheries Industry Group (Philippines)
- Tech Company (Myanmar)
- Sustainability Consultants (UK)
- Independent Consultant: Climate Change Adaptation (Hawaii, US)
- Impact Investment Company (Singapore)
- Small Sustainability Consultancy (Thailand)
- Tech Company (Belgium)
- Tech Company (Thailand/Vietnam/ASEAN)
- Financial Service Provider (Singapore)
- Conglomerate (Thailand/Global)
- Food Company (Japan)
- Tech Company (Indonesia)
- Tech Company (Indonesia)
- Tech Company (Philippines)
- Tech Company (Indonesia)
- Oil and Gas Company (Thailand/regional)
- Small Fisheries Consultancy (Thailand)
- Fishery Company (Indonesia)
- Blue Tech Company (US)
- Media (Malaysia)
- Food and Retail Consulting (UK)

- Tourism Consultancy (US)
- Fishery Company (Indonesia)
- Tech Company (Thailand)
- Food Association (Thailand)
- Aquaculture Company (Thailand)
- Fishery Company (Thailand)
- Community Enterprise (Thailand)
- Industry Association (Thailand)
- Community Enterprise (Thailand)
- Business Improvement Company (Thailand)
- Aquaculture Company (Thailand)
- Aquaculture Company (Thailand)
- Aquaculture Company (Thailand)
- Global and regional consultancy firm (Indonesia)

International Organizations and NGOs:

- Vietnam Tuna Association
- Japan Overseas Fishing Association
- Pacific Asia Travel Association PATA (Regional)
- Wildlife Conservation Society WCS (Global)
- OceanMind; (UK/ASEAN Regional)
- Geeks Without Frontiers (US)
- Shark Guardian (Global–Asia Thailand)
- Sustainable Fisheries Partnership (US)
- Sea Shepherd Legal (Austria)
- WWF – Coral Triangle
- WWF - New Zealand
- WWF – Global Dialogue on Seafood Traceability
- IDH, the Sustainable Trade Initiative (Netherlands)
- FishChoice (US)
- RECOFTC - The Center for People and Forests (Thailand)
- Gender in Aquaculture and Fisheries Section (GAFS) of the Asian Fisheries Society (Malaysia)
- The Centre for Asian Philanthropy and Society (Hong Kong)
- Institut Teknologi Kalimantan (Indonesia)

- FishWise (US)
- Blue Finance (Philippines)
- FAO Cambodia, FAO EU CAPFISH project
- Asian Seafood Improvement Collaborative (Canada)
- InfoFish (Malaysia)

- GEF/UNDP/PEMSEA ATSEA-2 Project (Indonesia)
- World Bank – Laos PDR
- UNDP – Timor-Leste
- Economic Research Institute for ASEAN and East Asia

Universities:

- Eastern Finland University
- Rangsit University (Thailand)
- Universiti Malaysia Terengganu UMT (Malaysia)
- Consiglio Nazionale delle Ricerche or National Research Council – CNR (Italy)
- Kasetsart University (Thailand)
- Universidad Laica Eloy Alfaro de Manabi ULEAM (Ecuador)
- Universiti Malaysia Sabah
- Prince of Songkla University (Thailand)
- Colorado School of Mines (US)
- Coastal Carolina University (US)
- University of Oriental Timor-Leste

Government Representatives:

- Cambodia – Fisheries Administration
- Indonesia – Ministry of Marine Affairs and Fisheries
- Lao PDR – Division of Fisheries, Department of Livestock and Fisheries, Ministry of Agriculture and Forestry
- Malaysia – Marine Fishery Resources Development and Management, Department of Fisheries, Fisheries Research Institute, SEAFDEC/MFRDMD
- Myanmar – Department of Fisheries, Sustainable Coastal Fisheries
- Philippines – Bureau of Fisheries and Aquatic Resources
- Singapore – Regulatory Policy Department, Food Regulatory Management Division
- Sweden – Ministry for the Environment
- Thailand – Department of Fisheries, Mekong Institute

Annex F: Annotated Bibliography

Bladon, A., Mohammed, E. Y., & Milner-Gulland, E. J.. (2014). *A review of conservation trust funds for sustainable marine resources management: Conditions for success.* IIED Working Paper. https://pubs.iied.org/16574iied

This paper examined 12 conservation trust funds (CTFs) around the world, specifically how they were set up, and identified "success factors," which are as follows: (1) strategic and financial planning—feasibility analysis before set-up (to consider both the funding needs vs. the urgency of the threat to biodiversity); (2) diversified financing systems—to ensure financial sustainability but also ensures mobilization of funds and over-reliance on one source of funding; (3) independent and participatory governance—a balance between autonomy and political support and inclusive to all key stakeholders; (4) strategic partnerships—mentorship, technical assistance ,and financial advice are essential; (5) political support—obtain political will; (6) financial expertise—CTF is a financial tool and it will require finance expertise to ensure success and set up strong financial structures; and (7) reporting, monitoring, and evaluation—for transparency and to understand the conservation impact. A key finding of the paper was the identification of a crucial gap: the lack of data on conservation impact, capacity to deliver the required changes.

Association of Southeast Asian Nations (ASEAN). (2020). *Cooperation Framework on ASEAN Network for Combating Illegal, Unreported, Unregulated (IUU)* Fishing. https://asean.org/storage/16.-Final-draft-CFTORROPANIUU-28ASWGFi.pdf

A cooperative framework by ASEAN Member States that aims to enhance regional cooperation of "monitoring, control, and surveillance programmes" by improving information sharing, capacity, and capacity-building, and disseminating best practices for maritime domain surveillance and investigation activities.

