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The USAID Oceans and Fisheries Partnership (USAID Oceans)

WORKSHOP REPORT

WORKSHOP TO REVIEW AVAILABLE ECDT TECHNOLOGY
SOLUTIONS AND ADVANCE REGIONAL GUIDANCE FOR FISHERIES
TRACEABILITY IN THE CORAL TRIANGLE REGION

June 24, 27-28, 2019, Dili, Timor Leste



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ACRONYMS AND ABBREVIATIONS

ACDS	ASEAN Catch Documentation Scheme
AMS	ASEAN Member States
API	application programming interface
AR	artificial reef
ARD	Associates in Rural Development (Tetra Tech)
ASEAN	Association of Southeast Asian Nations
ASFIS	Aquatic Sciences and Fisheries Information System
ASYCUDA	Automated System for Customs Data
B2B	business-to-business
BDM	beche de mer (sea cucumber)
BET	bigeye tuna
CA	certification authority
CC	catch certification
CD	catch document
CDS	catch documentation scheme
CDT	catch documentation and traceability
CDTS	Catch Documentation and Traceability System
CT6	the six member-countries of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security
CTE	critical tracking event
CTI-CFF	Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security
D-FISH	Department of Fisheries (Vietnam)
DOI	Department of the Interior
eACDS	Electronic ASEAN Catch Documentation Scheme
EAFM	ecosystem approach to fisheries management
eCDT	electronic catch documentation and traceability
eCDT system	electronic catch documentation and traceability system
EU	European Union
FAME	Futuristic Aviation and Maritime Enterprises, Inc.
FAO	Food and Agriculture Organization
FIMS	Fisheries Information Management System
FM	fisheries management
FMA	Fisheries Management Area
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German international development agency)
GPS	global positioning system
GT	gross tons
HWGL	human welfare, gender and labor
ICCAT	International Commission for the Conservation of Atlantic Tunas
ID	Indonesia
iFIMS	Integrated Fisheries Information Management System
ISSF	International Seafood Sustainability Foundation
IUU	illegal, unreported, and unregulated (fishing)
JTF	Japan Trust Fund
KDE	key data element
LoRaWAN	Long-Range Wide Area Network
MCS	monitoring, control and surveillance
MD	movement document

MDPI	Yayasan Masyarakat dan Perikanan Indonesia
MPA	marine protected area
MSC	Marine Stewardship Council
MSY	maximum sustainable yield
NCC	National Coordinating Committee
NFA	National Fisheries Authority
NFC	near field communication
NGO	non-governmental organization
NOAA	National Oceanic and Atmospheric Administration
NTC	National Telecommunications Commission
PCM	Program Committee Meeting
PDR	People's Democratic Republic
PDS	Pelagic Data Systems
PH	Philippines
PIPO	port-in port-out
PNG	Papua New Guinea
PSM	Port State Measures
RDMA	Regional Development Mission for Asia
RF	radio frequency
RFMO	Regional Fisheries Management Organisation
RPOA	Regional Plan of Action
RS	Regional Secretariat
SDG	Sustainable Development Goal
SEA	Southeast Asia
SEAFDEC	Southeast Asian Fisheries Development Center
SI	Solomon Islands
SOCSKSARGEN	South Cotabato, Cotabato, Sultan Kudarat, Sarangani, General Santos City
SOM	Senior Officials Meeting
SSFFAIL	SOCSKSARGEN Federation of Fishing and Allied Industries, Inc.
TL	Timor Leste
TUFMAN	Tuna Fisheries Database Management System
U.S.	United States
UKSA	United Kingdom Space Agency
UN	United Nations
USAID Oceans	USAID Oceans and Fisheries Partnership
USAID	United States Agency for International Development
USG	United States Government
VMS	vessel monitoring system
WG	working group
WWF	World Wide Fund for Nature

EXECUTIVE SUMMARY

Background & Objectives

In June 2019, the United States Agency for International Development Oceans and Fisheries Partnership (USAID Oceans) conducted two training workshops for the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) in support of its member-countries seafood traceability initiatives. Held on June 24 and 27-28, 2019, in Dili, Timor Leste, the workshops bookended a two-day CTI-CFF event on “Catch Documentation and Traceability (CDT) System Design and Implementation based on Ecosystem Approach to Fisheries Management (EAFM)” held in the same venue on June 25-26.

CTI-CFF is composed of six countries that form the core of the Coral Triangle (CT6), including three members of Association of Southeast Asian Nations (ASEAN), namely, Indonesia (ID), Malaysia (MY) and Philippines (PH), and three countries that are grouped as “CTI-CFF Pacific countries,” namely Papua New Guinea (PNG), Solomon Islands (SI), and Timor Leste (TL).

USAID Oceans’ June 24 “pre-event” workshop was focused on assisting the Pacific countries in conducting rapid gap analyses to assess the state of their respective CDT capabilities for wild capture fisheries. The June 27-28 “post-event” workshop presented a range of electronic catch documentation and traceability (eCDT) technology solutions to meet needs identified in the previous sessions. USAID Oceans and its private sector technology and industry partners showcased their eCDT technologies. Finally, the program sought inputs from the CT6 on a draft regional eCDT guidance document that USAID Oceans and SEAFDEC are jointly developing for Southeast Asia. Both workshops, as well as CTI-CFF’s two day “main event,” were organized in partnership with the CTI-CFF Regional Secretariat (RS) and the Southeast Asian Fisheries Development Center (SEAFDEC).

Proceedings Summary

USAID Oceans’ workshop used plenary presentations, discussions, Q&A sessions, and breakout activities. Formal meeting procedures were followed on Day Two of the post-event workshop to obtain representatives’ inputs into the program’s regional guidance document, but the tone was informal throughout. As well as having a session during the pre-event dedicated to human welfare considerations in CDT, both workshops incorporated human welfare in all discussions, in line with the USAID Oceans approach to integrate human welfare as a core consideration in technology development, considering that fishers are among the most impoverished sectors in most parts of the world.

The workshop started with participant introductions and opening remarks from Dr. Hendra Yusran Siry, RS Interim Executive Director, who pointed out an “imbalance” between the Pacific and ASEAN countries in terms of the progress in completing CDT gap analyses, noting that the next days’ meetings would support PNG, Solomon Islands and Timor Leste to begin theirs. Dr. Siry said this workshop was a critical step to ensure a wider of spread of knowledge across the CT6 region.

Also speaking during the opening session were Dr. Yuttana Theparoonrat, the Training Division Head at SEAFDEC, and Ms. Napak Tesprasith, Project Management Specialist at the USAID Regional Development Mission for Asia (RDMA). Dr. Theparoonrat provided a background on the work that led up to this week’s events, including the mandate that the ASEAN Member States (AMS) had given to SEAFDEC and USAID Oceans to develop “a simple and practical technical guidance to be used by interested AMS in their design, testing, and implementation of eCDT systems.” Ms. Tesprasith remarked on the partnership that USAID Oceans has established with ASEAN and the Coral Triangle countries through SEAFDEC and CTI-CFF, “to transform

fisheries' traceability, management, and sustainability, as well as the human aspects of the sector." She assured the countries that, "USAID is fully committed to supporting the Coral Triangle's continuing journey towards traceability and sustainable, responsible fisheries and, through USAID Oceans, looks forward to supporting further electronic traceability advancements."

Organized especially for the three CTI-CFF Pacific countries, the first day of the workshop was designed to deliver an introductory "crash course" in eCDT; and the plenary sessions covered four topics that together provided a complete overview of key steps of the eCDT development process. These topics included: eCDT basics and gap analysis methodology; human welfare considerations in seafood traceability; partnership development for eCDT; and developing a roadmap for eCDT system implementation. In addition, participants were given exercises to complete CDT gap analyses and partner assessment and prioritizations that provided initial inputs for a roadmap to improve seafood traceability in the three countries.

Day Two focused on sharing eCDT technology solutions, lessons learned, experiences, and results from the USAID Oceans Learning Sites and program partners. USAID Oceans' private sector partners presented eCDT technology solutions that USAID Oceans as supported for piloting in its sites. These include: (1) the Electronic ASEAN Catch Documentation Scheme (eACDS) by SEAFDEC; (2) Pointrek 2-way satellite-based communication vessel monitoring system by PT Sisfo Indonesia; (3) FAME 2-way radio frequency (RF) communication vessel monitoring and fish traceability system by Futuristic Aviation and Maritime Enterprises, Inc. (FAME); (4) Trafiz mobile traceability app by PT Altermyth; and (5) TraceTales traceability solution for seafood processors by Yayasan Masyarakat dan Perikanan Indonesia (MDPI). Interactive sessions followed, including a marketplace session that enabled participants to interact more closely with USAID Oceans' technology partners and observe live demos of their products, and a Q&A session that delved deeper into the products and their potential applications in the different contexts of the CT6 countries.

Day Three introduced USAID Oceans' draft eCDT regional guidance for Southeast Asia to the CT6 countries, in order to elicit their views regarding the possibility of adopting the guidelines under CTI-CFF. The day was structured as an all-plenary discussion focused on getting comments from the CT6 countries particularly regarding whether and how the regional eCDT guidance document could be adopted and adapted under CTI-CFF. The discussion was informal in tone but followed formal meeting procedures and resulted in specific recommendations, with commitments from the CT6 countries and RS for moving forward with the development of the guidance document under CTI-CFF.

After a round of thanks from the host country, organizers and guests, and a final reminder from Dr. Norasma Dacho, the EAFM Working Group (WG) Co-Chair, for the CT6 delegates to "communicate the results of this workshop to your office heads so they will know what transpired here," the workshop concluded with closing remarks from RS Interim Executive Director, Dr. Siry.

Outputs

As well as achieving overall increased participant awareness and knowledge of eCDT and supporting technology solutions and products developed or facilitated by USAID Oceans, the workshop also resulted in two key sets of inputs for the further development of the regional eCDT guidance document: (1) Initial CDT profiles of PNG, Timor Leste and Solomon Islands; and (2) recommendations for the revision of the draft regional eCDT guidance document and next steps. The revision recommendations agreed by CT6 and RS for consideration were as follows:

- Produce a separate, dedicated guidance document for CTI-CFF.
- Add images to break up pages.

- Preserve consensus reached in meetings by providing more specific details about consultation activities to develop the document.
- Explain that CDT is a requirement of export markets, especially the EU and U.S.
- Add Learning and Expansion Site experiences, including, description of pilot activities in the learning and expansion sites and opportunities, challenges and cost of developing eCDT systems.

Additionally, the workshop resulted in the following country commitments on the submission of inputs to the eCDT system document:

- ID will submit their inputs in July, after their 15 July consultation meeting.
- PNG will have a management meeting to review and provide additional inputs, if needed, then the national EAFM WG focal point will finalize the inputs before the EAFM WG Meeting in Manila in September.
- PH and MY will submit additional inputs, if any, on or before the deadline.
- SI needs to get additional information on customs and health aspects of CDT, to be submitted “before the deadline.”
- TL needs to consult with their fisheries inspection directorate and submit any additional information that they may have before 1 September.

Other recommendations that came out of the workshop were to:

- Develop a comparative paper on ASEAN and CTI-CFF eCDT systems, to be co-authored by USAID Oceans, SEAFDEC, AMS, CT6 countries, and RS.
- Following obtainment of NCC consensus, adapt relevant USAID Oceans informational and technical resources (e.g., “Bait to plate” video) with the CTI-CFF logos so they are joint works of USAID Oceans, SEAFDEC and CTI-CFF – USAID Oceans could provide RS with the source file of the “Bait to plate” video, which the countries can adapt with subtitles in the local language.
- Provide USAID Oceans experts to give lectures on seafood traceability to university students under the CTI-CFF University Partnerships program.

Next Steps

WHAT	WHEN	WHO
In-country consultations to complete, review and finalize national CDT profiles and “potential expansions”	July-August 2019	CT6
USAID Oceans consultations with ID to complete, review and finalize national CDT profile and “potential expansions,” and country inputs to regional eCDT system guidance document	15 July	USAID Oceans, Indonesia
Submission to USAID Oceans of CT6 draft national CDT profiles and potential expansions for inclusion in USAID Oceans’ report on the “CTI-CFF Workshop on CDT Design and Development Based on EAFM” (25-26 June, Dili, TL)	15 July	CT6 (thru RS)
Submission to RS (and USAID RDMA) of USAID Oceans’ draft report on the “CTI-CFF Workshop on CDT Design and Development Based on EAFM” held 25-26 June in Dili, TL	Mid-July	USAID Oceans
Submission to RS (and USAID RDMA) of USAID Oceans draft report on the 24 June Pre-event and 27-28 June	4 th week of July ²	USAID Oceans

WHAT	WHEN	WHO
Post-event Workshops in Support of the 25-26 June CTI-CFF Activity in Dili, TL		
Submission to USAID Oceans of additional inputs (if needed) on CT6 national CDT profiles and potential expansions for inclusion in the regional eCDT system guidance document	1 September	CT6 (thru RS)
Following formal request for support from CTI-CFF, development of draft CTI-CFF version of eCDT system guidance document for review by EAFM WG and possible endorsement by the Senior Officials Meeting (SOM) ¹	TBD ^{1, 3}	CTI-CFF
Sharing at the EAFM WG Meeting (Manila, PH) of the outputs, results and outcomes of 24-28 July workshops in Dili, TL ⁴ ; agreement on recommendation for endorsement by SOM of the CTI-CFF eCDT system guidance document	September	USAID Oceans, RS, EAFM WG
Workshop to finalize ASEAN version of regional eCDT system guidance document	November	USAID Oceans, SEAFDEC, AMS (including ID, MY, PH)
<p>¹ Subject to approval by USAID Oceans leadership of proposal to develop a separate CTI-CFF version of the eCDT system guidance document</p> <p>² Postponed to 1st/2nd week of August due to intervening activities</p> <p>³ Target start date is estimate only and subject to delay because the development of the CTI-CFF version of the eCDT system guidance document, if approved by the USAID Oceans leadership, can only commence when the ASEAN version is completed.</p> <p>⁴ EAFM WG members from PH, MY, SI and PNG were not in this workshop and need to be apprised of the results of this discussion.</p>		

I. INTRODUCTION

I.1 Background

The USAID Oceans and Fisheries Partnership (USAID Oceans) is a five-year (May 2015 – May 2020) project that engages the Association of Southeast Asian Nations (ASEAN) Member States (AMS) and the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) in a mission to help strengthen regional capacity to combat illegal, unreported and unregulated (IUU) fishing and seafood fraud, promote sustainable fisheries, and help conserve marine biodiversity. A core strategy for achieving this mission is the establishment of electronic catch documentation and traceability (eCDT) systems for fish and fisheries products originating in participating countries. The program is a partnership between the USAID Regional Development Mission for Asia (USAID/RDMA), the Southeast Asian Fisheries Development Center (SEAFDEC), and the Coral Triangle Initiative for Coral Reefs, Fisheries, and Food Security (CTI-CFF) that works amongst the ten ASEAN and CTI-CFF countries, namely, Brunei Darussalam, Cambodia, Indonesia (ID), Lao PDR, Malaysia (MY), Myanmar, Papua New Guinea (PNG), Philippines (PH), Singapore, Solomon Islands (SI), Thailand, Timor Leste (TL), and Vietnam.

Since 2015, USAID Oceans has been working with its regional partners to advance eCDT initiatives through technical guidance, capacity building, and customized support to regional partners, informed by lessons learned from piloting eCDT technology in two Learning Sites: Bitung in Indonesia and General Santos City in the Philippines. In 2018, the program supported the completion of CDT Gap Analysis Reports and Partnership Appraisals for Expansion Country partners, Malaysia, Vietnam, and Thailand, providing customized assessments, recommendations, and proposed roadmaps to support each country's journey to eCDT. Additionally, in response to a request from the AMS, USAID Oceans has led the development of a draft guidance document on "the Design and Implementation of Electronic Catch Documentation Systems in Southeast Asia" for eventual consideration by the SEAFDEC Council.

To continue its regional support, across Southeast Asia, USAID Oceans held a three-day workshop, detailed in this report, was to specifically engage CTI-CFF member countries, particularly the three CTI-CFF Pacific member-countries (PNG, Solomon Islands and Timor Leste) that are not ASEAN members and therefore are not engaged by SEAFDEC. The workshop aimed to ensure these countries also received capacity building and technical support to advance their ongoing eCDT efforts and was held in coordination with CTI-CFF's two-day "CTI-CFF Workshop on Catch Documentation and Traceability (CDT) System Design and Development Based on Ecosystem Approach to Management of Fisheries (EAFM)" (covered in detail in a separate report). All workshops were held in the Timor Plaza Hotel in Dili, Timor Leste. USAID Oceans also supported, during the same week and in the same venue, a "WLF (Women Leaders Forum) Dinner Meeting" to obtain inputs for a draft matrix of gender policies and regulations intended to feed into ongoing discussions on the renewal of the CTI-CFF Regional Plan of Action (RPOA 2.0). This event is not covered further in this report.

