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The Oceans and Fisheries Partnership (USAID Oceans)

MID-TERM REVIEW: KEY FINDINGS AND RECOMMENDATIONS

July 2018



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Cover Photo: USAID Oceans’ “First Mover” partners prepare and package tuna for export in the port of General Santos City, Philippines.

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ACRONYMS AND ABBREVIATIONS

ACDS	ASEAN Catch Documentation Scheme
ASEAN	Association of Southeast Asian Nations
BFAR	[Philippines] Bureau of Fisheries and Aquatic Resources
CDT	Catch documentation and traceability
CTE	Critical tracking event
CTI-CFF	Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security
DEX	Data exchange
eACDS	Electronic ASEAN Catch Documentation Scheme
EAFM	Ecosystem Approach to Fisheries Management
eCDT	Electronic catch documentation and traceability
EU	European Union
FGD	Focus group discussion
FIS	Fisheries Information System
IUU	Illegal, unreported, and unregulated [fishing]
KDE	Key data element
KII	Key informant interview
M&E	Monitoring & Evaluation
MMAF	[Indonesia] Ministry of Maritime Affairs and Fisheries
NGO	Non-government organization
NOAA	National Oceanic and Atmospheric Administration
PPP	Public-private partnership
RDMA	Regional Development Mission for Asia
SEAFDEC	Southeast Asian Fisheries Development Center
SSF	Small-scale fishers/ies
SPSS	Statistical Package for the Social Sciences
TOC	Theory of Change
TWG	Technical Working Group
USAID	United States Agency for International Development
USAID Oceans	USAID Oceans and Fisheries Partnership
VMS	Vessel Monitoring System

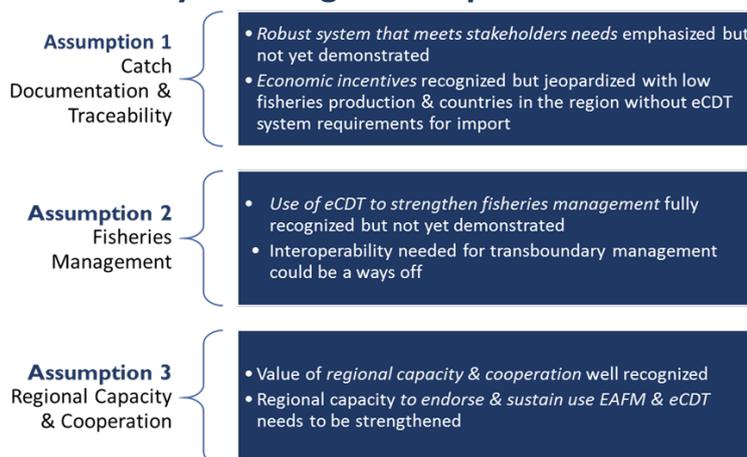
EXECUTIVE SUMMARY

On May 14, 2015, Tetra Tech, Inc. was awarded the United States Agency for International Development Oceans and Fisheries Partnership Activity (USAID Oceans) from the USAID Regional Development Mission Asia (RDMA) on May 14, 2015, to develop and test sustainable electronic catch documentation and traceability (eCDT) systems to reduce illegal, unreported, and unregulated (IUU) fishing in areas important for biodiversity in the Association of Southeast Asian Nations (ASEAN) and Coral Triangle regions. Since the Activity’s launch, USAID Oceans has used a Theory of Change (TOC) to guide program development and management, including monitoring and evaluation (M&E) activities. An internal mid-term review was planned as part of USAID Oceans’ M&E activities to validate TOC assumptions and to inform programming for the second half of the program.

An internal review team composed of Tetra Tech staff conducted the mid-term review from March 10-24, 2018. To conduct the review, a Mid-Term Review Plan was developed by the team which incorporated outputs from a USAID-led “Pause and Reflect” review that was completed February 5-7, 2018. The Mid-Term Review Plan detailed the purpose, approach, framework, expected outputs, and schedule of activities. The mid-term review was not intended to serve as an in-depth evaluation of the effectiveness of USAID Oceans’ interventions but rather to review its key assumptions and to support adaptive management in project planning and implementation throughout the remainder of the Activity. Through the review, focus group discussions and key informant interviews were conducted with 100 government, industry, non-governmental, and academic stakeholders at regional, national, and learning site levels.