ASEAN-Japan Centre. (2021). *Brunei Darussalam aquaculture feasibility study for investment*. https://www.asean.or.jp/ja/wp-content/uploads/sites/2/20210415_brunei_web.pdf

A feasibility study to assess the fisheries and aquaculture industry in Brunei Darussalam for further investment in aquaculture.

ASEAN Post. (2020). *ASEAN losing billions to illegal fishing.* https://theaseanpost.com/article/asean-losing-billions-illegal-fishing

An article explaining what illegal, unreported, and unregulated (IUU) fishing is, how it occurs in the ASEAN region, noting the region's efforts in response to the European Commission's issue of 'yellow cards', and the negative impacts to the economy and the environment.

ASEAN Thailand Secretariat. (2019). *Thailand hosted the ASEAN Meeting on Combating IUU Fishing in Partnership with the EU.* https://asean2019.go.th/en/news/%E0%B8%81%E0%B8%A3%E0%B8%A1%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%A1%E0%B8%87%E0%B8%88%E0%B8%B1%E0%B8%9A%E0%B8%A1%E0%B8%B7%E0%B8%AD%E0%B8%AA%E0%B8%AB%E0%B8%A0%E0%B8%B2%E0%B8%9E%E0%B8%A2%E0%B8%B8%E0%B9%82/

An article highlighting the ASEAN Meeting on Combating IUU Fishing in Partnership with the EU meetings held on April 4 and 5, 2019, in Bangkok, Thailand. It was organized by the Thai Department of Fisheries in collaboration with the European Commission (EU) with "almost" 70 representatives from ASEAN Member States, international fisheries organizations, and representatives from the EU. The key focus theme of this meeting was "Advancing Partnership for Sustainability."

Asian Development Bank. (2009). *The economics of climate change in Southeast Asia: A regional review.* https://www.ipcc.ch/apps/njlite/ar5wg2/njlite_download2.php?id=9112

Asian Development Bank's first study for Southeast Asia with particular focus on Indonesia, Philippines, Thailand, Vietnam, and Singapore. It provides a regional examination of climate change in the region; its impact; modeling potential impact to the economies; and climate change mitigation plans, policy responses, and recommendations.

Bradley, D., Merrifield, M., Miller, K.M., Lomonico, S., Wilson, J.R., & Gleason, M.G. (2019). Opportunities to improve fisheries management through innovative technology and advanced data systems. *Fish*, 20, 564–583. https://doi.org/10.1111/faf.12361

The report examines the status, challenges, and future directions of high-tech data systems in fisheries management to understand what has limited their adoption. By reviewing the application of fishery-dependent data technology in multiple fisheries sectors globally, the paper shows that innovation is stagnating because of lack of trust and cooperation between fishers and managers. The paper proposes a solution based on a transdisciplinary approach to fishery management that emphasizes the need for collaborative problem-solving among stakeholders. In the proposed system, data feedbacks are a key component to effective fishery data systems, ensuring that fishers and managers collect, have access to, and benefit from fisheries data as they work toward a mutually agreed-upon goal. A new approach to fisheries data systems will promote innovation to increase data coverage, accuracy, and resolution, while reducing costs and allowing adaptive, responsive, near real-time management decision-making to improve fisheries outcomes.

Brunei Darussalam Department of Fisheries. (2018). *2018 Brunei Darussalam Fisheries Statistics in Brief.* http://www.fisheries.gov.bn/SiteCollectionDocuments/statistic%20fisheries/Fisheries%20booklet%2018%20Web%20info.pdf

Fisheries statistics brief prepared by the Department of Fisheries that highlights GDP, production by capture fisheries and aquaculture, seafood processing, import and export data, and labor statistics.

Conservation Finance Alliance. (2020). *Environmental Funds Tool Kit.* https://www.conservationfinancealliance.org/eftk-home

An online resource platform on setting up environmental funds. It provides step by step and support materials, including capacity-building, start-up, legal and governance, planning, fundraising, finance and administration, investment management, grant making, communications and monitoring/evaluations. The team that developed this toolkit has also developed practices standards for CTFs.

Conservation International. (2020). *Blue Abadi Fund.* https://www.conservation.org/gef/projects/blue-abadi-fund

Online project page for The Blue Abadi Fund, which aims to contribute to coastal fisheries in Indonesian Fisheries Management Areas (FMAs) 715, 717, and 718 delivering sustainable environmental, social, and economic benefits and demonstrate effective, integrated, sustainable, and replicable models of coastal fisheries management characterized by good governance and effective incentives. The fund is implemented by Conservation International, The Nature Conservancy, and World Wildlife Fund. The webpage includes early project documentations such as initial project plan but does not go in-dept on how they set-up the fund.

Credit Suisse and Responsible Investor Research. (2020). *Investors and the Blue Economy*. https://www.credit-suisse.com/media/assets/microsite/docs/responsibleinvesting/spread-blue-economy-report.pdf

This report is a market-first evaluation of institutional investor awareness and interest in the blue economy and ocean-related investments (most from Europe—14% from Asia – Pacific including Japan). The key findings are: interest high but industry expertise is low; investors sees the blue economy as important; 3 in 4 investors have not assessed their portfolio for the impact on the ocean; 21% unaware of ocean exposure and risk; almost 1/3 do not address sustainable blue economy at all in their current investments (need to better inform investors); main barriers are: lack of investment grade projects, no internal expertise, for owners (their managers do not offer any products or raise the topic); some opportunities in early stage, impact, and fixed income investments but not yet for sustainable Blue Economy infrastructure and equity allocations; sectors for best investment opportunities are: climate change mitigation (marine renewables), marine pollution, and supporting fisheries and aquaculture; and urgent need to enable conditions and develop innovative financing approach to reduce risk—create more sustainable projects with track records and speed up public-private partnerships (PPPs) and scaling investment using innovative finance, e.g., blended finance.