The three-day workshops, held June 24 and 27-28 and covered in this report, were conducted jointly by USAID Oceans and SEAFDEC. Day One focused on assisting the three CTI-CFF Pacific member-countries to do a rapid gap analysis of the state of their respective wild capture fisheries' CDT systems for and was attended by 13 government participants representing these countries. Days Two and Three focused on presenting eCDT technology solutions for consideration by CTI-CFF member countries and reviewed draft eCDT technical guidance being developed by the program. Days Two and Three were open to all CT6 countries and had a total of 20 government attendees from the CT6. Counting other participants, which included representatives from USAID Oceans, RS, SEAFDEC, USAID/RDMA, DOI, and private sector and NGO partners, the workshops had a total of 36 (Day One) and 56 (Days Two and Three) participants, with a reasonably even male/female percentage

ratio of 44/56 and 54/46, respectively (See Annex I for list of participants, Annex II for participant distribution by gender and organization).

Figure 1. Day One Workshop Participants at the Timor Plaza Hotel, Dili, Timor Leste



Photo Credit: CTI-CFF/June 2019

1.2 Workshop Objectives and Expected Results

The primary objectives of these activities were as follows:

June 24th Pre-event workshop:

1. To capacitate the three Pacific member-countries of the CTI-CFF (PNG, Solomon Islands and Timor Leste) member countries in conducting rapid CDT gap assessments and private sector appraisals;

June 27-28th Post-event workshop:

2. To formally share program-piloted eCDT technologies, lessons learned, experiences, and results from USAID Oceans' Learning Sites and partners, including through the dissemination of training materials and technology documents; and
3. To review the draft "Technical Guidance on the Design and Implementation of Electronic Catch Documentation and Traceability Systems in Southeast Asia," and discuss a possible roadmap for its adoption by the CT6.

Together, these workshops were designed to produce the following results:

1. Initial eCDT Gap Analysis assessments to identify CTI-CFF Pacific member-countries' existing eCDT gaps, opportunities, and potential private sector partnerships to help address those gaps;
2. Increased awareness and knowledge among the CT6 Countries about the eCDT technology solutions currently being piloted by USAID Oceans;
3. Inputs to the draft eCDT system Technical Guidance and possible roadmap for its adoption (and adaptation) by the CT6 countries; and

4. Increased participant awareness of the products and training materials available to the CT6 countries for their use in implementing eCDT, EAFM, public-private partnerships (PPP), and human welfare, gender and labor (HWGL) strategies.

2. PROCEEDINGS

Along with plenary presentations, discussions and Q&A sessions, the workshop used breakout activities, including CDT gap analysis exercises and live marketplace demonstrations of eCDT technologies. Human welfare considerations, including gender and labor concerns, were taken up in one session and incorporated in all of the discussions, in line with the USAID Oceans approach that integrates human welfare and gender equity as a core consideration in technology development, taking into account that: a) fishers are among the most impoverished sectors in most parts of the world, and b) gender differentials are prevalent in the fisheries sector. The plenary proceedings are reported below as they transpired, edited with reasonable interpretation for clarity or concision, and reorganized where needed to improve flow of information. The full workshop agenda is shown in Annex III.

2.1 DAY ONE - June 24, 2019

The first day of the workshop was designed to introduce the CDT Gap Analysis methodology to the three CTI-CFF Pacific-member countries and begin conducting initial analyses. It consisted of five substantive sessions covering:

- eCDT basics and gap analysis methodology;
- Human welfare in CDT;
- Partnership development for seafood traceability; and
- Roadmap development and next steps.

The sessions were a mix of plenary presentations (slide and video), Q&A sessions, and small group exercises on CDT gap analyses and partnership appraisals. In total, there were seven plenary presentations, including individual country report-outs on the results of their CDT gap analyses exercises. Mr. Len Garces of USAID Oceans was lead facilitator of the plenary session. Mr. Farid Maruf, Ms. Nives Mattich and Ms. Melinda Donnelly, also of USAID Oceans, provided facilitation support for the small group discussions.

2.1.1 Introductions & Opening Remarks

The Workshop opened at 9:00 AM with participants' self-introductions led by Mr. Garces, after which opening remarks were made by a panel of speakers composed of Dr. Hendra Yusran Siry, RS Interim Executive Director; Dr. Yuttana Theparoonrat, SEAFDEC Training Division Head; and Ms. Napak Tesprasith, USAID/RDMA Project Management Specialist. Highlights from the opening remarks are included below; the full texts can be found in Annex IV.

Opening Remarks: Dr. Hendra Yusran Siry, Interim Executive Director, CTI-CFF Regional Secretariat

After welcoming the participants, Dr. Siry highlighted the importance of EAFM as an approach to addressing transboundary policy and regulatory concerns, before briefly outlining the day's primary objective to conduct rapid CDT gap analyses and partnership appraisals with the three CTI-CFF Pacific countries. Dr. Hendra noted

that this workshop was a critical step to ensure a wider of spread of knowledge across the region, and concluded by thanking the Timor Leste Government for hosting, and USAID Oceans for supporting the week's activities.

Opening Remarks: Dr. Yuttana Theparoonrat, Training & Research Supporting Division Head/ SEAFDEC Training Department

Dr. Theparoonrat echoed Dr. Siry's welcome, and in turn acknowledged CTI-CFF for its partnership, as well as USAID/RDMA for its support, in organizing the workshop. He then provided a background on the work that led up to this week's events, including a 2017 decision by the AMS to adopt a common regional catch documentation scheme, and the later AMS request to SEAFDEC and USAID Oceans to develop "simple and practical technical guidance to be used by interested AMS in eCDT system design, testing, and implementation." He also briefly outlined the eCDT system technology solutions that USAID Oceans and SEAFDEC are now piloting in some of the ASEAN countries, expressing his hope that the participants would give their feedback and recommendations on this work.

Opening Remarks: Ms. Napak Tesprasith, Project Management Specialist, USAID/RDMA

Ms. Tesprasith commended RS and CT6 for their partnership and leadership in convening this week's workshop, noting that, "the commitment you, your governments, and the many people who have worked to bring us here together is the reason that the CTI-CFF region has seen such significant advances towards your Regional Plan of Action goals and targets for sustainable marine management across the region." She also noted that, since 2015, USAID Oceans has been in partnership with ASEAN and the Coral Triangle countries through SEAFDEC and CTI-CFF "to transform fisheries' traceability, management and sustainability, as well as the human aspects of the sector," with significant progress achieved towards eCDT across the region. She then assured the countries that "USAID is fully committed to supporting the Coral Triangle's continuing journey towards traceability and sustainable, responsible fisheries and, through USAID Oceans, looks forward to supporting further electronic traceability advancements."

2.1.2 Workshop Overview

Mr. Maruf presented the workshop overview, stressing that this workshop was going to be "a simplified crash course" in CDT gap analysis, a process that normally takes about 4-6 months. As such, while an overview of the full process would be presented in plenary, only the most important steps would be included in the breakout exercise, which was intentionally designed to be a simplified walkthrough of the gap analysis process. The focus of discussions was CDT, but a session on human welfare and gender considerations was also included in the agenda to underscore the fact that many fisheries and fisheries-related issues are primarily human welfare issues that an effective eCDT system can help address by providing visibility into the fisheries supply chain.

2.1.3 eCDT Basics & Gap Analysis Methodology

This session was presented by Mr. Maruf, done in two parts and interspersed by Q&As. The first part covered "eCDT Basics," with an [introductory video](#) providing an overview of eCDT systems and their benefits. The second part focused on the gap analysis process. Participants' questions and their answers are consolidated under Section 2.1.3.3.

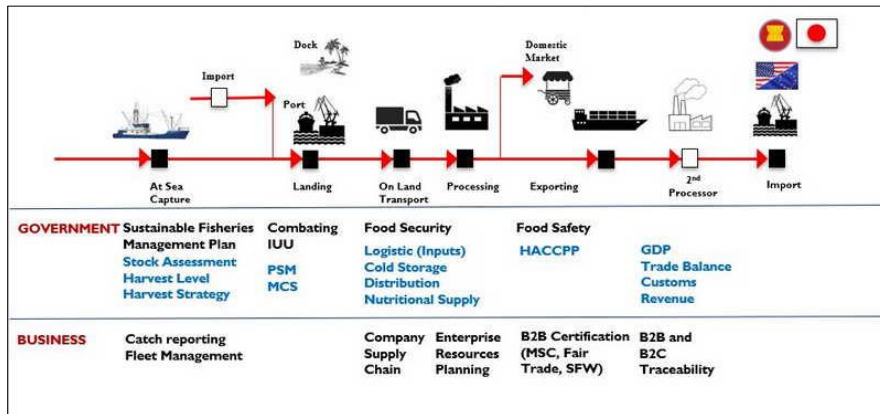
2.1.3.1 eCDT Basics

Seafood supply chains are complex and operate in some of the least connected areas. Increasing regional connectivity to document seafood’s journey to the consumers’ plates can not only help to detect, and thus reduce, illegal activities, but also generate data to help fisheries be more sustainable, which benefits everyone. USAID Oceans is working with SEAFDEC and government and private sector partners across Southeast Asia to develop fully electronic traceability systems that convert existing paper-based recordkeeping with fully digital systems that track seafood along the supply chain and fill gaps where data is currently not being gathered, connecting each member of the seafood supply chain even in the most remote locations.

There are many activities happening in the seafood supply chain where data should be collected and shared to ensure bait-to-plate traceability. These activities, represented as black (and white) boxes in Figure 2, are called “critical tracking events” (CTE). Each CTE has its own characteristic data that not only allow trace-back of a seafood product to its source but are valuable for decision-making as well, whether by government or by private fishing concerns. For example, catch data are important for developing harvest strategies in fisheries management, and data from fish landings can be used to inform monitoring, control and surveillance (MCS) and port state measures (PSM). For business, traceability information can provide efficiency gains, such as by improving inventory management. Moreover, through business-to-business (B2B) certification (e.g. MSC, Fair Trade, Seafood Watch), traceability can provide added value as consumers may be willing to pay more for a product based on its certified sustainability attributes.

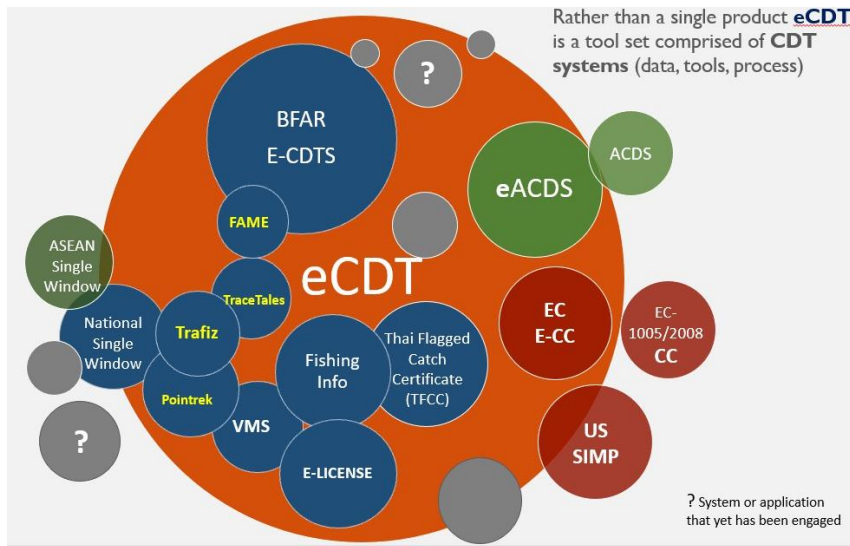
Paper-based data collection systems remain in use in many countries for compliance with traceability regulations, but – given the number of data sources and the sheer amount of data that need to be collected – they are slow, unwieldy, and prone to errors. With eCDT systems, the processing, storage and retrieval of data can be significantly improved, and data sharing can be managed more efficiently.

Figure 2. Possible wider uses of traceability data collected from critical tracking events in the seafood supply chain



As shown in Figure 3, eCDT is accomplished not by a single product but by a toolset comprised of several CDT systems (data, tools and processes). What is more, because fish is often a shared (transboundary) resource, eCDT needs to happen at both national and regional levels, which means that there should be solutions for the different scales and contexts of the different countries (e.g., tools for both online and offline data recording as provision for areas with poor connectivity), while still allowing for interoperability of the different solutions. To support traceability at the regional level, USAID Oceans is facilitating the development of regional protocols or guidelines that will make it easier for data to be exchanged between national systems. The basic premise is that countries have data sovereignty but, when data is transferred, it should be in a form that everyone can use.

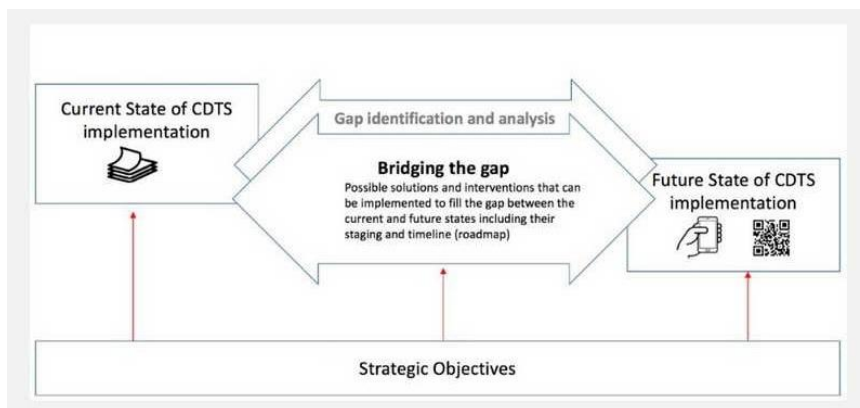
Figure 3. Systems comprising seafood traceability in the AMS



2.1.3.2 CDT Gap Analysis

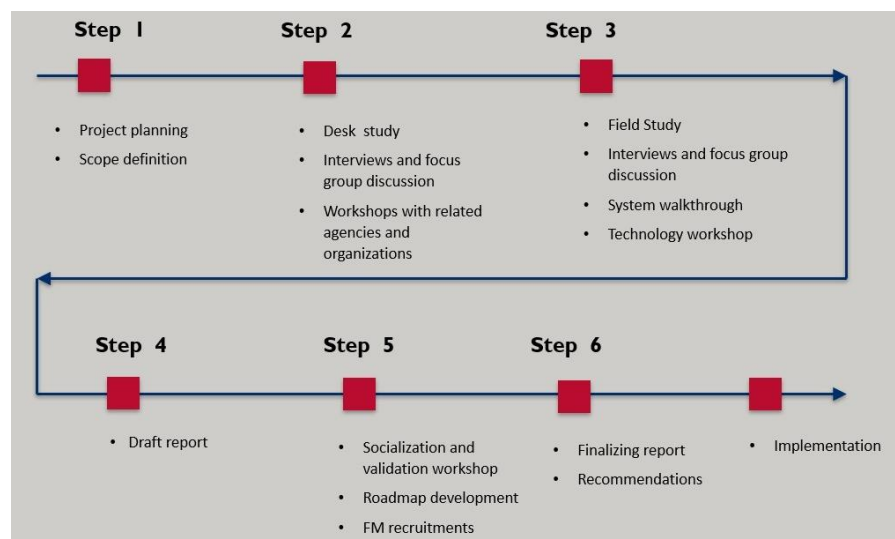
The first key step in designing an eCDT system is to conduct a gap analysis. This step has two objectives: (1) To assess and analyze the status of the existing implementation of eCDT and determine any gaps and issues that may hamper the full implementation of traceability of fisheries products in the entire supply chain, including surrounding issues related to gender and human welfare; and (2) to recommend a roadmap for addressing the gaps in CDT system and for transitioning towards a full eCDT. USAID Oceans uses a gap analysis framework that is basically designed to answer the questions of what traceability systems, if any, already exist, and what form and level of traceability is needed or aimed for, which will differ from country to country depending on the national priorities and strategic objectives (Figure 4).

Figure 4. Gap analysis framework



The analysis process that USAID Oceans followed in Indonesia, Philippines and Thailand involved six steps from project planning to finalizing the report (Figure 5), which took 3-6 months to complete.

Figure 5. Steps in the CDT gap analysis process



2.1.3.3 Q&A

TL – Timor Leste has potential for tuna fisheries that we hope to develop for the EU market. But, right now, we do not have the capacity for traceability. Where do you propose we should start if we want to export to the EU?

F. Maruf – The key thing is to address IUU fishing so, first, you need to strengthen your ability to regulate your fisheries. You need to register your fishing vessels, and then monitor them, so you know who is doing what. I would recommend requiring fishing vessels to maintain fishing logbooks, and there should be a process of verification, inspection, reporting, etc.

TL – How can we monitor fishing vessels entering or operating in our waters if we don't have the technology?

F. Maruf – There are technologies available to monitor vessels, but you need to have a very strong regulatory system first. In many cases, the issuance of the yellow card is due to poor regulatory policies and practices because the regulatory environment is generally the first thing that the European Commission investigates when assessing a country's compliance. Fighting IUU fishing starts with effective regulations and a holistic approach. I encourage you to study other countries' experiences. For example, if you talk to the Indonesian government, you will find that the data they collect is defined by regulation.