Through the mid-term review process, the TOC’s assumptions were largely validated but not yet demonstrated. Stakeholders reported that an eCDT system that is accurate and efficient would promote adoption; however, some caveats exist about the role that economic incentives play in encouraging adoption. If the eCDT system requirements are too onerous and the benefits not tangible, producers, who are the most critical part of the supply chain, may not adopt eCDT. These conditions, together with reported declining production, may result in producers selling to countries in the region without import requirements. This would greatly impact the processors in the supply chain who are advocates of eCDT systems. For this reason, processors appear to support the establishment of a national government requirement to use eCDT in all supply chains whether or not the fisheries products are exported. Stakeholders recognize the importance of eCDT to strengthen fisheries management; however, their understanding of how eCDT data can be used for fisheries management remains vague. Data sharing challenges among countries may limit the interoperability needed for transboundary management of migratory species. Finally, stakeholders recognize the value of regional capacity and cooperation needed to support adoption of eCDT systems and improved fisheries governance. However, as each country has different needs and capacities to move forward with eCDT systems and EAFM, there is not likely a one-size-fits all for the region.

Theory of Change Assumptions Review



In terms of strategies moving forward, the Midterm Review concluded that USAID Oceans should begin by restructuring remaining annual work plans into two “operational” workstreams to focus on: Regional Capacity and Cooperation and Learning Site Demonstration. The original focus on “technical” workstreams was appropriate during the conceptual design stage of USAID Oceans where thought leadership was needed to explore a range of technologies and to define system concepts and standards that would be needed before demonstration was possible on the ground. Now, the nexus of technology, standards setting, and development can proceed on a more focused operational level.

Strategies Moving Forward

REGIONAL COOPERATION & CAPACITY

- Work with regional partners to harmonize/adopt terminology, standards, and system design concepts for eCDT, EAFM, KDEs, and DEX
- Explore with national government partners requirements or additional incentives to support adoption eCDT
- Develop a unified communication strategy to support regional adoption and use of eCDT and EAFM
- Identify and develop a set of legacy products to encourage sustainability of concepts and activities after USAID Oceans

LEARNING SITE DEMONSTRATION

- Prioritize the demonstration and documentation of an eCDT system for a complete supply chain in learning sites in the Philippines and Indonesia
- Ensure regional and national partners are actively engaged in learning site demonstration
- Develop partnerships to support the use of eCDT system data to strengthen fisheries management

At the regional level, USAID Oceans should work with its regional partners, the Southeast Asia Fisheries Development and Education Center (SEAFDEC) and the Coral Triangle Initiative for Coral Reefs, Fisheries, and Food Security (CTI-CFF), to develop a harmonized set of terminology, standards, and design concepts and communication and outreach materials that can be adopted by ASEAN and CTI-CFF member nations and promoted regionally. USAID Oceans should explore with national partners the need to develop legislative or regulatory requirements to support adoption of eCDT. Additional incentives to support system adoption may also be needed, especially focused on small- and medium-scale producers. USAID Oceans should explore public-private partnerships to cover some of start-up costs for local government and their small- and medium-scale fishery constituencies. Finally, a unified communication strategy on eCDT systems and EAFM should be developed together with SEAFDEC and CTI-CFF that targets all levels (regional, national, and learning sites) as well as all stakeholders. As part of this communication strategy, USAID Oceans should identify and develop a set of legacy products that it works toward completing to encourage sustainability after the life of the project.

At the learning site level, USAID Oceans should prioritize eCDT development and testing with complete supply chains in General Santos City and Bitung. Regional and national partners should be actively engaged in learning site demonstration to facilitate adoption and expansion national and regionally. USAID Oceans should work with interested local governments to demonstrate an eCDT system for small- and medium-scale fisheries. As part of the demonstration, USAID Oceans should develop partnerships between government and academic institutions on using eCDT system data to strengthen fisheries management. To support demonstration, education and outreach materials are needed in local languages to describe operational elements and benefits of catch documentation and traceability.