Food and Agriculture Organization of the United Nations. (2001). F*AO. International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA)*. https://www.fao.org/3/y1224e/Y1224E.pdf

The International Plan of Action was developed to prevent, deter, and eliminate IUU fishing by providing all states with comprehensive, effective, and transparent measures by which to act, including through appropriate regional fisheries management organizations established in accordance with international law.

Food and Agriculture Organization of the United Nations. (2014). *The Voluntary Guidelines for Flag State Performance (VGFSP)*. https://www.fao.org/iuu-fishing/international-framework/voluntary-guidelines-for-flag-state-performance/en/

The VGFSP provide guidance to strengthen and monitor compliance by flag states with their international duties and obligations regarding the flagging and control of fishing vessels.

Food and Agriculture Organization of the United Nations. (2015). Post-harvest Issues in Fisheries and Aquaculture. https://www.fao.org/3/i3613e/i3613e.pdf

A beginner's guide and toolkit that helps participants understand the post-harvest part of the fishery supply chain. It covers the different types of fish products, the quality and safety issues. How to develop business approach to post-harvest activities, the role of organizations, and how to obtain a better understanding of fish value chain.

Food and Agriculture Organization of the United Nations. (2017). V*oluntary Guidelines for Catch Documentation Schemes*. https://www.fao.org/iuu-fishing/international-framework/voluntary-guidelines-for-catch-documentation-schemes/en/

The Voluntary Guidelines for Catch Documentation Schemes is the first international policy document about catch documentation schemes. It was developed to aid states, regional fisheries management organizations, regional economic integration organizations, and other intergovernmental organizations if they develop, review, or implement new catch documentation schemes.

Food and Agriculture Organization of the United Nations. (2019). *Guidelines for Increasing Access of Small-Scale Fisheries to Insurance Services in Asia*. https://www.fao.org/3/ca5129en/ca5129en.pdf

The publication is a handbook of guidelines for insurance and fisheries stakeholders to support the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication. In response to the high number of injuries and death associated with fishing operations, the guidelines aim to: (1) Increase awareness for better risk management, disaster preparedness and insurance services; (2) Guide policy and decision makers in the Asia-Pacific region to help introduce insurance services for small-scale fishers; (3) Build capacity among insurance providers, fisherfolk organizations, NGOs, and government agencies to design and implement insurance programs; and (4) Promote insurance services that incentivize and reward a responsible and sustainable conduct of fishing, processing, and marketing and better preparedness for disasters. The handbook is broken into three parts: part 1 is focused on the guideline background and context; part 2 covers the framework for insurance programs, discusses the major risks and why most fishers are not insured, and consideration of enabling factors; and part 3 provides specific guidance on how to design and implement insurance programs for small-scale fishers and their communities, especially highlighting insurance assessments, coverage, factors that determine the cost of fishing vessel insurance/insurance premiums, and evaluation of insurance applications, loss settlement, and claim adjustments.

Food and Agriculture Organization of the United Nations. (2019). *Guidelines for Micro-finance and Credit Services in Support of Small-scale Fisheries in Asia*. https://www.fao.org/3/ca5128en/CA5128EN.pdf

The guidelines aimed to (1) increased awareness about the financial needs of small-scale fisheries (SSF); (2) guide policy and decision-makers to incentivize financial services; (3) build capacity among financial service providers, fisherfolk organizations, NGOs, and government agencies to design and implement financial service products and programs; and (4) promote financial services that incentivize and reward responsible and sustainable fishing. The handbook also explains the problem of lack of finance services for fisheries, the actors involved in SSF (demand for microfinance, supply for microfinance and other actors), key good practices in delivery of financial products and services to SSFs (client and market knowledge, flexible products, cash flow analysis, differentiation of loan officer performance targets to promote SSF lending, market materials customized to reflect target market, high level institutional buy-in, understanding market and assessment of systematic risks, product design, policies and procedures, marketing/promotion, risk assessment and credit analysis, delivery, loan monitoring and repayments, institutional stability, second tier investors: grants, loan funds, loan guarantees). Annex A to the guidelines provides a good checklist for steps to consider when setting up a SSF financing mechanism; Annex B covers risk assessment; and Annex C provides a product profile worksheet.

Food and Agriculture Organization of the United Nations. (2020). Fishery and Aquaculture Country Profiles: Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Papua New Guinea, Philippines, Solomon Islands, Thailand, Timor-Leste, and Vietnam https://www.fao.org/fishery/en/global-search?q=countryprofiles%20search&lang=en

FAO Fishery and Aquaculture Country Profiles provide an overview for each country that provides country level fisheries statistics, country briefs with information about geography and natural sources, and general summaries of the fishery and aquaculture sector in each country. Data sources are country sources, UN agencies, and World Bank.

Food and Agriculture Organization of the United Nations. (2020). *State of World Fisheries and Aquaculture 2020 Report*. https://www.fao.org/state-of-fisheries-aquaculture

An interactive, online report summarizing the current state of the world's fisheries and aquaculture released in 2020 with statistics, data, and key advocacy messages for continuous efforts to ensure sustainable fisheries management and marine conservation.