TL – Is the practice of CDT widespread in fishing countries? How did it start, and which country would have the best CDT model?

F. Maruf – Catch documentation was first introduced by EU and then two years ago the U.S. followed with SIMP. Before EU, there was an initiative by the RFMO (Regional Fisheries Management Organization) to collect data, and there was also some effort to encourage the use of fishing logbooks to report catch. This was mostly paper-based, but in recent years more countries have started moving to electronic systems to facilitate data collection and use. For most countries, this does not mean going fully electronic at once. For example, Indonesia has many systems in place to feed into CDT but these systems are not linked and, in many cases, they use traditional paper-based information sharing – one directorate-general will print information on a prescribed form to pass on to another directorate-general, which will enter the information into their own system in order to print it on another prescribed form, because that is the requirement. The Philippines, on the other hand, intended at the outset to have a single complete traceability system in anticipation of EU requirements. They came up with a regulation defining the system that they wanted but, because it was very complex, the system was never implemented until two

years ago when they started working with us. As to which CDT model is the best, no one has the perfect system. Sweden started three years ago a very complex and robust traceability that covers the entire supply chain and links all supply chain actors, but they only have a few hundred vessels. So, my best advice is to not let the challenge of having full traceability stop you from starting. Identify the most important issue you need to address, choose available technology that is appropriate for your needs, and start building. The key is to have, from the very start, a total solution system design, even if the system is built one component at a time based on your country's priorities and capabilities.

H.Y. Siri – How does CDT data support fisheries management, compared to data from, for example, port sampling?

F. Maruf – In port sampling, data collection involves taking a sample or subset of the fish landed. In traceability systems, every fish or catch is recorded, so there is a better density of data and potentially a more fine-grained picture of fish stock status available to inform fisheries policy and management. A stock assessment expert from Malaysia has said that with CDT, the use of port sampling can be reduced because, potentially, the CDT system can collect all the data you get from port sampling.

TL – Is traceability required for other sectors and, if so, what electronic solutions are most commonly used in the other sectors?

F. Maruf – Yes, certain segments of the agriculture sector, for example, have been implementing traceability for many years now. In Indonesia, the cocoa industry established traceability to improve the production – by knowing where the cocoa products are sourced, government has been able to implement interventions where needed.

Y. Theparoonrat – One thing you need to remember is that in farming, you have a fairly good idea where and how big the production area is and who owns it, and what the potential production might be. In capture fisheries, there is no such ownership right. Fish are common property until somebody catches them, and so it is not always easy to get accurate data on catch location and volumes, which are vital to sound fisheries management. When the European Commission issued Thailand the yellow card in 2015, we tried, unsuccessfully, to establish a catch quota. The only information we had back then came from catch landing reports that lumped together catches from everywhere, including those from outside Thailand, and nobody could really tell where the fish came from. Because of this, the government could not get accurate maximum sustainable yield (MSY) data for the Gulf of Thailand and Andaman Sea that we needed to determine the catch quota. But, within two years from the establishment of the catch documentation scheme (CDS), data quality was sufficiently improved for us to set a quota based on maximum allowable number of fishing days and fishing vessels.

H.Y. Siry – Can CDT can be used for tax purposes?

F. Maruf – That's a decision for each country to make. Every company that participates in traceability has a reasonable expectation that their data would remain private so, by design, we are not developing a system for tax purposes. CDT does not put a great deal of emphasis on the financial aspects of the supply chain, because fisheries managers are not really concerned with how much the fish is worth but with how much fish is caught. In many countries, tax returns are protected by law, so if in the future government decides to use traceability data for tax examination purposes, they will have to follow due process in order to do so.

2.1.4 Human Welfare in CDT

Dr. Arlene Nietes-Satapornvanit, USAID Oceans Gender Integration Specialist, presented this session, which underscored the importance of accounting for human welfare with a gender sensitive approach in the design of eCDT systems. The topic was divided into three parts: “Human Welfare Aspects of Fisheries” (Section 2.1.4.1), “Human Welfare Considerations in CDT” (Section 2.1.4.2), and “Lessons Learned” (Section 2.1.4.3). The session concluded with a Q&A session, detailed in Section 2.1.4.4.

2.1.4.1 Human Welfare Aspects of Fisheries

At the heart of the USAID Oceans’ strategy is the recognition of the inextricable link between fisheries sustainability and human wellbeing. In its State of the World Fisheries and Aquaculture report for 2018, the Food and Agriculture Organization (FAO) warned that human societies are currently facing the enormous challenge of having to provide food and livelihoods to a global population that could grow to well in excess of 9 billion by the 2050s, while also having to address the impacts of climate change and environmental degradation on the world’s resource base. Given that the Asia-Pacific region produces and provides most of the world’s seafood, resilient fisheries and aquaculture in the region are of especially great importance to the food security, nutrition, livelihood development and overall economic and social development in many countries not only within the region but across the world. Globally but particularly in this region, fisheries are sources of livelihoods and a vital means of meeting the protein requirements of an ever-increasing human population. The most recent official statistics (2016) indicate that nearly 60 million people are engaged in just the primary sector of capture fisheries and aquaculture, with around 40 million engaged in capture fisheries, 85% of them in Asia.

It is USAID Oceans’ objective to help ensure not only that fish stocks are sustainable for the long-term future and the environmental impacts of fisheries are minimized, but also that the welfare of those who produce fish for the world’s table are adequately protected, including their labor rights and access to resources and opportunities, regardless of their sex, gender or social status. To achieve this, the project aims to promote the adoption of and adherence to safe, legal, and equitable labor standards, and support gender equality within the region’s seafood industry. This is consistent with the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication, which encourages a human rights-based approach that ensures non-discriminatory and effective participation (gender and socially inclusive); enables transparent and accountable decision-making processes so that people inform and understand the process; addresses the root causes of poverty; and tackles issues related to IUU fishing, including human trafficking, forced labor and abuses, unsafe and indecent working conditions, unfair wages, lack of food and water, etc.

USAID Oceans has emphasized the gender dimensions of fisheries issues, and for several reasons:

1. Women make up half the fisheries and aquaculture labor force, yet the gender dimension oftentimes receives only scarce attention – Overall, women account for nearly 14% of all people directly engaged in the fisheries and aquaculture primary sectors, and when both primary and secondary sectors are considered, the workforce is evenly divided between women and men. Yet women’s roles are not adequately recognized or accounted for in the fisheries supply chain. For example, in the Pacific, women are engaged in inshore fishing activities such as reef gleaning and invertebrate collection but, in traditional fisheries discourse, they are not even considered as fishers. And because men are usually involved in the more strenuous work of diving and fishing farther offshore, women are invariably the main actors in the preparation of food from the products of fishing activities. Indeed, observations of Pacific Island subsistence fisheries show that fishing activities by women result in a greater amount of family food than is produced by men through their fishing activities.
2. Valuing women’s contributions broadens benefits for everyone – There is wide recognition that society and the environment, as well as fisheries and aquaculture, would benefit if women were empowered, and

nothing exemplifies this recognition better than the UN 2030 Agenda for Sustainable Development. Gender equality is Goal 5 of 17 Sustainable Development Goals (SDGs) under this global agenda, which the UN member countries not only have committed to but have also put at the center of their development priorities. Specifically, UN Women has stated that women’s equality and empowerment “is integral to all dimensions of inclusive and sustainable development,” and that “all the SDGs depend on the achievement of Goal 5.”¹

3. Gender-blind policies, practices and data undermine women’s contributions – The fact that women’s roles in fisheries are largely hidden means that policies and services are not responsive to women’s needs and interests, further undermining women’s contributions.

2.1.4.2 Human Welfare Considerations in CDT

The decision on what data to collect is for each country to make based on their national traceability needs and objectives. Because of growing international concern about the human welfare conditions in the seafood supply chain in the ASEAN region, USAID Oceans has explored mechanisms for capturing and sharing relevant and verifiable information relating to human welfare, labor and socioeconomic conditions within selected seafood supply chains, particularly at the point-of-catch (at sea), on landing and during processing. To help enhance both worker protection and voluntary compliance with labor standards, the project is encouraging the countries to consider incorporating these mechanisms in their respective traceability systems, so that labor associated with fisheries operations can be more transparently reported, labor rights can be protected, and workers (both women and men) are empowered to make informed decisions and benefit from increased access to enforcement and grievance communication mechanisms.

Additionally, to help address gender-related fisheries issues, the project recommends bringing out women’s previous unacknowledged roles through the collection and reporting of sex-disaggregated data and information that paint a more accurate, more gender-balanced and clearer picture of the fisheries sector. Gender studies conducted by USAID Oceans in tuna fisheries in its Learning Sites confirmed that both women and men are in fact involved in the fisheries, gender gaps and inequities do exist, and so, while there are opportunities available for both genders at all nodes of the supply chain, these may not always be accessible to one or the other gender because of equity issues within the nodes. The good news is that these issues can be addressed through policy development, research and intervention actions that give voice to both women and men actors along the value chain that have few opportunities to be heard. Also, USAID Oceans has observed among the various fisheries consistencies an increasing interest in promoting gender equality and empowerment, including ensuring equal rights, capabilities and access to resources and opportunities for both women and men; strengthening women’s ability to make choices and decisions and act upon them (because, in most seafood industries, women are the most vulnerable); eliminating gender-based violence and discrimination; and transforming power relations at all levels of society from individuals and households to institutions and structures.

Some of the suggested key data elements (KDEs) for monitoring compliance with labor and gender policies include:

- Actor/Crew/Worker’s name;
- Sex (F / M);
- ID/passport number/work permit number;
- Nationality;
- For vessel-based workers: Verification that all crew leaving port return (i.e., the person that leaves port is the same person that comes back to port);
- Length of employment (in years);

¹ <http://www.unwomen.org/en/news/in-focus/women-and-the-sdgs/sdg-5-gender-equality>

- Worker has employment contract (Yes/No) (and is the worker aware of contract terms?);
- Average net income per trip or per pay period (to check against legal minimum wage requirement);
- Wage payment frequency (e.g., less than once per month, Yes/No);
- Workers receive explanation of pay/earnings (Yes/No);
- Access to toilet (Yes/No);
- Access to potable water (Yes/No);
- For vessel-based workers: One bed/mattress per person (Yes/No);
- Appropriate safety gear provided (Yes/No);
- Confidential grievance mechanism available (Yes/No);
- The number of hours worked by worker/crewmember per work shift;
- Mandatory overtime required of worker/crewmember (Yes/No);
- Recruiter/labor broker/manpower agency used (Yes/No); and
- For vessel-based workers: length of voyage (Days).

By tracking these KDEs, eCDT can provide accurate information on the length and location of voyage and enable vessel-based workers to inform family members of their whereabouts while at sea. It can allow for visibility into the calculation of earnings (some of which is currently hidden) and can track the number of hours worked by each worker to help ensure that the workers work only within the total hours allowed and are given sufficient continuous rest to avoid exhaustion. Also, through eCDT, workers can have access to confidential communication channels for grievances, medical care in case of illness or injury (including emergency response), and adequate amenities and sanitation (toilets, sleeping quarters and potable water while on board).

USAID Oceans has produced a manual that outlines the full emerging set of human welfare KDEs recommended by the project based on its gender and labor assessments. The manual can be downloaded through this link: <https://www.seafdec-oceanspartnership.org/resource/kdemanual/>. Where applicable, USAID Oceans recommends that eCDT system should link with relevant organizations in order to leverage existing human resources and national identification databases to provide the recommended the human welfare KDEs because there are various entities that are already collecting some of these data.

2.1.4.3 Lessons Learned

- The inclusion of gender equity and human welfare in USAID Oceans' technical discussions with stakeholders has resulted in increased awareness of these concerns as key considerations for traceability.
- There remains a need to build capacity in gender and human welfare integration in CDT and to develop good role models of gender equity and human welfare.
- eCDT systems can be a valuable tool for human welfare and for empowering both female and male workers in the seafood supply chain.
- If developed holistically and in partnership with others, eCDT systems may be able to incorporate valuable human welfare-related functions, including non-compliance and abuse alerts. Currently, some existing technologies and standards for labor have been integrated into eCDT system, but not for gender equity. Also, where technology is available, there is as yet no assurance that the workers will be allowed by their employers or superiors (e.g., boat captains, fishing vessel owners, plant managers) to use it for reporting grievances.
- USAID Oceans has developed assessment tools and approaches that provide opportunities for capacity building and partnerships – These tools and approaches can help keep the conversation going on human welfare and gender equity at all levels along the fisheries value chain and at the same time bring women

into the design process to help with understanding the barriers they face and to ensure that the resulting products and services meet their needs.

2.1.4.3 Q&A

WorldFish-TL – From your experience in the Philippines and Indonesia, what would you recommend that we do to achieve gender equality in the fisheries sector? How can we encourage women to be more involved in activities related to fishing? How can we make sure that they have a voice? And how do we measure gender balance?

A.N. Satapornvanit – It is not always evident from literature on fisheries that women play an important role in the sector, so the first thing we did was to go out to the field and conduct a gender analysis to see what the real gender situation was. To do this, we used a gender-responsive value chain framework overlaid with the USAID gender dimensions framework, with a focus on women who in most cases are the most vulnerable. Sometimes we had all-women meetings and all-men meetings to avoid situations where one or the other gender group dominated the discussion. Or we would conduct one-on-one interactions with respondents to ensure that we were able to bring out the voices of both our men and women stakeholders, and really listen to them so that whatever project we designed reflected and addressed their concerns.

F. Maruf – Why do we need our eCDT system to include KDEs for human welfare, including gender and labor? The reason is simple: We can only address a problem if we know it exists. For example, when we have age data, we can determine if there are minors working in fishing vessels.

SI – In Solomon Islands, we have foreigners working on board fishing vessels. If we are to protect their welfare, we need to integrate vessel crew information into our eCDT. My question is, who owns that information? Is it the state where the crew comes from, the port state, or the flag state?

Y. Theparoonrat – It is the flag state that is responsible for all onboard activities, including fishing operations and any related human welfare and labor issues that may arise from them, so it is the flag state that owns the crew information and all other data on board the vessel. However, when a vessel makes a landing request, the port state has the responsibility to check that the vessel complies with the applicable requirements for landing.

2.1.5 Rapid CDT Gap Analysis & Report-out

This was a breakout session where participants divided into two groups to do rapid gap analyses of the current CDT landscapes in the three CTI-CFF Pacific countries: One group focused on Timor Leste (facilitated by Mr. Maruf, with note-taking support from Ms. Jasmin Mohd Saad), and the other group on PNG and Solomon Islands (co-facilitated by Ms. Nives Mattich and Ms. Melinda Donnelly). The template shown in Table 1 was used to guide the discussions.

Table 1. Rapid CDT gap analysis matrix template

Seafood Supply Chain	At-sea capture		Port	Buyer/ Broker	Shipper (land/boat; domestic)	Processor (1 st , 2 nd , etc.)	Shipper (air/ ship; export)
	Small-scale	Commercial					
Typical data capture method							
Who (Data encoder)							
Data /Document Type							

The gap analysis results are detailed in this section below, as presented in plenary.

2.1.5.1. Timor Leste

Presented by Mr. Joctan dos Reis Lopes, WorldFish-Timor Leste

Seafood Supply Chain	At-sea capture		Port	Buyer/ Broker	Shipper (land/boat; domestic)	Processor (1 st , 2 nd , etc.)	Shipper (air/ ship; export)
	Small-scale	Commercial					
Typical data capture method	EXISTING: Digital (tablet) – key landing sites (30 nationwide) Pelagic Data System on boats (solar-powered trackers)	EXISTING: Manual (demersal and pelagic) Temporary activities	EXISTING: Manual: Landing inspection RECOMMEND: Physical inspection of site	EXISTING: Manual Note: Database hopefully implement in 2020 (land-based fish movement?)	RECOMMEND: Manifest Data	RECOMMEND: Production activity report	EXISTING: Manual
Who (Data encoder)	EXISTING: Enumerator (collect data): 11 districts	EXISTING: Observers	EXISTING: Ministry of Agriculture Quarantine Department Fisheries Department Customs Department Marine Police	EXISTING: Middlemen No information from middlepersons RECOMMEND: Collect information from middlemen	EXISTING: Importers	EXISTING:	EXISTING: Customs Department Fisheries Department Finance Ministry (tax purposes both importers and exporters)
Data /Document Type	EXISTING: KoBo Toolbox for pelagics (landing data) Cellular Network (boat tracking system)	EXISTING: Log books	EXISTING: Landing Inspection logbook	EXISTING:	EXISTING: Data on fisheries import products available collected by the Quarantine Department	EXISTING: Quarantine Documents Customs Declaration Certificate Origin	EXISTING: Certificate Country of Origin (CO) Quarantine Documents Recommendation Letter Customs Declaration

Discussion Notes:

- Procedure and activities in place. Good opportunity to implement eCDT system from manual to electronic version.
- Small-scale fisheries data are led by WorldFish. Long-term data collection plan needs to be in place.
- Small-scale fisheries main activities in Timor-Leste and for domestic market.
- Lack of enforcement (physical): Foreign vessels in competition with local vessels (illegal activities – theft of supplies) = learn from neighboring countries.