Food and Agriculture Organization of the United Nations. (2021). Asia-Pacific Fishery Commission Website. https://www.fao.org/apfic/en/

Provides information on the Asia-Pacific Fisheries Commission, the state of fisheries in the region, and what they do in the Asia-Pacific region, especially promoting an ecosystem approach, sustainable intensification of aquaculture, policy development and capacity-building, and analysis and consensus building on critical issues.

Food and Agriculture Organization of the United Nations. (2021). *Implementation of The Code of Conduct for Responsible Fisheries: Trends Over the Last 25 Years*. https://www.fao.org/3/cb2990en/CB2990EN.pdf

This publication summarizes the key policy relating to responsible fisheries and examines how states have implemented the Code of Conduct for Responsible Fisheries over the last 25 years, with specific focus on member states' implementation of the guiding principles, types of measures taken, examining constraints, and offering possible solutions.

Food and Agriculture Organization of the United Nations. (2021). *Japan Fisheries Global Information System (FIGIS) Country Profile Fact Sheet*. https://www.fao.org/fishery/en/global-search?q=country%20japan_fcp&lang=en

FAO's FIGIS Country Profile Fact Sheet for Japan provides an overview summary of geographic data, fisheries sector data, fish utilization, economic role, fisheries development, and management.

Food and Agriculture Organization of the United Nations. (2021). Treaties Database for the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. https://www.fao.org/treaties/results/details/en/c/TRE-000003/

An online treaties database that tracks which member states have signed, ratified, acceptance, approval, accession, or other means for the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing since November 2009.

Food and Agriculture Organizations of the United Nations. (2021). Website on IUU. https://www.fao.org/iuu-fishing/background/what-is-iuu-fishing/en/

A website specifically for explaining IUU fishing. It includes the context, international framework, tools and initiatives, capacity development, news and events, and latest resources for the public. It also has in-depth focus areas: PSMA, global records, catch documentation schemes, and the joint working group.

Friends of Ocean Action. (2020). *The Ocean Finance Handbook*. https://www3.weforum.org/docs/WEF_FOA_The_Ocean_Finance_Handbook_April_2020.pdf

This handbook aims to provide an up-to-date overview of the investment landscape in the blue economy, with the intent of providing a common baseline of understanding of sustainable blue economy financing for all stakeholders. For groups seeking finance: the book serves "as a reference for decision makers within governments, NGOs, the private sector, and ocean-based communities who want to understand where –and how – blue finance can be raised, how it can best be managed, and the types of activities that it can enable." For investors, the book will also "seek to serve a similar purpose for financial professionals, offering insight into opportunities and considerations for sustainable investment in the ocean. As an overview of existing practice, it sources heavily from previous synthesis documents on sustainable financing and links out to related and complementary resources wherever possible. The Handbook is designed for use as a reference document, and readers are free to focus on the chapters relevant to their own area of focus." It also includes different financial service models and mechanisms to address different needs and attract different investors.

Fujita, R., Cusack, C., Karasik, R., Takade-Heumacher, H. & Baker, C. (2018). *Technologies for Improving Fisheries Monitoring*. San Francisco: Environmental Defense Fund. 71 pages. https://www.edf.org/sites/default/files/oceans/Technologies_for_Improving_Fisheries_Monitoring.pdf

Provides an overview of the different technologies used for fisheries management and monitoring (including references to companies that produces them). There are sections for each type of technology, which include the applications for fish data/species identification, low-cost cameras, software for cameras, shore-based remote camera monitoring, size limit tools, kits that help with compliance (spatial and time restricts for fishing), transshipment monitoring, fish fraud, governance tools, data management, incentives for data collection and predicting illegal behavior by vessels.

Human Rights at Sea and The Guardian. (2021). *Podcast:* A Death at Sea and Why Answers Are So Difficult to Find. https://www.humanrightsatsea.org/2021/06/30/the-guardians-full-story-podcast-coverage-of-kiribati-fisheries-observer-death-at-sea/

A podcast detailing the death of Mr. Eritara Aati Kaierua, an Observer on Board from Kiribati on board a Taiwanese flagged vessel, that occurred in March 2020. It examines the family's quest to get answers about his death, the role of Observers to monitor catch on commercial fishing vessels to prevent IUU fishing, including the harassment they face, and why it is difficult to get answers when a death occurs.

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, & H. T. Ngo (editors). Bonn, Germany: IPBES secretariat. https://www.ipbes.net/global-assessment

An assessment examining the status and trends about biodiversity and ecosystem services, the impact of biodiversity and ecosystem services on human well-being, and the effectiveness of responses. It also includes a summary for policymakers and six chapters that go into additional details.

Intergovernmental Panel on Climate Change (IPCC). (2021). Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, & B. Zhou (eds.)]. Cambridge University Press. In Press. https://www.ipcc.ch/report/ar6/wg1/#SPM

A high-level summary for policy makers to understand the current state of the climate, including how it is changing and the role of human activities, and the state of knowledge about potential climate 'futures,' climate information relevant to regions and sectors, and how to mitigate 'human-induced climate change."

IUU Fishing Index. (2019). Country Profiles for: Brunei, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Papua New Guinea, Philippines, Singapore, Solomon Islands, Thailand, Timor-Leste, and Vietnam. https://www.iuufishingindex.net/#profiles

An index developed by Poseidon Aquatic Resource Management Ltd., the Global Initiative Against Transnational Organized Crime, and funded by the Norwegian Ministry of Foreign Affairs, to measure the degree to which states are "exposed to and effectively combat IUU fishing."

IUU Fishing Index. (2019). Methodology. https://iuufishingindex.net/methodology.pdf

A paper that describes the methodology of the IUU Fishing Index. It explains in detail the 40 indicators and why the indicators are "considered to provide a reliable and robust basis for an index of IUU fishing and scoring countries." The scoring is based on 1 to 5 with 1 being good and 5 being bad/weak. The indicators are also weighted, but all 40 indicators can be applied globally to the 152 countries assessed.

Japan's Ministry of Agriculture, Forestry and Fisheries. (2020). Annual White Paper on Fishery Management Trends and Policies 2019-2020. https://www.maff.go.jp/e/data/publish/attach/pdf/index-180.pdf

The annual report contained a review of Japan's fisheries during the Heisei period (January 8, 1989, to April 30, 2019) that included analysis of products, fisheries structure, change of fishing vessels, aquaculture, side jobs in fisheries. The focus for Reiwa Era activities are reform fisheries policies, e.g., promotion of new resource management system, strengthening fishery production base and structural reform, reform distribution structure and increase income of fishers (expand export). A case study was highlighted—a seashore revitalization plan to boost income by at least 10% in 5 years with voluntary efforts. Other efforts to include new products have been developed and sold, e.g., freezing the fish on board using cooled seafood tanks and quick-freeze equipment and promoting fishery products to local area; marketing to consumers and protecting intellectual property and marine eco-label certifications most used in Japan; and promoting 'seaside stay' short tourism visits as alternative income to fishing communities, e.g., traditional boat houses or bin-dama weaving or how to prepare traditional fish.

Japan's Ministry of Agriculture, Forestry and Fisheries. (2019). *Annual White Paper on Fishery Management Trends and Policies 2018-2019*. https://www.maff.go.jp/e/data/publish/attach/pdf/index-166.pdf

This annual report highlighted a few major initiatives and changes of the Fishery Act: (1) establishment of new resource management system, (2) review fishing permit system for enhancing productivity, (3) review system for use of the sea for developing aquaculture and coastal fisheries, (4) revitalizing fishing communities; human resource development through fisheries education—changes in schools and providing fisheries education (including selected high schools across the nation, universities with expertise on fisheries—19 at the national level); development of young fishers initiative and their placement in the industry; also developing marine technicians in fisheries—has a focus on empowerment and active participation of women in the fisheries industry (mostly ashore part of the process). The report also provided a review of a resource management plan, e.g., using sea surface and fisheries and noting key trends for Japan's fisheries and aquaculture, the development and utilization of technologies for promoting smart fisheries (fish data collaboration platform in real time); and in many cases specific data about community level initiatives, e.g., turning an old school into a fishing community center. It also has a summary of the 2019 fisheries policies.

Kongrut, A. (2020). Quotas and the future of the fishery sector. *Bangkok Post*, June 11, 2020. https://www.bangkokpost.com/opinion/opinion/1932880/quotas-and-the-future-of-the-fishery-sector

Article summarizing recent initiatives by the Thai government and its efforts in marine conservation. It also highlighted the ongoing fragile relationship between the Thai Department of Fisheries and the National Fisheries Association of Thailand, disagreeing over the sustainable catch quota to prevent overfishing.

Kramer, M. R., & Pfitzer, M. (2016). The ecosystem of shared value. *Harvard Business Review*. https://hbr.org/2016/10/the-ecosystem-of-shared-value

Article about the collective impact movement and how it can enable successful collaboration between governments, NGOs, companies, and communities to address the word's problems. It highlights the five elements that enable effective collaboration: a common agenda, shared measurement system, mutual reinforcing activities, constant communication, and dedicated support.

Kroodsma, D.A., Mayorga, J., Hochberg, T., Miller, N.A., Boerder, K., Ferretti, F., Wilson, A., Bergman, B., White, T.D., Worm, B., et al. (2018). Tracking the global footprint of fisheries. *Science, 359*, 904–908. https://www.science.org/doi/pdf/10.1126/science.aao5646

An article that explores the global footprint of fisheries and how data demonstrate that industrial fishing occurs in more than half of the world's ocean area, with consideration of cultural and political events.

López-Angarita, J., Hunnam, K.J., Pereira, M., Mills, D.J., Pant, J., Teoh, S.J., Eriksson, H., Amaral, L. & Tilley, A. (2019). Fisheries and aquaculture of Timor-Leste in 2019: Current knowledge and opportunities. Program Report: 2019. Penang, Malaysia: WorldFish. https://digitalarchive.worldfishcenter.org/bitstream/handle/20.500.12348/3737/Program-Report-2019-15-Timor-Leste-Fisheries.pdf?sequence=2&isAllowed=y

A report that details Timor-Leste's fisheries and aquaculture sector produced by WorldFish in 2019. It highlights the national legislation, policies, and strategies for sustainable fisheries management, provides an overview of the capture fisheries and aquaculture sector and highlights the development priorities to help improve the sector.