Seafood Supply Chain	At-sea capture		Port	Buyer/ Broker	Shipper (land/boat; domestic)	Processor (1 st , 2 nd , etc.)	Shipper (air/ ship; export)
	Small-scale	Commercial					
<ul style="list-style-type: none"> • Currently no VMS facility for >30GRT vessels. 							

Additional information shared during the country presentation:

At-sea capture – WorldFish is currently implementing catch reporting for both small-scale and large-scale fisheries, as follows:

- For small-scale fisheries catch reporting, catch data are collected at landing by enumerators using tablets, or at sea through Pelagic Data Systems (PDS) units installed on boats.
 - Catch data collection by enumerators: Enumerators use KoBo² questionnaires (in Tetun) to collect data from fishers in landing sites, including species, catch rate, etc. Data collection has improved over time, and the data collected have become more accurate and feasible to use.
 - Catch data collection using PDS: Before the California-based vessel tracking company PDS came in, WorldFish was piloting 85 tracking units. Now there are 325 PDS units installed on small-scale fishing boats across the country and the project is planning to deploy a maximum of 500 units during this pilot stage in key Learning Sites from the south to the east of the country. The number represents only a small percentage and is not representative of the estimated 4,000 small-scale fishing boats in Timor Leste. But while there is currently no plan to equip all boats with trackers, there is opportunity to increase the number of trackable vessels as fishers even in very remote locations have been very interested in having their boats outfitted with the tracking system. The pilot stage is expected to last 1-2 years, after which WorldFish will evaluate whether the system can be sustainably maintained.
 - Integration through API (application programming interface): PDS, which has its own dashboard with capability to allow users to check vessel movements and the locations of fishing grounds, is integrated with the KoBo system using API. The intention is to make the data available on the Web in order to highlight the potential national catch, especially for fisheries managers, stakeholders and partners. WorldFish is now consulting with different stakeholders and expects to launch the website soon.
- For large-scale fisheries reporting, catch data are currently being manually collected using logbooks. There are fisheries observers who collect data but, sometimes, the information needs to be validated visually, which makes it difficult to directly import into Excel or any database setup.

Port – In the port, data are manually collected and verified through landing inspections by the Department of Inspection. The main issue is that Timor Leste currently has no designated fishing port. Many fishing vessels use the Vemasse and Com ports, but these are not fishing ports, so authorities have no proper control over any fishing vessel that lands there. There are at least three agencies in charge of landing inspections – the quarantine and fisheries inspection departments under the Ministry of Agriculture and Fisheries, and the customs department under the Ministry of Finance – and they all need capacity building support to help them properly collect data that can be useful for seafood traceability and fisheries management.

Buyer/broker (“papalele” or “tengkulak”) – WorldFish is hoping to get a grant to conduct a value chain assessment next year that will track fish catch movements from the coastal areas to the highlands, looking

² <https://www.kobotoolbox.org/>

specifically at quality and price points. The plan is to implement the program in the south, particularly in places like Suai, Ainaro and Manufahi that are rarely reached by projects.

Shipper (domestic) – WorldFish has recommended the use of manifest data and documents that are already available, but implementation has been a challenge.

Processor – The documentation needed has been identified, and includes production activity report, quarantine document, customs declaration and certificate of origin. But there are currently no existing data collection instruments to adequately capture the required information.

Exporter – Data are collected manually and imported into Excel. There is a system in place, as the government requires exporters to pay taxes and obtain the necessary documentation (certificate of origin, quarantine documents, recommendation letter, and customs declaration).

Overall picture – On the whole, enforcement needs clear and workable protocols for controlling fishing activities in the country. Data must be digitized, as it is difficult to rely on paper-based systems (e.g., some fishers cannot write or are difficult to interview), and capacity building is needed for data analysis.

2.1.5.2. Solomon Islands

Presented by Ms. Charlyn Golu, Ministry of Fisheries and Marine Resources, Solomon Islands

Seafood Supply Chain	At-sea capture		Port	Buyer/ Broker	Shipper (land/boat; domestic)	Processor (1 st , 2 nd , etc.)	Shipper (air/ ship; export)
	Small-scale ¹	Commercial					
Typical data capture method	-Paper + Electronic offshore pole-and-line tuna fisheries and BDM ¹ ; none for coastal fisheries	-Paper -Electronic (VMS, iFIMS) - e-monitoring -Observer app (for large-scale purse seine, light seine, longline and pole-and-line tuna fisheries)	-Paper -Excel spreadsheet -FIMS/ TUFMAN Database	-Paper Excel spreadsheet	-Paper -Excel spreadsheet	-Paper and -Electronic -Excel spreadsheet	-Paper -Excel spreadsheet - Customs (ASYCUDA)
Who (Data encoder)		Captain/fishing master -Observer	-Company/agent -Fisheries Officers -Health CA -Customs & -Immigration	Company & agent	-Company	-Company and -Agent	-Company -Export authority
Data /Document Type		-Catch Logbook -Catch log-sheet -Hatch plan -Net setting -Vessel documents -e-forms -Observer forms	-Inspection -Monitoring data -Unloading summary -Fish Receipt -Mates receipt	-Purchase order	- Manifest of order - Bill of landing	-Company agency -Competent authority (health)	-Catch certificate -Export permit -Health certificate -Certificate of Origin -ICCAT (when required for BET and swordfish)

¹ Corrections made by presenter as she was presenting; see additional notes below for more information shared during the presentation.

Additional information shared during the country presentation:

Solomon Islands has a system in place for at-sea data capture (paper and electronic) for large-scale purse seine, light seine, longline and pole-and-line tuna fisheries (involving vessels of above 100GT), and for small-scale offshore pole-and-line tuna fisheries (using vessels of less than 100GT) and sea cucumber/beche de mer (BDM) fisheries, but not for coastal fisheries. Currently, all vessels have eCDT apps using VMS and are connected to an eMonitoring system that includes the GEN3 form for reporting human welfare concerns. In addition, there are fisheries observers to collect and verify the data. All data feed into the fisheries information management system (FIMS) and integrated FIMS (iFIMS)³.

From landing all the way to export, the system is purely paper-based, but some companies have their own electronic systems and government can get information from them if necessary. All landings are monitored using fish receipts issued by the companies that accept the fish.

2.1.5.3 Papua New Guinea

Presented by Ms. Maristella Paia, Provincial Fisheries Division, West New Britain

Seafood Supply Chain	At-sea capture		Port	Buyer/ Broker	Shipper (land/boat; domestic)	Processor (1 st , 2 nd , etc.)	Shipper (air/ ship; export)
	Small-scale ^{1,2}	Commercial ³					
Typical data capture method	Paper (Observer)	VMS FIMS e-System	Electronic Mobile App	Paper	Paper and electronic	Paper and electronic	Paper and electronic
Who (Data encoder)	Port Authority (NFA)	Port Authority (NFA)	Port Authority (NFA)	Company	Port Authority (NFA)	Processor Company	Export authority
Data /Document Type	Logbook	Excel sheet logbook	Excel sheet	Catch document / certificate of purchase Purchase order	Delivery order	Batch Identification Number	e-Certificate of origin

Additional information shared in response to clarificatory questions from Mr. Maruf:

Although the system is not fully electronically integrated, processors can connect to the system to generate their receipt using a Batch Identification/Receipt Number issued by the National Fisheries Authority (NFA).

2.1.6 Partnership Development for Seafood Traceability

This session was an introduction to the rapid partnership appraisal method employed by USAID Oceans. Mr. Maruf provided a presentation and explained what partnerships mean, why they are important, and provided an overview of the partnership development process. The session included a small group exercise (per country) on stakeholder mapping (rapid partnership appraisal), also described below, but the results were not presented in plenary and are therefore not discussed here. Mr. Maruf facilitated the exercise, with Mr. Garces assisting.

³ Additional information on FIMS and iFIMS is available through this link:
<http://www.franciscoblaha.info/blog/2015/5/4/fisheries-information-management-systems-fims>

2.1.6.1 Meaning & Importance of Partnerships

A partnership is a deliberate alliance between actors that are similarly motivated towards a common vision or shared value, enabling the partners to share the risks and rewards of the activities they create together to achieve their common vision while also accomplishing their own respective goals for the collaboration. Some examples of government and business working together on a shared vision to achieve their distinct goals are shown in Table 2.

Table 2. Examples of shared value creation between business and government

BUSINESS GOALS	SHARED VALUE/COMMON VISION	GOVERNMENT GOALS
Increased access to skilled labor Less employee turnover	WORKFORCE DEVELOPMENT	Increased employment Higher income levels
Reliable access to inputs Improved productivity Market growth	AGRICULTURAL VALUE CHAINS	Increased income for suppliers Improved access to markets Economic growth
Increased tourist routes Site maintenance	TOURISM	Job creation Improved community revenues

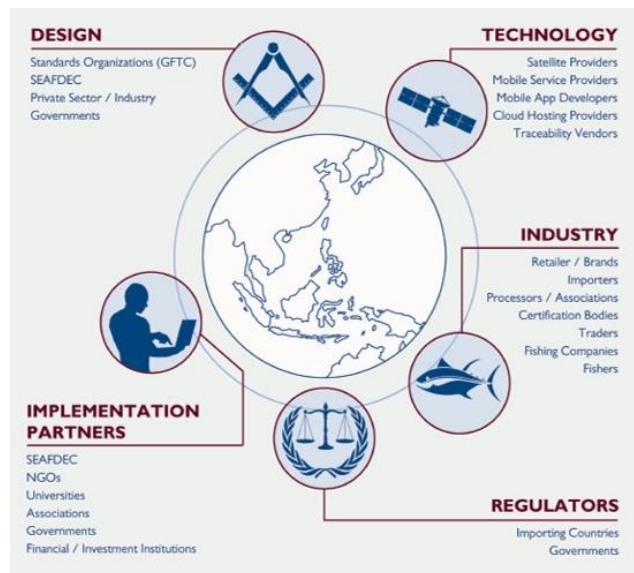
Some of the benefits of shared value partnerships include increased scale (more people and places reached with amplified outcomes); replicability and sustainability (continued investment and long-term interests promoted); improved effectiveness (more impact and unlocked funding); better efficiency (savings on time and money); and systemic change.

2.1.6.2 Potential Partners for CDT

CDT is necessarily a collaborative effort, so it is important to understand the ecosystem of actors that need to be engaged to improve seafood traceability. These include technology actors, such as satellite service providers; industry partners that have the resources and are willing to partner with government; and implementation partners that can help reduce the cost of technology development and adoption, such as SEAFDEC, NGOs, universities, USAID, etc. (Figure 5). For example, in the Philippines, USAID Oceans is working with First Movers, i.e., companies that are willing to invest extra resources in the piloting of proposed solutions before these are taken to scale and have the capacity to finish the work. One clear benefit that these companies derive from being First Movers is that they can actively influence the system design, add to improvements, and ensure that the system is responsive to their needs and constraints.

USAID Oceans also works with the SOCSKARGEN Federation of Fishing and Allied Industries, Inc. (SFFAI), a group of fishing associations with strong connections to government, banks, and the Philippine and overseas markets, which the project has been able to leverage.

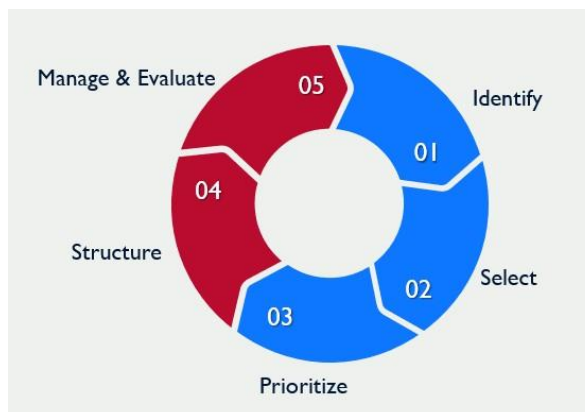
Figure 5. Ecosystem of CDT partners and actors in ASEAN



2.1.6.2 Partnership Development Process

The partnership development process comprises two phases: (1) Design phase, including stakeholder mapping to identify potential partners, selection and development of partnership concepts, and prioritization of partnership concepts based on development value, business value, government value and risks and transaction costs; and (2) building phase, which consists of defining and formalizing the structures of high priority partnerships, and managing and evaluating partnership implementation to ensure that action plans are implemented on time and within budget. Figure 6 shows a graphical representation of the sequence of these activities, with the design phase depicted in blue, and the building phase in red.

Figure 6. Partner development process



2.1.6.3 Rapid Partnership Appraisal Exercise

This participant exercise involved the identification of potential traceability actors in the seafood supply chain in each of the three CTI-CFF Pacific countries, and how these actors' objectives interlink with the country's objectives as regulators. The actors were classified into three groups ("orbits") based on how directly or closely they were involved in fisheries: In the first group were those actors whose livelihoods depend directly on fisheries (Orbit 1), e.g., processing companies, fishers, fishing companies, middlemen, etc. The second group (Orbit 2) included actors that support those in Orbit 1, such as trucking companies, certification bodies, NGOs, research institutions, etc. And in the third group (Orbit 3) were actors who provide non-specific services with potential use in CDT, such as telecommunication and satellite service providers and technology developers that have the capacity to invest and scale their business in support of seafood traceability. The template shown in Table 3 was used to map the different groups. Although not presented during the workshop, the mapping results are intended to form part of the countries' CDT profiles.

Table 3. Partner mapping template

Organization	Location(s)	Short Description
ORBIT 1		
Seafood Processors and Fishing Companies		
Retailers/Brands/Importers		
ORBIT 2		
Industry Associations		
Industry Oriented NGOs and Networks		
Environmental NGOs		
Labor, Social and Worker Rights NGOs and Foundations		

Organization	Location(s)	Short Description
Foundations and Donors (Addressing IUU Fishing)		
Standards Bodies (Non-Government and Government)		
Intergovernmental and Donors		
ORBIT 3		
Finance and Advisory		
Technology (Combatting IUU, Traceability and Data Collection)		

2.1.6.3 Q&A

Horacio – When you work with fishing associations like the one in the Philippines, do you have to deal with contentious issues like politics or competing business interests?

F. Maruf – It’s probably true that those issues exist but they have not prominently figured in our partnership with SFFAll or hampered our work. In fact, we’ve found the partnership quite beneficial, and for many reasons: (1) We could easily communicate to the association our main objective, which is to make sure that the CDT solutions we introduce would be useful to its members and could help improve their livelihoods. (2) The association could amplify our message not only to its members, but also to fisheries authorities and to the markets, saving us from having to talk to each member or actor one by one. (3) The association can serve as a vehicle of replication; SFFAll has been particularly helpful in identifying and influencing industry leaders to be our first-mover companies.

2.1.7 Roadmap Development & Next Steps

This plenary presentation by Mr. Maruf was the final session of the day, designed to provide the countries with advice for moving forward. It covered two main topics: (1) Next steps for completing the CDT gap analysis; and (2) roadmap development.

2.1.7.1 Next steps for Completing the CDT gap analysis

This workshop was only an introduction to the CDT gap analysis process and cannot suffice as basis for developing a system that properly meets the traceability needs and priorities of any of the three countries. To have a good understanding of their current CDT status, each country must fully complete the gap analysis, which is the next immediate action they need to take. A good practice for starting off on the right foot is to plan for the analysis using the template shown in Table 4, adding notes as needed to indicate the target timeline and who should undertake each activity.

Table 4. Template for planning for CDT gap analysis

ACTIVITIES		TIME	REMARKS
Step 1	Project planning Scope definition		
Step 2	Desktop study Interviews and focus group discussions Workshops with related agencies and organizations		
Step 3	Field study Interviews and focus group discussions System walkthrough Technology workshop		
Step 4	Draft report		
Step 5	Socialization and validation workshop Roadmap development FM recruitments		
Step 6	Finalizing report Recommendations		

2.1.7.2 Roadmap Development

Step 5 of the gap analysis process is a critical step: At this point in the process, after the analysis results are socialized and validated and before the report is finalized and implemented, a roadmap needs to be developed collaboratively with stakeholders that identifies solutions or improvements necessary to address the gaps that have been identified. This will entail prioritizing the solutions based on their urgency, impact and complexity. Depending on available resources, a complex solution may be given high priority because it is urgent and high impact, or a medium- or low-impact solution may be prioritized because it is easy and will not require expertise or a great deal of resources to implement. To facilitate decision-making, templates for rating and prioritizing suggestions for traceability solutions or improvements are provided in Table 5 and Figure 7, respectively.

Figure 8 is an example of a CDT roadmap with near-, short-, medium- and long-term actions.

Table 5. Template for rating suggestions for traceability improvements

IMPROVEMENT SUGGESTIONS	URGENCY (Low – Medium - High)	IMPACT (Low – Medium - High)	COMPLEXITY (Low – Medium - High)
1			
2			
3			
4			
5			

Figure 7. Priority matrix template

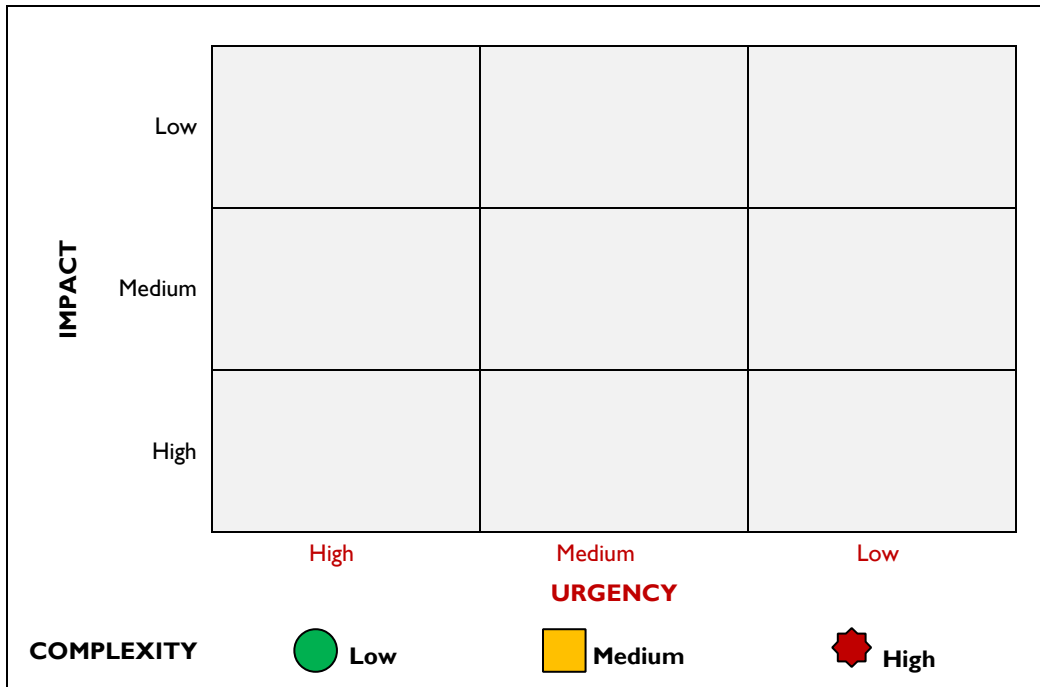
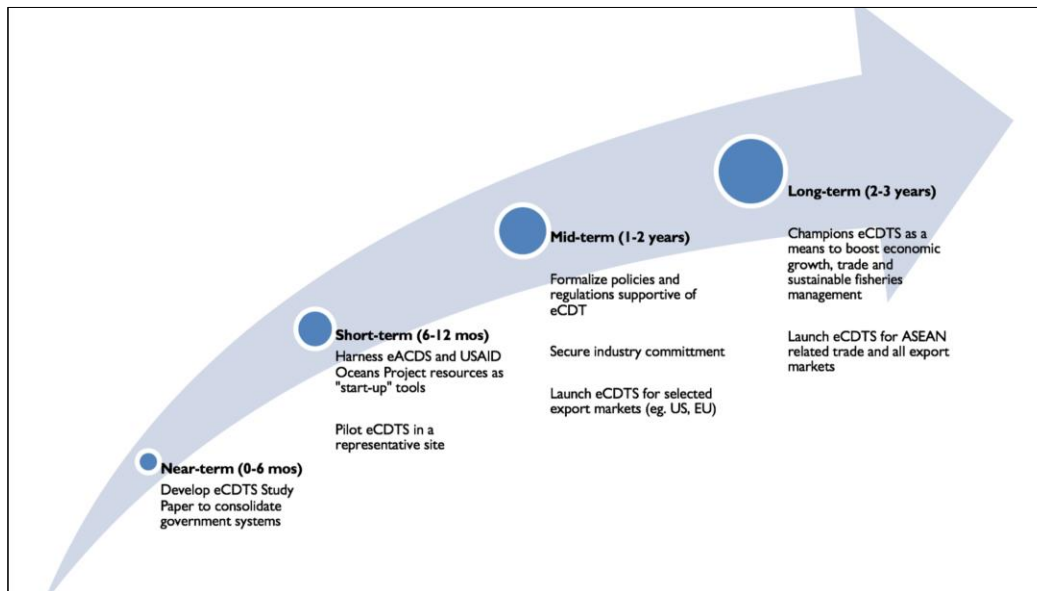


Figure 8. Example of a CDT roadmap



2.2 DAY TWO | June 27, 2019

Day Two was all about sharing the eCDT technologies, lessons learned, experiences, and results from the USAID Oceans Learning Sites and partners. It consisted of a total of four sessions, including introductions and opening remarks, five plenary presentations, a technology marketplace, and a Q&A session that tackled seafood traceability in general and, more specifically, five traceability technology solutions that USAID Oceans supported to bridge traceability gaps in the seafood supply chains of the ASEAN and CTI-CFF countries. Overall facilitation was provided by Mr. Maruf, with assistance from Mr. Garces.

2.2.1 Introductions & Opening Remarks

The workshop started at 9:54AM with participants' self-introductions led by Mr. Garces. Then, Dr. Siry gave the opening remarks and outlined the day's agenda, highlighting the eCDT technologies to be presented during the day. Dr. Siry encouraged colleagues, particularly those in the Pacific countries, to explore the technologies being showcased as he acknowledged the presence of the USAID Oceans technology partners, before declaring the workshop open. Dr. Siry's full remarks can be found in Annex V.

2.2.2 Technology Partners' Presentations: eCDT Solutions

This session consisted of presentations of the CDT solutions that USAID Oceans has supported, namely, the electronic ASEAN Catch Documentation Scheme (eACDS) by SEAFDEC; Pointrek 2-way satellite-based communication VMS by PT Sisfo Indonesia; FAME 2-way radio frequency (RF) communication vessel monitoring and fish traceability system by Futuristic Aviation and Maritime Enterprises, Inc. (FAME); Trafiz first-traceability-at-landing app by PT Altermyth; and TraceTales traceability solution for seafood processors by Yayasan Masyarakat dan Perikanan Indonesia (MDPI). The lead facilitator, Mr. Maruf, provided additional information on each technology. Both presentations and facilitator's inputs are detailed below in this section.

2.2.2.1 eACDS

Presented by Ms. Namfon Imsamrarn, SEAFDEC

The eACDS was developed by SEAFDEC in collaboration with the Fisheries Marketing Organization of Thailand to provide the AMS with a tool for implementing the ACDS, or the ASEAN catch documentation scheme. A prototype is being piloted in Brunei Darussalam with the support of that country's Department of Fisheries.

The eACDS database system is designed on both web and (native) mobile platforms, with access through passwords provided by SEAFDEC and usernames generated by the country administrator. The mobile app has two functions: (1) catch reporting for the fishing master, and (2) purchasing reporting for the fish buyer. The web app, on the other hand, is primarily designed for port-out/port-in (PIPO) permission processing and the issuance of various traceability documents by the fisheries officer or certification authority, with an additional function for the fish buyer/processor to request for catch certification.

The use of the system is as follows:

Step 1. Port-out permission and issuance of initial catch document (CD)

1. Fishing master requests port-out permission using fishing vessel's registration number (mobile app)
2. Fisheries officer checks vessel database: If vessel is in good standing, fisheries officers approves permission request (web app)

3. Fisheries officer generates initial CD containing the vessel registration number, vessel name, license number and expiry date, fishing gear, name of fishing master, number of crew members, departure date, and port-out name, along with a unique QR code, and a CD number and password (unique to each fishing trip) to be used by the fishing master to log into the system (web app)

Step 2. Catch reporting at sea

1. Fishing master logs into system using username (CD unique number) and password indicated in the initial CD (mobile app)
2. Fishing master enters catch data, including operation date, zone, position, fish species (selected from a popup menu) and estimated weight (mobile app)
3. Catch data are transmitted to and stored in eACDS main server managed by the responsible country/flag state (mobile app)

Step 3. Port-in permission and issuance of CD

1. Fishing master requests port-in permission (mobile app), in response to which the fisheries officer will access the vessel's record in the system and close the fishing activity at sea (web app)
2. Catch is landed, species and total weight verified, and the data are recorded into the system by the fisheries officer (web app)
3. Fisheries officer prints out CD generated by the system and gives copy to fishing master as proof that the catch is legal, i.e., not taken by IUU fishing (web app)

Step 4. Purchasing fish for the local market and/or processing plant

1. Fish buyer registers with authorized agency and receives password to access the eACDS purchasing page (this is a one-time registration)
2. Buyer logs in to system to check list of fishing vessels that are ready to sell their catch (mobile app)
3. Fish buyer records species and weight of fish bought and submits data to the main server, triggering request for issuance of movement document (mobile app)

Step 5. Issuance of Movement Document (MD)

1. Upon receiving request for MD, fisheries officer checks buyer's record of purchases (web app)
2. If everything checks out, fisheries officer prints out and releases to the fish buyer the MD and purchase certificate to serve as proof that the fish buyer is authorized to take the fish out of the landing port. (web app)

Step 6. Request for Catch Certification (CC)

1. Fish processor/buyer who wants to export the fish logs in to the catch certification page; page displays fish processor's/buyer's CC requests and their statuses, i.e., orange for pending and green for approved (web app)
2. Fish processor/buyer adds new CC request, and using online form provided, enters into the system the information and electronic documents required for exporting seafood (web app)
3. Fish processor/buyer electronically submits CC request form and required documents, triggering the system to send an orange alert message to the certification authority (web app)

Step 7. CC request validation and issuance of CC

1. Upon receipt of orange alert message, certification authority (CA) validates information submitted to the system (web app)
2. If everything checks out, certification request is approved and system sends CC (in pdf format electronically signed by the CA) to the requesting fish processor/buyer, along with a green alert message; otherwise, a message requesting additional information or documents is sent instead (web app)

Step 8. Exporting the seafood product

1. The alert message from the CA will be displayed at the fish processor/buyer's end upon login: green alert means the fish buyer/processor can download the CC from the website (web app)
2. If the message is a request for additional information or documents, the processor/buyer should comply with the request for the process to move forward (web app)

Step 9. Tracing seafood along the supply chain using the QR code

Consumers can use the QR code on the product label to trace back the fish to its source.

Additional input from facilitator

USAID Oceans supports SEAFDEC in the implementation of eACDS and can support countries that decide to use the eACDS within the life-of-project.

2.2.2.2 Pointrek

Presented by Mr. Nirwan, PT Sisfo Indonesia

Developed in 2003 and certified globally by Inmarsat, Pointrek is currently used in more than 1,000 assets in Indonesia, Malaysia, Thailand and other countries. It includes an eLogbook that was developed five years ago, even before the term eLogbook came into use, and is now being implemented in Indonesia in partnership with the United Kingdom Space Agency (UKSA), Inmarsat and USAID. The company is working with UKSA and USAID to develop Fish Tech, a service to support the adoption of technology through a “human-centered internet of things” designed to facilitate compliance by small-scale fishing vessels above 5GT with national and international regulations, including CDT standards. Because while operators of fishing vessels above 30GT have the wherewithal to bring their operations into compliance with traceability regulations, most of the 600,000 fishing vessels in Indonesia are those below 30GT owned by low-income small-scale and artisanal fishers who view these regulations as an economic burden with no counter-benefits.

The Pointrek system is now used in more than 200 fishing vessels operating in the waters around Java, Bali and Lombok. The key factor to its acceptance by small-scale fishers is the “joy factor” – the technology includes satellite-based messaging capability that allows users to send messages even while they are out at sea beyond cellular coverage. The basic components of the device consist of a small server called PAPS (Persistent Apcore Server) that contains the backbone application, a satellite antenna, a tablet that contains the user interface for recording data and messaging, and a compact power supply. Features include:

- Alert/panic button (saved 30 lives in 2017);
- Backup battery that can last up to one day;
- 2-way satellite-based communication with a small (25kb) backbone technology for messaging between vessels or between vessel and land;
- Geofencing for marine protected areas (MPA) – The system contains locations of MPAs so when a fishing boat enters an MPA, the device sends out an alert message;

- Fish forecasting;
- Weather information;
- eLogbook; and
- GPS reporting/tracking.

Sisfo is in discussion with the Government of Indonesia to supply the technology at no cost to fishers, and with the fish buyers paying only the operational fees.

Additional input from facilitator

The UKSA project will also install some of the equipment on patrol boats, so the patrol boats will have the same vessel-vessel and vessel-land (station) 2-way communication capability and coverage as the fishing vessels.

2.2.2.3 FAME

Presented by Mr. Arcelio Fetizanan, Jr., FAME

FAME originally developed its transponders to be used on aircraft, but later began to focus more on the technology's maritime applications. The shift in focus came when the company realized that the maritime industry was where their technology could provide more value. The Philippines has 429 fishing ports and 821 commercial ports, only three of which are equipped with vessel tracking systems, mostly for large container and passenger vessels. Initially, the transponders were used mainly for law enforcement and for tracing boats. Then, the company saw a need that they could fill in the fishing sector: Regionally, Asia has 3.5 million fishing boats, almost 75% of all fishing boats operating worldwide, and about 350,000 of these are tuna fishing vessels that need to comply with CDT regulations. This need was emphasized in 2015, when the European Commission gave a yellow card to the Philippines, Indonesia, Thailand, Vietnam and Taiwan. Thailand has since been delisted from the group of "yellow card" countries, after it was found to have made significant progress in tackling IUU fishing through better catch monitoring. With the right technology, it is hoped that the other countries could follow suit.

Through the help of USAID Oceans, FAME enhanced its technology with NFC modules to now include CDT capabilities designed especially with the needs and limitations of small-scale fishers in mind. The device is installed on top of the vessel and within minutes it sends location data via radio frequency to FAME gateways, which then send the data to the cloud where it can be accessed for real-time tracking of the vessel, or to assist search and rescue if the vessel is ever in danger during its journey to, in and from the fishing ground.

When the vessel catches a tuna, the fishing master gets an NFC card and taps it on the transponder. This saves the location data, timestamp, tuna identification and boat identification on the card, which is then attached to the tail of the tuna, so wherever the tuna goes, the information goes with it. The card can be read by any NFC-enabled device (e.g., smartphone) but, as an added feature, FAME developed a mobile app for recording the weight of the tuna. In the port, after verifying the fish weight (and length, if applicable), fisheries officers (or fish buyers) can tap the card on their NFC-enabled phone to open the card app and enter the verified weight (and length), and the app will generate a QR code with all the data, which they can conveniently print, then and there, on a mobile printer.

The system can be customized to the data needs of each client, and can easily be integrated with other systems, including TraceTales and Trafiz. For example, temperature sensors can be added to monitor onboard fish coolers, so temperature data can be transmitted together with the location data. The company is also looking at integrating the system with an electronic weighing scale, so that fish weight can be automatically recorded in the app.

The device runs on a rechargeable battery, which can be solar- or wind-charged.

Additional input from facilitator

Like Pointrek, the FAME system also has messaging capability. This is important particularly because, to find fish, small-scale fishers now need to travel farther from port and stay longer hours at sea, beyond cellular coverage, where the ability to communicate is crucial not only for communication but also for safety.

2.2.2.4 Trafiz

Presented by Mr. Dien Wong, Altermyth

Sometimes, data capture at sea is not possible, and fish may be landed in informal landing sites that are not monitored by fisheries authorities, which may render it, in effect, “untraceable to its source.” This is especially true in the SEA region, where most fishers are small-scale and focused on providing for their families through fishing, with little interest or capacity to report their catch. To address this gap, USAID Oceans supported Altermyth to develop an app that can integrate fish buyers (middlemen/wholesalers) into the traceability system. Unlike small-scale fishers, these buyers are business people who generally keep records of their transactions and logically could be expected to be more capable and easier to motivate to participate in the traceability system.

Called Trafiz, the app is a traceability and business accounting tool designed to facilitate the fish buyers to report their data to the CDT system by converting their daily operations seamlessly from manual to digital. Because they have interest in getting accurate fish weight information for pricing purposes, the buyers can also serve as catch data verifiers.

Trafiz has four main features: (1) Catch data recording (fish name, weight, number of pieces and price); (2) fishers’ loan accounting; (3) delivery recording; and (4) simple bookkeeping. The app is currently still in the prototype stage, but it has been tested in Manado, where at least one buyer has used it very intensively to keep records on about 83 tons of fish.

The app offers several benefits, including:

- Ability to be used by the government for fisheries management and, because they also include business data, they can also inform government and NGO assistance for fish buyers.
- Ease of use, interoperability, and ability integrate catch data from FAME and Pointrek, and then transfer data to the processor through TraceTales.
- Data collected by the app is more secure and difficult to tamper with.
- The app has offline capability, is multi-language, and can easily be customized to include other languages.

Additional inputs from facilitator

There is a strong interest to use Trafiz for establishing the financial/fiscal credibility of fish buyers. Trafiz business data can be audited and the resulting audit report can be used to show credit-worthiness to facilitate the buyers’ access to various financing options.

Trafiz is open source but not currently available publicly. To get the Android Package (APK) file or an installation file, send your request to info@oceans-partnership.org.