Ministry of Environment of Japan. (2004). Coral Reefs of Japan – Chapter 4 Fisheries by Kakuma, Shinichiro. http://www.env.go.jp/nature/biodic/coralreefs/reference/contents/0404.pdf

An article highlighting Okinawa's fisheries, which are 80% coastal fisheries and marine aquaculture with small fishing boats (10 tons or less) and traditional boats. Subsistence fisheries are not usually monitored before the community-based, co-management approach used in Okinawa. The regulations focused on species protection, e.g., lobsters can only be catch at a specified time and the Total Allowable Catch system (started in 1997) and Marine Protected Areas. When fishery resource management regulations are implemented, the government focuses on alternative income especially for the initial stages: (1) aquaculture of mozuku (edible brown algae), edible green algae, Kuruma prawns (more resource intensive); (2) fish aggregating device (FAD), Payao—installing, repairing, and improving product distributions among the fishermen and associations; (3) tourism fishery—marine tourism is on the increase. Also highlighted the Onna Village Fishery Cooperative started in 1982—map out a plan for shellfish, sea-urchin and was in cooperation with the government. The initiative is a community-based, self-imposed management plan, and the regulations were flexible and revised 3 times by 2000. Noted challenges were effective operation and enforcement.

National Fisheries Authority of Papua New Guinea (PNG). (2021). *PNG Fishing Industry*. https://www.fisheries.gov.pg/fisheries-industry

Official website of Papua New Guinea's National Fisheries Authority that provides an overview of the fisheries industry. It provides a high-level summary of the fisheries sector's potential, trade, tuna fishery, prawn, and lobster fishery, beche-de-mer, barramundi, inshore reef fish, and aquaculture.

OceanMind. (2019). Presentation on Vessel Monitoring to ASEAN.

A presentation by OceanMind to ASEAN IUU Task Force on April 5, 2019. It describes OceanMind's work to support government authorities on enforcement and compliance to protect fisheries resources. Specifically, it goes into detail about the inspection at port, highlighting successful cases with Thailand, explain the need for advances in vessel tracking analysis, discuss machine learning capabilities and analytics, the focus on labor compliance, identification of 'dark vessels', and the need for information sharing, transparency and partnerships in the region.

Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). (2015). *Blue Economy for Business in East Asia*. http://www.pemsea.org/sites/default/files/Blue_Economy_for_Business_in_East_Asia.pdf

This publication is targeting the private sector and aiming to raise awareness about the blue economy and the value of coastal/marine ecosystem and services, highlighting the business risks and opportunities, the categories of blue economy-related investment needs in Asia: coastal transport, ecotourism, energy, enterprise and livelihood development, fisheries and food security, habitat protection/restoration/ management, integrated coastal management development/ implementation, natural/man-made hazard prevention/management, pollution reduction/waste management, water use/supply management. It also highlights that the blue economy industries are beyond fishing and aquaculture, and it includes: ports/shipping/marine transport, tourism/resorts/coastal development, oil/gas, coastal manufacturing, seabed mining, renewable energy, marine biotechnology, and marine technology/environmental services. It also highlighted some case studies of investment areas: coastal restoration, protection, climate change; fisheries improvement and stop IUU; initiatives to engage local communities; better integration of science into management practices.

The Pew Charitable Trusts. (2021). *Issue Brief: Information Sharing is Key to Ending Illegal, Unreported, and Unregulated Fishing*. https://www.pewtrusts.org/-/media/assets/2021/04/information-sharing-is-key-to-ending-illegal-unreported-and-unregulated-fishing.pdf

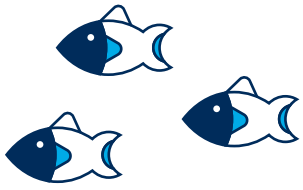
An issue brief that highlighted the UK Centre for Economics and Business Research (CEBR)'s study examining the "likely impacts of sharing fishing activity data among neighboring coastal States." The key findings were that: any countries that shares data and information will benefit, even if other States do not share; even if one country that only has limited capacity for reciprocity increase information sharing, it will help improve fish stocks in both countries; and it is "crucial" to improve the technology, operations, and institutional capacity for States to collect, analyze, and share information for success in combating IUU fishing.

Regional Plan of Action to Promote Responsible Fishing Practices including Combating IUU Fishing in the Region (RPOA-IUU) Coordination Committee. (2021). The 13th RPOA-IUU Coordination Committee article. https://www.rpoaiuu.org/the-13th-rpoa-iuu-coordination-committee/

An article summarizing the 13th RPOA-IUU Coordination Committee's Meeting on November 15, 2020. The meeting was attended by 11 participating countries and with representatives from SEAFDEC and InfoFish as advisors and the following as observers: National Oceanic and Atmospheric Administration Fisheries Office of Law Enforcement (NOAA-OLE), International Monitoring Control and Surveillance Network (MCS), CTI-CFF, ATSEA-2 Project, and Commonwealth Scientific and Industrial Research Organization (CSIRO). The focus of the meeting was to address ongoing challenges and priorities for fisheries management and the endorsement of the Resolution on Vessel Without Nationality.

Southeast Asian Fisheries Development Center (SEAFDEC). (2016). *Brunei Darussalam Initiatives: Combating IUU Fishing*. http://www.seafdec.org/documents/2016/03/sc16_sc04-bn.pdf

A presentation from the Brunei Darussalam Department of Fisheries, Ministry of Primary Resources and Tourism dated March 1, 2016. It provided an overview of the situation of IUU fishing and summary of key initiatives taken by the government at the national and regional level. The presentation highlighted the efforts with SEAFDEC, the development of the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain.



SEAFDEC. (2019). *Country Fisheries Trade Profiles: Cambodia, Indonesia, Lao PDR, Myanmar, Philippines, Thailand, and Vietnam*. http://www.seafdec.org/country-profiles/

SEAFDEC published the country fisheries trade profiles, written by national experts from each country, for the member states with updated statistics about the fisheries and trade for each country, with information on the fisheries supply chain, export and import data, laws and regulations updates, and highlights of challenges or "issues on fisheries trade."