2.2.2.5 TraceTales

Presented by Ms. Stephani Mangunsong, MDPI

In the supply chain, it is the processor who is responsible for getting catch data from the fisher or fish buyer and making sure that all that information is accurately passed on to the exporter (if the processor is not also an exporter) or importer. If there is any issue with the traceability of the product, or a new traceability regulation requiring additional information, it is the processor that the exporter or importer will chase after. What makes

traceability especially difficult for the fish processor is that fish processing is a disaggregation process – fish is cut up into several pieces, and every single piece needs to be traceable. The challenge is even greater for small-scale seafood processors that still rely on manual recordkeeping.

TraceTales was developed with USAID Oceans’ support to address this challenge. In the one-and-a-half years since TraceTales was first deployed in 2018, 2,300 tons of traceable tuna products from 4,150 tons of raw materials have been shipped from five or six processing plants in Indonesia.

With TraceTales, data recording from tracking to packing can now be done electronically. The system collects the KDEs recommended by USAID Oceans, such as vessel information, fishing gear, fisher’s name, supplier information, fishing location, landing location, ASFIS (Aquatic Sciences and Fisheries Information System) species code, scientific name, processor information, processing information, etc. This information is converted into the QR code that is printed on the product label and used to trace the product to its source. The system also generates a printout of the packing list.

Catch data taken from the vessel using Pointrek or FAME, or from the buyer using Trafiz, can be directly transferred to TraceTales, so there is no need to reenter the data manually. Moreover, the system provides real-time tracking of every fish and every fish product during processing, ensuring that the data collected is accurate and shareable, thus improving traceability. Having this high level of traceability is important when you have, for example, 20 tons of frozen loin tuna that come from 40 tons of tuna caught by 250 small-scale fishers. Because, if one pack in the 20 tons is rejected for food safety reasons, you will need to be able to trace that one pack to the fisher that caught the tuna from which it was processed, so you can pick out only those loins that come from the fish caught by that fisher and not have the entire 20 tons rejected by your buyers.

With approval from the data owners (seafood processors), MDPI is now working with Anova Seafood (an international supplier of fresh and chilled seafood) and Bumblebee (a U.S. seafood processor) to connect TraceTales data to a blockchain platform so that the data can be interfaced with their customers.

TraceTales is open source and freely downloadable from GitHub (<https://github.com/search?q=tracetales>).

Additional inputs from facilitator

TraceTales is now being deployed to another company called Nutrindo, which is more integrated than the processors that are already using the system. Nutrindo has its own vessel and full chain of processing and is also an exporter. The company exports raw fish to Japan, which is a more demanding than the U.S. market in terms of quality, so it will be interesting to see how they adapt TraceTales for the Japanese market.

2.2.3 Technology Marketplace

This was a roughly one-hour breakout session designed to give participants the opportunity to interact more closely with the USAID Oceans technology partners and observe live demos of their products. Note-takers were on hand to record questions raised by attendees.

2.2.4 Q&A on CDT Technology Solutions

This Q&A session was conducted and facilitated by Mr. Maruf and organized around a set of questions distilled from the marketplace session, interspersed with a few questions from the floor. Except for the first and last questions, which were directed at the CT6 Countries and USAID Oceans, respectively, all questions were addressed to the USAID Oceans technology partners. The discussion is detailed below:

Q (to the CT6) – From your discussions with our technology partners, which of these technologies do you think you can use in your respective countries and how do they apply in your current and near-term future work?

ID – That would be Trafiz, because currently we are not able to collect data from small-scale fishers, especially those engaged in one-day fishing who do not land their catch in fishing ports. I understand Trafiz has been introduced in Fisheries Management Area (FMA) 715, but we would like to discuss with USAID Oceans about bringing it to the other FMAs, and we think it could be useful for monitoring ornamental fish as well.

PH – The fish buyers were somehow omitted in our eCDT system – from landing, the system follows the fish to the manufacturing plant, without accounting for the fish changing hands from fisher to fish buyer, and perhaps to one or more other buyers, before it goes to the manufacturing plant or exporter. If Trafiz could be modified to fit into our system design, it may be a good solution for addressing this current gap in our supply chain data.

F. Maruf – Trafiz was inspired by an app piloted by World Wide Fund for Nature (WWF) in Iloilo, Philippines. The app was designed for use by buyers in applying to the local government for issuance of auxiliary invoice, which is required for transporting fish and fishery products to domestic or export destinations. And, yes, Trafiz can easily be modified to fit any system design.

MY – This is all very interesting but, coming from government, our main concern is how much it will cost, and who will pay? Some of the technologies that were presented today are free, so we can probably try them out immediately. But in Malaysia, we don't have a fully electronically integrated CDT system yet – while we're moving in that direction, we're only just starting, and it is slow going. So, for us, this level of discussion may not be applicable to where we are right now with our eCDT work.

PNG – We do have a system already in place for eCDT. Our challenge is to get our ministry to bring in new technology to help our people because, currently, our system benefits only tuna fisheries, while our local fishers are not getting the full economic benefits out of our resources. Perhaps some of the technologies that were presented today could be a way to improve the livelihoods of our small-scale fishers. We will take the information back to our ministry and get the dialogue going to have maybe one to three technology providers depending on funding come to our country and see how these technologies can be incorporated into our system to help our small-scale fishers.

SI – The discussions made us realize that we have a big gap in traceability for inshore fisheries, and that there's a lot of very good systems that can probably help fill the gap. We are pleased to learn all this, but we don't really have jurisdiction to make decisions about this matter. What we can do is to bring the information back to the people in charge of our inshore fisheries and I believe they will come on board

to move to a more technology-based system that can make it easier to track our catch from inshore fisheries.

TL – I think we can pick one or two of the technologies that were presented – perhaps Pointrek or TraceTales – but we want to have a look at all the technologies. Our National Coordinating Committee (NCC) will have a meeting with our partners and scientists, so maybe we can discuss this there some more, and possibly develop proposals for GIZ or Thai Embassy support.

Q – Where is the technology currently being used/implemented? (Location, countries)

SEAFDEC – eACDS is currently being piloted in Brunei, Tok Bali in Malaysia, and another site in Vietnam. In Brunei, we are piloting the system; in Malaysia we are testing the process; and in Vietnam, the KDEs. We will be visiting Vietnam first week of July to conduct our first training on catch declaration.

F. Maruf – USAID Oceans is supporting SEAFDEC to address some barriers. For example, in Vietnam, we are providing some technology devices

Sisfo – The Pointrek system is in use in some areas in Indonesia, Thailand and Malaysia (Kuantan).

FAME – For fisheries use, our system is being implemented in Sarangani and by one processor in Palawan in the Philippines. It is also being used for tracking and monitoring ferries in Taiwan and Singapore.

Altermyth – Trafiz is currently being piloted in Indonesia, particularly in the Sulawesi area (Manado and Maluku).

F. Maruf – The system has also been introduced in FMA 715, particularly in Maluku, through the USAID SEA Project

MDPI – TraceTales has been deployed in the provinces of Maluku, North Maluku, and North Sulawesi (Bitung). We're also preparing to install the system in one processing company in Bangkok and another in Palau that exports to Australia.

Q – What has been the biggest challenge in the adoption and implementation of your technology solutions?

MDPI – Limited human resource capacity, particularly in computer skills, which means we need to not only train people to use the system, but also teach them the most basic computer skills, for example, how to turn the laptop on and off.

Altermyth – One challenge is connectivity; our app has an offline mode for data recording, but it has limited functions. The main challenge, however, is the human factor. Our technology is easy to use, but because people are new to it, they are scared to use it.

FAME – Resistance to change. Some people refuse to use the technology simply because they're accustomed to a certain way of doing things. We had to incentivize some of the fishers to use our technology, and once they got used to it, they thought it was cool.

Sisfo – People's mindset. We want a system that will run like an orchestra, and that's a challenge when there is a wide range of users with different needs, abilities and ways of thinking. What we need is a business model where the fisher is in the center of the ecosystem.

SEAFDEC – It differs from country to country. For example, in Brunei, there is only one department that handles the entire process from port-out to catch certification, so implementation is very easy. Other countries have more complex processes involving many organizations, which make data collection quite difficult. For example, in Vietnam, the Department of Fisheries (D-FISH) is our collaborator but, in the field, the authority transfers to the provinces, so we need a system that interfaces D-FISH with the

provincial fisheries divisions, which is a challenge, especially if the lines of authority are not clearly defined. Before the system can be implemented, there should be an agreement to clarify the roles/responsibilities of the different parties.

Q – What are the challenges in using the technology?

Sisfo – Most fishers have low education levels so it may be difficult for them to learn new technology. Also, when they see no benefit from using the technology, they will not be motivated to learn it. So, the joy factor is important. For example, adding a messaging function to allow fishers and families to communicate with each other can help galvanize them to use the technology. Then they will take pride in mastering new skills.

MDPI – The equipment is used in the processing plant, where it's exposed to chemicals, humidity, or saline and other unfavorable conditions, causing hardware damage that can result in data loss or other system malfunctions.

FAME – Our technology uses radio frequency, so we need to deal with the telecommunications authorities. In the Philippines, for example, whenever we install a new gateway, we need to ask permission from the National Telecommunications Commission (NTC). Because we're using LoRaWAN (free frequency), we don't need to have our gateways certified, but it also means using different frequencies in different countries (with different regulations).

SEAFDEC – Language can be a barrier. Because most fishers cannot read English, we need to translate the app to their own language, or maybe use pictures.

Q – What's the basic cost of your technology and who pays for hardware, airtime, etc.?

Altermyth – The hardware investment is just for an Android phone and, at the moment, the app is free to download and use, because the cost is covered by USAID Oceans. However, after the project, there's probably going to be a fee because there's cost to maintain it (data storage, etc.).

F. Maruf – You will need cloud presence. If you're concerned about data sovereignty, depending on your data regulations, you could make use of a private government cloud, or a localized cloud subject your data sovereignty regulations, or at least a cloud located in a country with data sovereignty laws compatible with your own.

MDPI – The main cost for us is software development; the processing companies pay for the hardware. Technically, it's USAID Oceans and some other donors that are currently paying for the cost of development, and the companies who pay for the hardware cost.

FAME – Our service is a subscription model. You don't pay for the device, but you pay a monthly subscription fee, which is currently around Php800 (USD 15-16). Who pays? It does not necessarily have to be the fishers. In Palawan, where we have 50 boats connected to our system, it's the processing plant that pays for subscription, so the fishers do not pay anything to use our system.

Sisfo – Pointrek is subscription-based, with a monthly fee of up to USD 100 inclusive of device and airtime,

SEAFDEC – The eACDS software is free for all countries, and the hardware requirement is a desktop or notebook with mobile support, which practically everyone already has. Right now, SEAFDEC is paying for cloud service, mainly for testing. Eventually, countries that decide to implement eACDS will have to maintain their own server.

Q – As data collectors and providers, small-scale fishers deserve to be compensated rather than required to pay a monthly subscription fee of USD 100. What would be a good compensation mechanism for them?

MDPI – We sell mostly to the Fair-Trade community, so our fishers get a premium for their fish. The money, however, does not go to individual fishers. It goes to the fishers’ association for use in community projects.

FAME – In our experience, generally, the actor that needs the data the most will pay for it. This is true for our client in Palawan, who is a tuna processor selling to a market requiring traceability and is therefore compelled, or at least willing, to pay for our service to ensure that the tuna they get is traceable. We also have ongoing discussions with cooperatives in the EU who are planning to pay for the subscription. And we have another client in Singapore, oil and gas company British Petroleum, that is willing to provide fishers with our transponders because they have oil rigs in this region, and they need to monitor the movement of fishing vessels around these installations.

Q – Is there a way for non-government researchers to access traceability data?

MDPI – Our policy is that data ownership lies with the actor who holds the data, e.g., the fisher, processor or supplier. If we need data for fisheries management, we must seek the data owner’s permission to use it. We can facilitate requests for data from researchers, but the decision to share the data is up to the data owner.

Q – What requirements do countries have to meet to bring in your technologies?

SEAFDEC – We can directly assist only the ASEAN countries. Indirectly, maybe we can provide assistance to the three Pacific countries through the CTI-CFF Regional Secretariat with whom we have an existing cooperation agreement.

FAME – We just need to know the frequency in your area, and one location where we can put a gateway for the transponders. We are always open for concept proposals.

Sisfo – Our technology is satellite-based, so we don’t require a frequency license. We only need to know where to install the system and how many units you need.

MDPI – First, we need to do an assessment of your current system and needs in order to determine if and how the system will work in your context. We will send you a questionnaire, and then we need to visit the site to assess human resource capacity, processes, and even internet connectivity because even though we use intranet rather than internet, it may be necessary to monitor the data processes from outside the processing plant.

Q – What is the best course of action for implementing this in our country?

USAID Oceans – It would be useful to hear what your requirements are. Our program is ending soon but we can forward that information to USAID, DOI, and other partners and we can work with our partners to find ways that you may be assisted. While we’re still around, reach out to us. You can of course also reach out directly to our technology partners, or access the online resources that we at USAID Oceans and our partners at SEAFDEC have built at www.seafdec-oceanspartnership.org.

2.3 DAY THREE | June 28, 2019

Day Three was a half-day all-plenary discussion-centered workshop dedicated to eliciting comments from the CT6 countries on the “Technical Guidance on the Design and Implementation of Electronic Catch Documentation and Traceability Systems in Southeast Asia,” particularly with regard to whether and how the guidance document, which was developed for the ASEAN, could be adopted and adapted under CTI-CFF. Although informal in tone, the discussion followed formal meeting procedures, with the Co-Chair of the CTI-CFF EAFM Working Group, Dr. Norasma Dacho (Malaysia), presiding. On the Co-Chair’s request, Mr. Garces of USAID Oceans facilitated the discussion and provided the introductory presentation explaining the purpose and general content of the guidance document.

2.3.1 Opening Remarks

SEAFDEC’s Dr. Theparoonrat provided the day’s opening remarks and briefly explained the purpose of the eCDT system guidance document “to support [the ASEAN] countries’ interest in promoting fisheries traceability and sustainability.” The document should enable the countries “to develop a national eCDT system that uses technologies that are broad enough to be dynamic and flexible through time, allowing for multiple types and scales of commercial fishery supply chains, from small-scale to large scale commercial fishing operations, and allowing for the broad range of regional disparity across ASEAN in terms of national fisheries capacity and private sector engagement,” he said, concluding with the hope for the countries’ active participation “to finalize the document.” The full text of Dr. Theparoonrat’s remarks can be found in Annex V.

2.3.2 Regional eCDT Guidance Review

Mr. Garces opened this session with an overview of the regional eCDT guidance document, including its purpose and main sections, and a target timeline for the document’s completion and adoption by the ASEAN and CTI-CFF. Dr. Siry, RS Interim Executive Director, helped facilitate the session.

2.2.3.1 Overview of the Regional eCDT system guidance document for Southeast Asia

Presented by Mr. Len Garces, USAID Oceans

In 2018, USAID Oceans and SEAFDEC were asked by the AMS to develop a regional guidance document to provide clear and easily comprehensible guidelines for developing and implementing eCDT systems. The current draft is SEA-centric, given SEAFDEC’s membership base, but there has been some discussion about whether the document would be useful to and could be adopted as well by the CT6 countries through an existing agreement between SEAFDEC and RS. This session was being held to provide inputs from the EAFM Working Group (WG) on the document, and whether and how it can be made relevant to the CTI-CFF context.

This guidance document is intended to facilitate the countries’ transition from paper-based CDT to an electronic, transparent and financially sustainable eCDT system, in support of and to complement eACDS that SEAFDEC has developed and started piloting in some AMS. Its objectives are to provide:

- Technical guidance on how to design, implement, and test eCDT systems that are adapted to the different capacities, contexts, circumstances and needs of each country;
- General principles for designing and implementing an eCDT system, including a set of minimum requirements and standards;
- A “standard” process for eCDT system design and implementation; and

- Guidance for national roadmaps to support the adoption and implementation of eCDT systems, with the understanding that eCDT systems will take time to build and become fully operational.

The first two introductory sections of the current draft contain an overview of the traceability data collection methods and systems that are now in place in the different AMS, and some gaps that need to be filled for each of the AMS to effectively transition from their current systems to eCDT system. These sections can be expanded to include PNG, Solomon Islands and Timor Leste, if that is what the CT6 countries will decide.

The rest of the introductory sections explain the fundamental principles, development process, purpose and objectives of the guidance document – which can be expanded as well to incorporate the CTI-CFF context – and, lastly, how to use the guidance document.

Part two of the document contains the technical guidance sections, which spell out the design and implementation recommendations for eCDT system in the SEA region; Part three is intended to present some national experiences in developing eCDT system, particularly the USAID Oceans experience; and Part four provides a timeline for the regional adoption and implementation of the guidance document. These parts, too, can also be expanded to reflect the traceability experiences, needs, and objectives of the three Pacific CTI-CFF countries individually and the CTI-CFF as a regional body.