SEAFDEC (2017). Fisheries Country Profile: Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam. http://www.seafdec.org/country-profiles/

SEAFDEC published the fisheries country profiles, 2017 – 2018 edition, that highlights the status and trend of fisheries production, catch information from marine, inland capture and aquaculture, types of vessels and fishing gears utilized, and a summary of key fisheries policies and legal frameworks.

SEAFDEC. (2018). *International Fish Trade Profiles: Cambodia, Indonesia, Lao PDR, Myanmar, Philippines, and Thailand*. http://www.seafdec.org/country-profiles/

SEAFDEC published the 2018 edition of the fisheries country profile that was prepared by Regional Fisheries Policy Network members. It highlights the status and trend of fisheries production; catch information from marine, inland capture, and aquaculture; types of vessels and fishing gear utilized; and a summary of key fisheries policies and legal frameworks.

SEAFDEC. (2007). *Marine Fishing in Brunei*. http://map.seafdec.org/Monograph/Monograph_brunei/marine.php

An older database that provides information about the marine fishing sector in Brunei Darussalam from 2007. It provided an overview of the marine capture production, commercial fisheries, small-scale fisheries, type of vessels and fishing gear utilized, and summary of management policies.

SEAFDEC. (2020). *Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030*. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 23 pp.http://repository.seafdec.org/bitstream/handle/20.500.12066/6583/Res%26PoAToward2030.pdf?sequence=1&isAllowed=y

ASEAN member states adopted both the Resolution and the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030. Both the Resolution and Plan of Action are to serve as policy framework and priority actions to support sustainable development of fisheries and enhancing the contribution of fisheries to food security and better livelihood of people in the region in the coming decade.

SEAFDEC/MFRDMD. (2015). *ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain*. Southeast Asian Fisheries Development Center Marine Fishery Resources Development and Management Department. https://www.asean.org/wp-content/uploads/images/2015/November/AMAF/App%209%20-%20ASEAN%20Guidelines%20IUU%20SSOM36th%20AMAF%20final.pdf

A guideline for ASEAN member states to use as a tool to combat the different forms of IUU fishing in the region and how to prevent entry of fish and fishery products from IUU activities into the supply chain. Specifically, it offers guidance on managing fisheries activities within a country, regulating transshipment and catch across borders, preventing poaching in the exclusive economic zones of other countries, controlling illegal fishing and trading, protecting endangered species, and strengthening the management of fishing in the high seas.

Schmidt, J.r I., Clark, D., Lokken, N., Lankshear, J., and Hausner, V.. (2018). The role of trust in sustainable management of land, fish, and wildlife populations in the Artic. *MDPI Journal Sustainability 2018*, 10, 3124. https://www.mdpi.com/2071-1050/10/9/3124/pdf

Paper that examined how trust relationships impacted the sustainable resource management in Arctic Alaska and Canada. Through interviews with eight communities, the authors analyzed the 'trust' level using mixed methods. Authors found that characteristics of organizations were significantly related to trust, whereas education was a key individual-level characteristics. Other crucial factors were familiarity, communication, and education; all essential to improve, maintain, or foster trust for more effective management of natural resources in these remote communities.

Singapore Department of Statistics. (2021). *Agriculture, Animal Production and Fisheries Data*. https://www.singstat.gov.sg/publications/reference/ebook/industry/agriculture-animal-production-and-fisheries https://www.tablebuilder.singstat.gov.sg/publicfacing/createDataTable.action?refId=15263

Basic statistics about Singapore's fishing sector provided by the Department of Statistics Singapore. The information highlights the production and provides data from 2013 until the present. For fisheries sector, the data goes further back to 1999 and provides the data for local seafood production, local landing of seafood, import, export, and seafood wholesale data.

Singapore Government. (2021). *UN Oceans Conference Update*. https://oceanconference.un.org/commitments/?id=19003

The government of Singapore submitted an update for the Ocean Action 19003 to highlight its initiatives to combat IUU fishing, e.g., participation in ASEAN initiatives, the RPOA-IUU, and collaboration with SEAFDEC.

Singapore Tourism. (2021). *Singapore Geography*. https://www.visitsingapore.org/about-singapore/geography/

The government of Singapore's summary of its geography, including marine geography.

Sumaila, U.R., M. Walsh, K. Hoareau, A. Cox, et al. (2020). *Ocean Finance: Financing the Transition to a Sustainable Ocean Economy*. Washington, DC: World Resources Institute. https://oceanpanel.org/sites/default/files/2020-10/Ocean%20Finance%20Full%20Paper.pdf.

The Expert Group from the Ocean Panel (Sustainable Ocean Economy) commissioned this paper to explore how financing mechanisms can support transition to a sustainable ocean economy, e.g., the role insurance can play in acceleration of this translation and ocean-related subsidies should be considered. The panel shared those priorities should be to implement shared rules/common framework; stop financing activities that undermine sustainable oceans; increase and redirect public investments, de-risk, and insurance for sustainable ocean economy; strengthen knowledge, data, and human capacity; and explore new tools and policies. It ends with noting that there is a major gap in ocean finance—very little private sector investments but as a comparison, oil and gas gets $4.7 trillion in subsidies.