The aim is to have a finalized version of the guidance document by September 2019 for presentation to the SEAFDEC Program Committee Meeting (PCM) in November. Also, if the CTI-CFF EAFM WG finds the document relevant to their work, this discussion can help guide USAID Oceans and SEAFDEC on how the document can be included in the agenda of the CTI-CFF pre-SOM-15 (15th Senior Officials Meeting) and SOM-15 in November or December. The goal is for the document to be endorsed by SOM15 this year and presented to the SEAFDEC Council in April 2020⁴.

Additional inputs that the countries may want to submit after this workshop may be communicated by email to USAID Oceans Chief of Party John Parks and Communications Manager Melinda Donnelly on or before 1 September 2019 so they can be incorporated in the draft that will be presented to the upcoming SEAFDEC PCM and SOM15.

2.2.3.2 eCDT system Guidance Document Review & Discussion

Revision recommendations put forward and agreed by the CT6 and RS, and USAID Oceans response:

- **Produce a dedicated guidance document for CTI-CFF – (MY)** Instead of a joint publication, would it be possible for USAID Oceans to produce another document for CTI-CFF? I can imagine the introduction building the story from the ASEAN version and incorporating our discussions this week, including the country updates from PNG, Solomon Islands and Timor Leste. Then we can have the national logos, as well as CTI-CFF and USAID Oceans on the document.
 - a. **USAID Oceans response – (F. Maruf)** It is up to the CTI-CFF to make this decision. It is important to note: (i) The current document actually applies to three countries in the CTI-CFF, namely, the Philippines, Indonesia and Malaysia, that are part of ASEAN, so the new document that will be specific to the CT6 will form a sort of subset of the ASEAN version; and (2) the ASEAN version needs to be completed first before a CTI-CFF version can be developed.

⁴ The eCDT system guidance document is a technical and not a policy document, so it does not have to be reported and adopted or approved by the SEAFDEC Council. However, it may be presented to the Council for circulation to the AMS for their information and further action.

- **Add images to break up page** – (RS) The document is quite text heavy. My suggestion is to add some graphics, such as the “bait-to-plate” graphic that was presented earlier. It will make the document easier to understand.
- **Provide more specific details about consultation activities to develop the document** – (MY) I read the document and my first impression is that this is the result of several consultation meetings and workshops. These consultations need to be specified. Or, if there is a document available online that provides more details about a meeting, the link should be provided. The sequence of consultation activities to get consensus on the document as it develops should be clear to facilitate the drafting and finalization of the document. Because, in this region, the turnover of government officials is very high, and there are always new people coming in with different ideas on what should or should not be included in any regional document. If we aren’t able to retain the consensus that we reach in our meetings, the revisions will never end. To preserve consensus already achieved on the content of the document and to be fair to everyone, when you mention a meeting, be specific about what the meeting was about and what was agreed.
- **Explain that CDT is a requirement of export markets** – (MY) In terms of why the countries must have CDT, the document needs to state more clearly that CDT is a requirement of the export markets, especially the EU and U.S.
- **Add Learning and Expansion Site experiences** – The section on “National Experiences” should include:
 - a. (PH) Specific experiences in the Learning Sites, including opportunities, challenges and cost of developing eCDT system
 - b. (MY) Description of activities in Expansion Sites, including:
 - i. Pilot activity in Malaysia, including Kuantan, Pahang (Pointrek), and Tok Bali – Details (where, what, who, when) will help increase buy-in from the Malaysian Government; draft should be submitted to Putrajaya for review (USAID Oceans expects to have a draft by early October);
 - ii. eACDS pilot activity in Brunei (including how having a one-stop center is a factor to facilitate eACDS adoption), Vietnam and other countries

Country commitments on submission of inputs to eCDT system document:

- **ID** – We are very happy to share our experience in the implementation of eCDT in ID and will send our inputs after our meeting in July.
- **PNG** – I have already sent the gap analysis worksheet to the relevant fisheries authority and he agreed to have a management meeting to review and provide additional inputs, if needed. The form has been filled out, but we need to make sure that we haven’t missed anything. I’ve stressed to them about the deadline, and we will follow up with them to get all those inputs. We will also consult with the focal point for our EAFM WG so they can finalize the inputs before our meeting in Manila in September.
- **PH, MY** – We have raised our initial concerns. If we have other concerns or comments, we will let you know on or before the deadline.
- **SI** – At the moment, in our gap analysis, we only have information about fisheries, but I know that CDT involves other systems including customs and health that we need to get information on. We will follow up on this and get back to you before the deadline.
- **TL** – We have three national directorates that need to be engaged in CDT and one of them, the fisheries inspection directorate, is not in this workshop, so we need to consult with them about any

additional information that they may have. We hope to submit our comments on the document before 1 September as requested.

Other revision suggestions:

- **Add a section on challenges and limitations** – (NOAA) There's so much value that comes from eCDT, but if you look across the incredibly wide range of fisheries, it's not necessarily as easy and in some cases, it can be very challenging. It may be useful to have a section in the document that gets at some of the challenges and potential limitations, which would then allow for addressing at least some of the issues.

USAID Oceans response – Lessons learned are being captured on the program's eCDT experiences and will be shared.

Other suggestions

- **Comparative paper on ASEAN and CTI-CFF eCDT system** – (RS) In addition to the two guidance documents, it would be useful to also have, as a third output from this work, a comparative paper on the ASEAN and CTI-CFF in terms of eCDT system. The CT6 countries and RS can be co-authors, along with USAID Oceans, SEAFDEC and the AMS.

USAID Oceans response – (L. Garces) That is exactly our plan. There will be a paper comparing the two groups.

- **Adaptation of USAID Oceans informational and technical resources to CTI-CFF** – (RS) When the CTI-CFF regional guidance document is completed, would it be possible to also adapt with the CTI-CFF logos the "Bait to plate" video and other USAID Oceans publications, so they are joint works of USAID Oceans, SEAFDEC and CTI-CFF?

USAID Oceans response – (L. Garces) We will consult this with our leadership. (F. Maruf) We can give you the source file of the "Bait to plate" video, which you can adapt with subtitles in the local language as needed.

- **USAID Oceans expert support under the CTI-CFF University Partnerships** – (RS) I would like to encourage USAID Oceans to send experts like Len (Garces) and Farid (Maruf) to the CT6 to provide lectures on CDT under our University Partnerships program.

- a. (TL) In Timor Leste we only have two national universities that offer fisheries courses, so government lacks professional human resources for fisheries management. Nationwide, we only have 145 fisheries officers, so this suggestion is very welcome. If Len and Farid ever visit Dili again, we will do our best to invite them to give a lecture at our university.
- b. (SI) Solomon Islands' only university (Solomon Islands National University) has a School of Technology and Maritime Studies that has under it an institute focused on maritime and fisheries studies. They don't have a curriculum or classes set up for eCDT, but usually they invite guest lecturers to give evening talks on topics that are not normally discussed in regular classes. If we can do that, that would be useful because currently in Solomon Islands, even within the Ministry of Fisheries and Marine Resources, there are not many people who know about eCDT. Only the fisheries units responsible for traceability are aware of and pushing for it, so it will be a challenge for us to educate other sectors, roll out the system, and have all the systems talk together. And so, yes, we support the idea.
- c. (PNG) – I agree with adapting the guidance document so it can be incorporated in the curriculum of universities. We have five universities, including two focusing on marine resources but, like in Solomon Islands, the only people who know about CDT are those who work in the fisheries authority. We hope that once the guidance is completed, we will have young people that are coming up who know how to use it, so having experts as guest lecturers under the CTI-CFF University Partnerships program is something we need to start moving forward with.

- d. (Co-Chair) We can discuss this in the next EAFM WG Meeting and, if agreed, bring it up to SOM15. If USAID Oceans or the other donors here have some funding to do this in one or two of our Pacific member-countries, it would certainly be beneficial to our younger generations. Also, perhaps the eCDT system guidance document can also be adapted for use in schools in the region.

USAID Oceans response – (N. Mattich) Your requests for technical assistance have been noted and we will go back to our leadership in Bangkok and our respective agencies to put this forward and continue to encourage engagement on your behalf.

• **Other needs** –

- a. (ID) In Indonesia, we have learning centers in our FMAs and cooperative agreements with universities for students to join us in the Directorate of Capture Fisheries to do research and on-the-job training under our observer program. Funding is the main constraint for the observer program, and, for the learning centers, the issue is that the FMAs have no management bodies. For now, we plan to focus on one or two FMAs to pilot the observer program.
- b. (PH) – As is the case in the other countries, only the fisheries people are aware of CDT in the Philippines, although EAFM is already a well-accepted concept among local government units. Should we need support, it's probably going to be in socializing CDT.

Next steps

WHAT	WHEN	WHO
In-country consultations to complete, review and finalize national CDT profiles and “potential expansions”	July-August 2019	CT6
USAID Oceans consultations with ID to complete, review and finalize national CDT profile and “potential expansions,” and country inputs to the regional eCDT system guidance document	15 July	USAID Oceans, Indonesia
Submission to USAID Oceans of CT6 draft national CDT profiles and potential expansions for inclusion in USAID Oceans’ report on the “CTI-CFF Workshop on CDT Design and Development Based on EAFM” (25-26 June, Dili, TL)	15 July	CT6 (thru RS)
Submission to RS (and USAID RDMA) of USAID Oceans’ draft report on the “CTI-CFF Workshop on CDT Design and Development Based on EAFM” held 25-26 June in Dili, TL	Mid-July	USAID Oceans
Submission to RS (and USAID RDMA) of USAID Oceans draft report on the 24 June Pre-event and 27-28 June Post-event Workshops in Support of the 25-26 June CTI-CFF Activity in Dili, TL	4 th week of July ²	USAID Oceans
Submission to USAID Oceans of additional inputs (if needed) on CT6 national CDT profiles and potential expansions for inclusion in the regional eCDT system guidance document	1 September	CT6 (thru RS)
Following formal request for support from CTI-CFF, development of draft CTI-CFF version of eCDT system guidance document for review by EAFM WG and possible endorsement by the Senior Officials Meeting (SOM) ¹	TBD ^{1, 3}	CTI-CFF
Sharing at the EAFM WG Meeting (Manila, PH) of the outputs, results and outcomes of 24-28 July workshops in	September	USAID Oceans, RS, EAFM WG

WHAT	WHEN	WHO
Dili, TL ⁴ ; agreement on recommendation for endorsement by SOM of the CTI-CFF eCDT system guidance document		
Workshop to finalize ASEAN version of regional eCDT system guidance document	November	USAID Oceans, SEAFDEC, AMS (including ID, MY, PH)
¹ Subject to approval by USAID Oceans leadership of proposal to develop a separate CTI-CFF version of the eCDT system guidance document ² Postponed to 1 st /2 nd week of August due to intervening activities ³ Target start date is estimate only and subject to delay because the development of the CTI-CFF version of the eCDT system guidance document, if approved by the USAID Oceans leadership, can only commence when the ASEAN version is completed. ⁴ EAFM WG members from PH, MY, SI and PNG were not in this workshop and need to be apprised of the results of this discussion.		

2.3.3 Closing Session

In the closing session, host country Timor Leste thanked the guest countries and organizers “for giving us the chance to host this event,” saying they gained much knowledge that they hoped to apply in their work. The guest countries likewise expressed their appreciation for the learning opportunities the workshop offered and reiterated their commitment to meeting USAID Oceans’ request for inputs. Then, after another round of thanks to the organizers and host country, Dr. Dacho, the EAFM WG Co-Chair, urged the CT6 delegates to “communicate the results of this workshop to your office heads so they will know what transpired here,” and Dr. Siry of RS gave his closing remarks and concluded the workshop, which ended at approximately 11:30 a.m.

ANNEX I. LIST OF PARTICIPANTS

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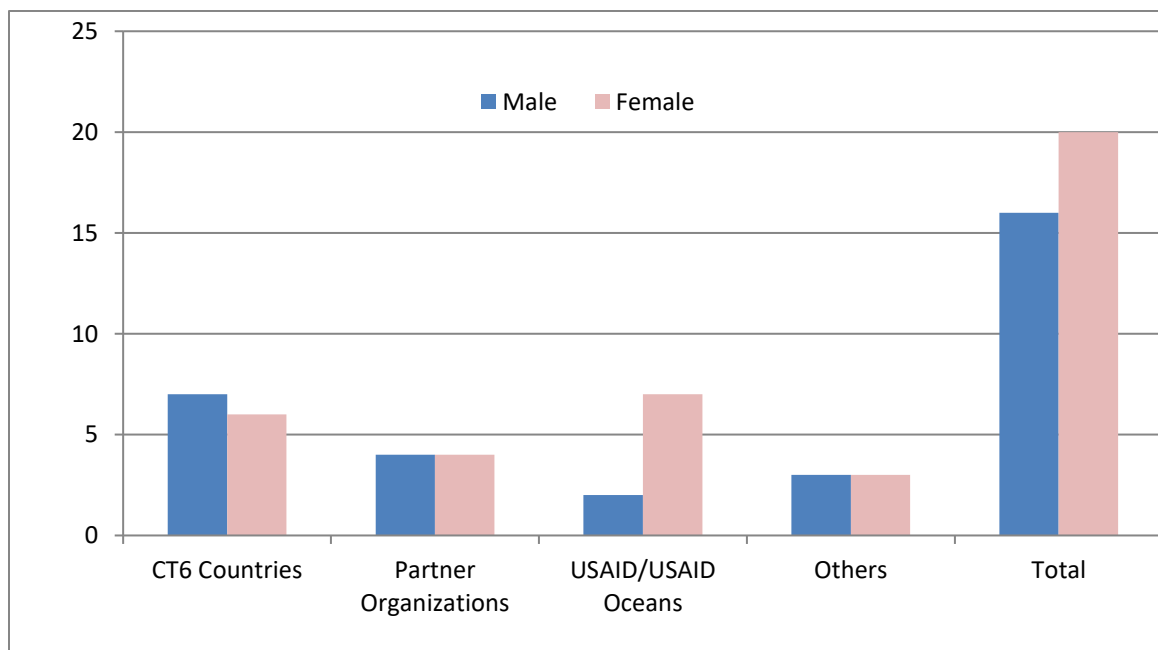
Zeconio F. dos Santos

UNTL, Timor Leste
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ANNEX II. PARTICIPANT DISTRIBUTION BY GENDER & ORGANIZATION

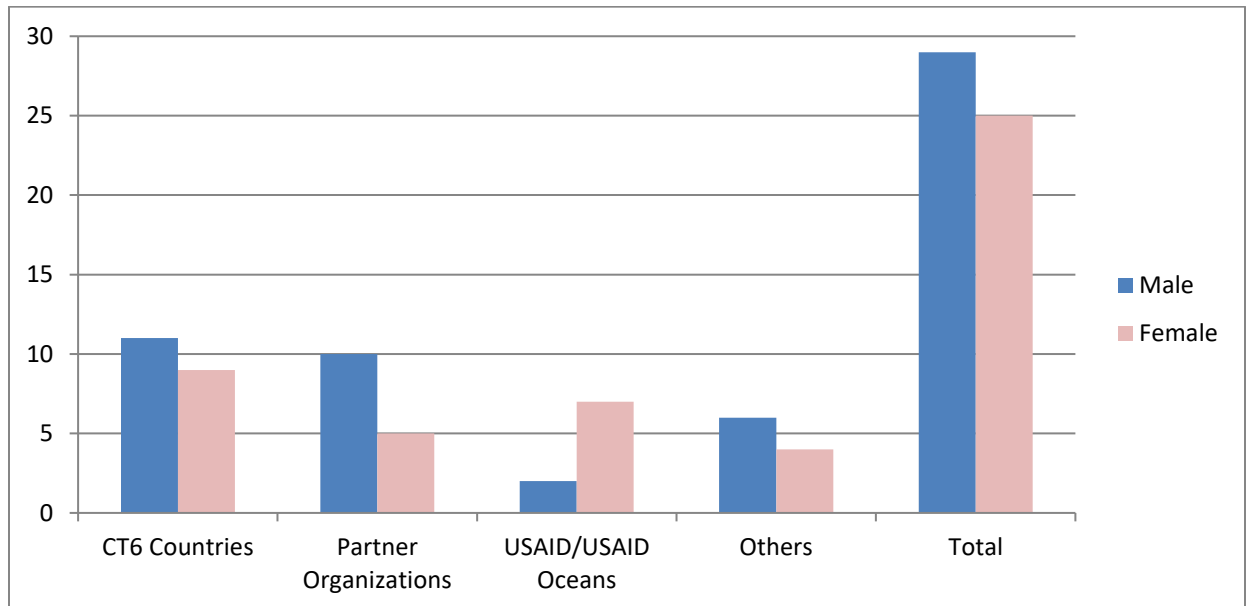
Pre-event Workshop, June 24, 2019

Category	Male		Female		Total	
	Number	% of Category	Number	% of Category	Number	% of Total
CT6 Countries	7	53.85	6	46.15	13	36.11
Partner/Cooperating Organizations & Programs (including USG Agencies and CTI-CFF RS)	4	50.00	4	50.00	8	22.22
USAID / USAID Oceans	2	22.22	7	77.78	9	25.00
Others	3	50.00	3	50.00	6	16.67
Total	16	44.44	20	55.56	36	100.00



Post-event Workshop, June 27-28, 2019

Category	Male		Female		Total	
	Number	% of Category	Number	% of Category	Number	% of Total
CT6 Countries	11	55.00	9	45.00	20	37.04
Partner/Cooperating Organizations & Programs (including USG Agencies and CTI-CFF RS)	10	66.67	5	33.33	15	27.78
USAID / USAID Oceans	2	22.22	7	77.78	9	16.67
Others	6	60.00	4	40.00	10	18.52
Total	29	53.70	25	46.30	54	100.00



ANNEX III. AGENDA

The below agenda was provided at the beginning of the workshops and does not reflect agenda or schedule changes made in the course of the activities.