Klein, U., Linton, J., Marr, A., & Mactaggart, M. (2013). Financial services for small and medium-scale aquaculture and fisheries producers. *Marine Policy*, 37, 106–114. https://www.researchgate.net/publication/257163149_Financial_services_for_small_and_medium-scale_aquaculture_and_fisheries_producers

The paper examines the financial services for small and medium enterprises (SMEs) in aquaculture and fisheries. It found that traditional financial instruments seem unable to meet the financial needs of the industry. It states that innovative financial models for SMEs need to be developed to fill the gap between traditional banking and grant-based donor finance. One key characteristic of investment funds specializing in SMEs in Africa is the combination of investment

funds with business development funds to ensure the economic growth of SMEs as well as the likelihood of prompt loan repayment. Hybrid business models that can leverage the best aspects of philanthropy and business can help build sustainable, scalable enterprises. The delivery of investment and business development for SMEs can be done directly or through intermediaries. Other forms of innovation include utilizing SME purchase agreements as collateral, specialized financial intermediaries and multilateral agencies acting as co-lenders and risk-sharing of loans to SMEs, and industry partners assisting in developing the economic growth of SMEs and ensuring market access. Business development support from a group of talented management professionals with knowledge of financial accountability, operations, and international markets in the fisheries sector to serve as advisors and talent-enablers to SMEs is crucial.

USAID Oceans and Fisheries Partnership (USAID Oceans). (2019). *Workshop Report*. https://www.seafdec-oceanspartnership.org/resource/workshop-to-review-available-ecdt-technology-solutions-and-advance-regional-guidance-for-fisheries-traceability/

Workshop report summarizing the activities facilitated by USAID Oceans to CTI-CFF's Pacific members to review available e-CDT technologies solutions and "advance regional guidance for fisheries traceability" in the Coral Triangle Region held in June 2019 in Timor-Leste.

US State Department. (2021). 2021 Trafficking in Persons Report and Country Narratives for: Brunei, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Papua New Guinea, Philippines, Singapore, Solomon Islands, Thailand, Timor-Leste, and Vietnam. https://www.state.gov/reports/2021-trafficking-in-persons-report/

The latest annual report developed by the U.S. Department of State to report on the status of each country's efforts to combat human trafficking. It ranks country's efforts according to the standards set by the Trafficking Victims Protection Act (TVPA) of 2000 and includes all forms of exploitation: for sex or forced labor, slavery, or slave-like practices, and does not require the element of movement. Countries are ranked into four tier categories: Tier 1, Tier 2, Tier 2 Watch List, and Tier 3. The ranking is determined if government has made efforts to address the problems that meet TVPA's minimum standards and not the presence of the crime. Thus, Tier 1 is for governments that fully meet TVPA's minimum standards; Tier 2 is for countries that do not fully meet the TVPA's minimum standards but are making a significant efforts; Tier 2 Watch List – similar to Tier 2 but there is a significant number of victims and country is not taking proportional action or there is failure to provide evidence of increasing efforts; and Tier 3 is countries that do not meet TVPA's minimum standards and are not making significant efforts.

Wilcox, M. (2018). The future of fishing is big data and artificial intelligence. *Civil Eats*. https://civileats.com/2018/05/10/the-future-of-fish-is-big-data-and-artificial-intelligence/

Introduces a project carried out by The Nature Conservancy on catch data using AI technology in the New England area. It highlights the case of fisherman, Nick Muto, who was initially against the project but later decided to join the project with benefits of understanding about fish stocks, reducing cost of having an observer on board and being able to improve his relationship with regulators. The project showed that AI and big data tools can help improve trust between fishermen, scientist, and regulators. Fishermen's 'peer to peer' word of mouth is crucial for initiative's success.

World Wildlife Fund (WWF). (2009). *Guide to Conservation Finance*. https://wwfasia.awsassets.panda.org/downloads/wwf_guide_to_conservation_finance.pdf?uNewsID=175961

An overview of the different conservation financing mechanisms that have been implemented. WWF recommends conducting a feasibility study to identify the most appropriate mechanism by assessing the following factors: financial, feasibility of new mechanism, legal, administrative, social impact, political support, and environmental impact. The challenges that should be mindful of lack of funding or implementing; wide stakeholder participation with different needs and priorities; legal and institutional barriers at local, national, regional levels; social, economic, and

political risks; long timeline between project and actual delivery of funds, and replicability. The guide also breaks down the various types of finance mechanisms broadly grouped into carbon finance, payments for watershed services, revenue from tourism and recreation, compensation payments, fishing industry revenue, real estate and economic activity, revenue from sale and trade of wildlife, sustainable capital and environmental investment funds, and allocations from government revenues and conservation trust funds. On conservation trust funds (CTFs), it writes that The Global Environment Facility (GEF) recommends four conditions for establishing CTFs: (1) Issue or program to be funded needs a commitment of at least 10-15 years; (2) the government actively supports establishing a public-private sector mechanism outside direct government control; (3) a critical mass of people from diverse sectors of society have agreed to work together to achieve biodiversity conservation and sustainable development; and (4) a basic fabric of legal and financial practices and supporting institutions—including banking, auditing and contracting—exists in which people have confidence.

Annex G: End Notes

1. Monterey Bay Aquarium Seafood Watch Seafood Recommendations Categories: Best choice (buy first; well-managed, caught or farmed responsibly; Eco-certified (certified products equivalent to a Seafood Watch Good Alternative or better); Good alternative (Buy, but be aware there are concerns with how they are caught, farmed, or managed.), and Avoid (Pass; they are overfished, lack strong management or are caught or farmed in ways that harm other marine life or the environment).
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