Time	Session	Led By
Day 1 (Monday, June 24, 2019): CDT Gaps Analyses and Partnership Appraisals		
08:30 – 09:00	Registration	
09:00 – 09:30	Opening Program – <ul style="list-style-type: none"> • Welcome Message • Opening Remarks • Introduction of Workshop Chair • Review of Workshop Objectives, Agenda, and Introduction of Participants 	USAID Timor Leste <i>Dr. Hendra Yusran Siri</i> , Interim Executive Director, CTI-CFF Regional Secretariat <i>Dr. Yuttana Theparoonrat</i> , SEAFDEC <i>Mr. Farid Maruf</i> , Regional CDT Specialist, USAID Oceans
09:30 – 10:00	CDT “101” and Overview of CDT Gap Analysis Methodology	<i>Mr. Farid Maruf</i>
10:00 – 10:30	Presentation of Human Welfare and Gender Equality Considerations	<i>Dr. Arlene Nietes-Satapornvanit</i> , Gender Integration Specialist, USAID Oceans
10:30 – 12:00	Rapid CDT Gap Analyses Conducted in Facilitated Breakout Groups	<i>Mr. Farid Maruf</i> , facilitated by USAID Oceans team
12:00 – 13:00	Group Photo; Lunch Break	
13:00 – 13:30	Plenary: Report out on CDT Gap Analyses by CTI-Pacific Countries	<i>Mr. Farid Maruf</i>
13:30 – 15:00	Presentation of Partnership Appraisal Methodology and Rapid Partnership Appraisals Conducted in Facilitated Breakout Groups	<i>Mr. Len Garces</i> , Fisheries Management Specialist, USAID Oceans
15:00 – 15:45	Development of Roadmaps and Immediate Action Plans	<i>Mr. Farid Maruf</i>
15:45 – 16:00	Recap of Day One	USAID Oceans
Day 2 (Thursday, June 27, 2019): Showcase of Available eCDT Technologies		
09:30 – 10:00	Introduction and Welcome	
10:00 – 11:00	“Quick Fire” Introductory Presentations of “Bait to Plate” eCDT Technology Solutions <ul style="list-style-type: none"> • eACDS • Pointrek • FAME • Trafiz • TraceTales 	<i>Mr. Farid Maruf</i> , Regional CDT Specialist, USAID Oceans <i>Ms. Namfon Imsamrarn</i> , ICT Lead, SEAFDEC Attending partner representatives: <i>Pointrek</i> <i>FAME</i> <i>Altermyth</i> <i>MDPI</i>
11:00 – 12:00	eCDT Technology “Marketplace” Session	<i>All participants</i>

Time	Session	Led By
12:00 – 13:00	Lunch Break	
13:00 – 13:45	Continued: eCDT Technology “Marketplace” Session	<i>All participants</i>
13:45 – 14:30	Group Q&A Session	<i>Mr. Farid Maruf</i>
14:30 – 15:00	Closing Remarks	<i>Donor and Partner Representatives</i>
18:00 – 21:00	Women Leaders’ Forum (WLF) Side Meeting Dinner	
Day 3 (Friday, June 28, 2019): CDT Regional eCDT Guidance Workshop		
09:00 – 09:30	Introductions and Welcome	
09:30 – 11:30	Overview of Regional CDT Technical Guidance <ul style="list-style-type: none"> • Background; development progress to date • Group discussion, Q&A 	<i>Mr. Farid Maruf</i> <i>Mr. Len Garces</i>
11:30 – 12:00	Closing Remarks and Adjourn	<i>Dr. Yuttana Theparoonrat,</i> <i>SEAFDEC</i> <i>Dr. Hendra Yusran Siri</i> Interim Executive Director, CTI-CFF Regional Secretariat
12:00 – 13:30	Group Photo; Lunch	

ANNEX IV. OPENING REMARKS, PRE-EVENT WORKSHOP IN SUPPORT OF THE “CTI-CFF WORKSHOP ON ECDT SYSTEM DESIGN & DEVELOPMENT BASED ON EAFM,” JUNE 24, 2019

Welcome Remarks by Dr. Hendra Yusran Siry, Interim Executive Director, CTI-CFF Regional Secretariat

On behalf of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF) I would like to take this opportunity to welcome you all to this workshop.

The CTI CFF recognizes the critical need to safeguard and manage the marine and coastal resources as people of the Coral Triangle region exhibit a high dependence on coral reefs and fisheries for their food and livelihoods.

Today’s activity reminds us that Ecosystem Approach to Fisheries Management (EAFM) is a vital approach toward addressing common trans-boundary policy and regulatory concerns, such as (i) over-fishing of shared pelagic fish stocks; (ii) illegal cross-border fishing by small-scale fishers (stimulated by depletion of local coastal fisheries), commercial-scale fishing operations, and transshipment; (iii) fishing overcapacity; and (iv) by-catch of protected and endangered species.

This workshop is a pre-event activity of the Workshop on Catch Documentation and Traceability (CDT) System Design and Development Based on Ecosystem Approach to Management of Fisheries (EAFM). This workshop is held to complete a rapid CDT Gap Analysis and Partnership Appraisal with the three CT6 countries in Pacific (Papua New Guinea, Solomon Islands, and Timor Leste), which have not yet conducted the CDT Gap Assessments or Private Sector Partner Appraisals to date. Unlike Indonesia, Malaysia, and the Philippines; all of whom have the assessments and appraisals. Our collaborator, the SEAFDEC Secretariat has played an important role on promoting and adopting a common regional catch documentation scheme, the ASEAN Catch Documentation Scheme.

This workshop will be followed up by the Showcase of Available eCDT Technologies on Thursday, 27 June 2019 and CDT Regional eCDT Guidance on Friday, 28 June 2019.

Excellencies, Ladies and Gentlemen,

It is important to plan, develop, and manage our fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing (harming) the options for future generations to benefit from the full range of goods and services provided by marine ecosystems.

The interaction and discussions from this workshop will foster mutual benefits. This is recognized as an important step to ensure a wider outreach of knowledge towards our pace to stride alongside and discuss the current pressing issues affecting associated fisheries.

Finally, with these few remarks I would like to express our sincere gratitude and appreciation to the Timor Leste Government for hosting this event and USAID OCEANS for their unwavering support and making this workshop possible.

Ladies and gentlemen, I wish you an enjoyable and successful workshop.

Keynote Message by Dr. Yuttana Theparoonrat, Training Division Head, SEAFDEC

It is my great pleasure to welcome you to the “Workshop to Review Available eCDT Technology Solutions and Advance Regional Guidance for Fisheries Traceability”, which is jointly organized with our partners USAID Oceans and Fisheries Partnership, and CTI-CFF. I would like to thank USAID/RDMA for its funding support to make this workshop possible.

Since, in 2017, ASEAN Member States adopted a common regional catch documentation scheme, that takes into consideration the format, the standards and information requirements of importing countries, and the need for a simplistic design to enhance its applicability by the small-scale fisheries in the region. The USAID Oceans developed a simple and practical “technical guidance” to be used regionally by interested ASEAN Member States (AMS) in their design, testing, and implementation of an eCDT system. The eCDT system has been successfully piloted in Indonesia and the Philippines, generating interest from the other SEAFDEC member countries especially in its expansion sites in Thailand, Malaysia and Viet Nam, particularly in testing the eCDT system and the radio frequency-based 2-way communication vessel monitoring and eCDT system for small-scale fisheries.

This two-day Workshop to Review Available eCDT Technology Solutions and Advance the Regional Guidance for Fisheries Traceability has 3 objectives:

1. To conduct rapid CDT Pacific countries CDT Gap Analysis and Partnership Appraisal reports,
2. To learn about and consider the possible use of available eCDT technologies,
3. To review draft regional technical guidance in using eCDT technologies.

The event is designed to facilitate interactive discussions on the potential applications of the eCDT technologies in the CTI-CFF countries, and to explore opportunities for finalizing the draft guidance document. We hope to get your feedback and take up your recommendations.

Last but not least, on behalf of our co-partners, I hope this workshop will result in success. Thank you for your time and I hope you will enjoy the information and discussion from this workshop.

Have a good day! Thank you.

Opening Remarks by Ms Napak Tesprasith, Project Management Specialist, USAID/RDMA

Good morning. It is a pleasure to be here today. Foremost, I would like to deliver a special thank you on behalf of the United States Agency for International Development to the Government of Timor-Leste for hosting this important event. I would also like to thank the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF) Secretariat for its partnership and leadership in convening this week’s workshops, as well as each of the Coral Triangle member country representatives that have traveled in to be with us this week. The commitment you, your governments, and the many people who have worked to bring us here together are the reason that the CTI-CFF region has seen such significant advances towards Regional Plan of Action goals and targets for sustainable marine management across the region.

For those that have not worked closely with the Oceans and Fisheries Partnership (USAID Oceans), the program is a five-year, regional activity that has been partnering with Association of Southeast Asian Nations (ASEAN) and Coral Triangle member countries through the Southeast Asian Fisheries Development Center (SEAFDEC) and the CTI-CFF since 2015 to transform fisheries’ traceability, management and sustainability, as well as the human aspects of the sector. On behalf of the U.S. Government and the USAID Oceans, I would like to express our gratitude to the CTI-CFF and its member countries for their continued engagement and support to the program.

Together, the regional partnership has been successfully working to combat illegal, unreported, and unregulated (IUU) fishing and to conserve the invaluable marine resources that the Asia-Pacific—particularly the Coral Triangle—is so treasured for.

The Coral Triangle has seen a host of developments in seafood traceability and fisheries management over recent years which are rapidly gaining pace, both through the USAID Oceans program and through independent member country initiatives. Several great leaps have been made in the last year alone. In December 2018, the Coral Triangle's Sub-Regional Sulu-Sulawesi Sustainable Fisheries Management Plan became the first known and endorsed sub-regional fisheries management plan in the world. The implementation of this plan will go towards improving natural resource management in an expanse which encompasses close to 40 million hectares of biologically significant area. Other regions across the globe have been keen to learn about the model and are watching closely.

Also, in a relatively short timeframe, remarkable progress has been made towards electronic Catch Documentation and Traceability (eCDT) across the Asia-Pacific region. Governments and private sector have worked together to develop tools and technologies that capture fisheries catch data in real time. USAID has been proud to support many of these efforts. This includes USAID Oceans' work with small- and medium-scale fishers and suppliers to collect data at points of catch and landing: a critical missing traceability piece in the large IUU and sustainability puzzle. This week the lessons learned from USAID Oceans work in the Philippines and Indonesia and its technology partners will be shared with the aim of presenting new tools to advance joint problem solving in the CTI-CFF region.

We commend each of you for your regional leadership and accomplishments over the last years. Over the coming week, we look forward to hearing about the experiences of the Coral Triangle member countries in addressing traceability. As important as identifying the opportunities and challenges where eCDT can be leveraged to support national and regional priorities, USAID Oceans will also work with each of you to identify a strategy for eCDT advancement that includes a private sector engagement and human welfare-inclusive design.

Lastly, we look forward working together to advance drafting of the Regional eCDT Technical Guidance document, which USAID Oceans has been developing to support efforts beyond 2020, as the program transitions out of the region. It is critical that the Coral Triangle region's experiences, needs, and priorities be reflected in this guidance, and we are grateful for the opportunity to gather your feedback this week. Each of your voices, visions and experiences are critical to creating a useful, actionable document that will be used for years to come.

In closing, I'd like to reiterate my appreciation for all of the parties that have come together for this event and once again voice the U.S. Government's appreciation for CTI-CFF and its member countries. USAID is fully committed to supporting the Coral Triangle's continued journey for traceability and sustainable, responsible fisheries, and through USAID Oceans looks forward to supporting further electronic traceability advancements.

Thank you for the opportunity to be here, and best wishes for a successful workshop.

ANNEX V. WELCOME REMARKS, POST-EVENT WORKSHOP IN SUPPORT OF THE “CTI-CFF WORKSHOP ON ECDT SYSTEM DESIGN & DEVELOPMENT BASED ON EAFM,” JUNE 27-28, 2019

Welcome Remarks by Dr. Hendra Yusran Siry, Interim Executive Director, CTI-CFF Regional Secretariat (27 June 2019)

On behalf of RS, we would like to thank all of you, NCC fellows, CTI-CFF partners, and collaborators from SEAFDEC. This is our post-event workshop. We've been here for the days, and we've discussed the system and design of CDT, which is really something that can support our Goal 2 on EAFM. Today we will be learning about the different technology solutions for CDT, and we encourage all of you, especially our colleagues from the Pacific to see which of these technologies are suitable and can support us in making our fisheries management more effective. I was informed that we have four technology partners here: Pointrek, FAME, Altermyth and MDPI. MDPI is one of our partners in the USAID Oceans Learning Site in Indonesia, and FAME is a technology partner for the Philippine Learning Site. There is much we can learn from them, so on behalf of RS and with the blessing of the CTI-CFF, I declare this workshop open.

Welcome Remarks by Dr. Yuttana Theparoonrat, Training Division Head, SEAFDEC (28 June 2019)

Distinguished Guests, Participants, Ladies and Gentlemen, Friends, Good morning.

It is my great pleasure to welcome you to the “Workshop to Review Available eCDT Technology Solutions and Advance Regional Guidance for Fisheries Traceability”, which is jointly organized with our partners USAID Oceans and Fisheries Partnership, and CTI-CFF. I would like to thank USAID/RDMA for making this workshop possible. As decided at the TWG meeting of the USAID Oceans and Fisheries Partnership in July 2018, the ASEAN Member States have requested USAID Oceans to develop technical guidance to be used regionally by interested ASEAN Member States in the design, testing and implementation of an eCDT system, and to support these countries' interest in promoting fisheries traceability and sustainability. The technical guidance should also include an overview of the available eCDT Technology Solutions for AMS to use, including regional eACDS and other software and hardware CDT solutions that were tested at the regional level under the USAID Oceans Project. After following the technical guidance outlined, AMS should be able later to develop a national eCDT system that uses technologies that are broad enough to be dynamic and flexible through time, allowing for multiple types and scales of commercial fishery supply chains, from small-scale to large scale commercial fishing operations, and allowing for the broad range of regional disparity across ASEAN in terms of national FM capacity and private sector engagement.

SEAFDEC and USAID Oceans have developed a draft Technical Guidance on the Design and Implementation of Electronic CDT Systems (eCDT system) in Southeast Asia for SEAFDEC member countries to review and comment on the draft. This current workshop is conducted to provide an opportunity for CTI-CFF member countries to review the draft guidance before it is finalized and presented to the SEAFDEC Program Council Meeting. I am counting on your active participation in this discussion to finalize the document. On behalf of our partners and sponsors, I hope you will have a successful discussion and come out with a complete regional guidance. With this, I would like to declare the workshop open.

ANNEX VI. LIST OF PRESENTATIONS

1. eCDT Basics and Gap Analysis Methodology
Mr. Farid Maruf, Regional Catch Documentation and Traceability Specialist, USAID Oceans
2. Human Welfare in CDT
Dr. Arlene Nietes-Satapornvanit, Gender Integration Specialist, USAID Oceans
3. Partnership Development for Seafood Traceability
Mr. Farid Maruf, Regional Catch Documentation and Traceability Specialist, USAID Oceans
4. Roadmap Development for CDT
Mr. Farid Maruf, Regional Catch Documentation and Traceability Specialist, USAID Oceans
5. Prototype eACDS Software
Ms. Namfon Imsamrarn, Information Technology Officer, SEAFDEC
6. Pointrek
Mr. Imran, PT Sisfo Indonesia
7. Futuristic Aviation and Maritime Enterprise, Inc.: Uplifting the Lives of Fishermen thru our Maritime Transponders
Mr. Arcelio Fetizanan, Jr., FAME
8. Trafiz: Fish Traceability at Landing
Mr. Dien Wong, PT Altermyth
9. TraceTales Overview
Ms. Stephani Mangunsong, MDPI
10. Partnership Development for Seafood Traceability
Mr. Farid Maruf, Regional Catch Documentation and Traceability Specialist, USAID Oceans
11. CDT Roadmap Development
Mr. Farid Maruf, Regional Catch Documentation and Traceability Specialist, USAID Oceans
12. Regional eCDT system Guidance Document
Mr. Len Garces, Fisheries Management Specialist, USAID Oceans