I. INTRODUCTION

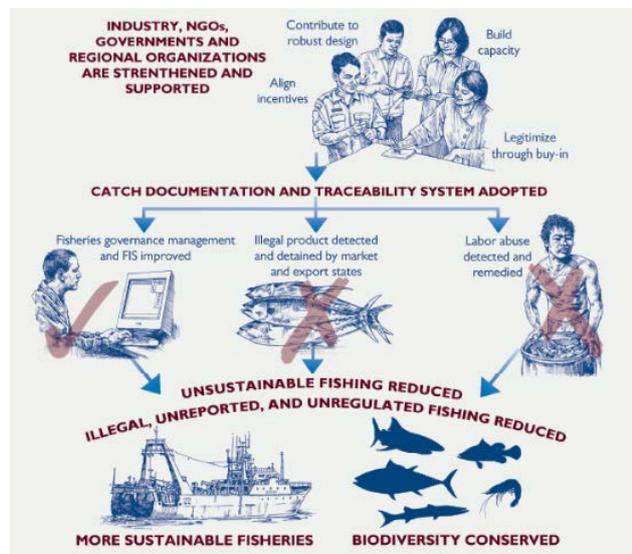
Tetra Tech was awarded the United States Agency for International Development Oceans and Fisheries Partnership Activity (USAID Oceans) from the USAID Regional Development Mission Asia (RDMA) on May 14, 2015, with the following objectives: (1) develop and test sustainable electronic catch documentation and traceability (eCDT) systems that contributes to a national fisheries information systems (FIS) embedded within an Ecosystem Approach to Fisheries Management (EAFM) framework; (2) support expansion of the use of eCDT systems and EAFM to areas important for biodiversity in the Association of Southeast Asian Nations (ASEAN) and Coral Triangle regions; (3) strengthen the capacity of regional organizations to conserve marine biodiversity using EAFM with eCDT systems as important tools to combat illegal, unreported, and unregulated (IUU) fishing and seafood fraud; and (4) engage the fishing industry and private sector in general to encourage sustainability and uptake of EAFM and the eCDT systems to advance fisheries governance.

Since the Activity’s launch, USAID Oceans has used a Theory of Change (TOC) to guide program development and management, including monitoring and evaluation (M&E) activities. An internal mid-term review was planned as part of USAID Oceans’ M&E activities to validate TOC assumptions and to inform programming for the second half of the program.

An internal review team, composed of Tetra Tech staff, conducted the mid-term review between March 10-24, 2018. A Mid-Term Review Plan was developed by the team which incorporated outputs from a USAID-led “Pause and Reflect” review completed February 5-7, 2018. The Mid-Term Review Plan detailed the purpose, approach, framework, expected outputs, and schedule of activities. The mid-term review was

not intended to serve as an in-depth evaluation of the effectiveness of the program’s interventions but rather to review the key assumptions and identify priorities to support achievement of USAID Oceans’ endgame. A formal, externally conducted mid-term evaluation is planned by USAID for early 2019.

This Mid-term Review Report (Report) provides a summary of the results of focus group discussions and key informant interviews with government, industry, non-governmental (NGO), and academic stakeholders at regional, national, and learning site levels. The findings and recommendations from this mid-term review are expected to support adaptive management in project planning and implementation throughout the remainder of the Activity.



USAID Oceans’ Simplified Theory of Change

2. METHODOLOGY

Mid-term Review Framework. The mid-term review was guided by a Mid-term Review Plan¹. Key program documents and the results of a USAID Pause and Reflect workshop that was conducted in February 2018 were reviewed as part of developing the review framework. The mid-term review was framed by the USAID Oceans assumptions and learning questions. Specific review questions were developed for each learning question. The master list of review questions is provided in Table I. From this master list, review questions were selected for priority stakeholders at regional, national, and learning site levels.

Table I. Mid-term Review Framework (USAID Oceans 2018)	
Assumption 1: If the eCDT system is robust, meets stakeholders' needs, and provides an economic incentive to fishers through increased demand and value of traceable fishery products, then the CDT system will be adopted by the private sector and supported by government agencies throughout the region.	
1. To what extent are eCDT systems being promoted at the two learning sites meeting the needs of producers, buyers, processors, and other key stakeholders within the private sector?	
Review Questions	
a. In your opinion, how is the development of the eCDT system going at [learning site]?	
i.	What aspects of the eCDT system are going well?
ii.	What aspects of the eCDT system need to change or improve, in order to encourage adoption/uptake and usefulness?
iii.	What challenges do/did you face in developing/piloting the system? How did you overcome these challenges? Who or what helped or constrained you?
iv.	What are key lessons from developing the eCDT system?
b. What do you think are the advantages (benefits) and disadvantages (costs) to a fishery business that uses the eCDT system?	
i.	What factors are driving you or did you consider in deciding to become an "early adopter" of the eCDT system?
ii.	What benefits do you expect to gain from adopting the eCDT system?
iii.	What are the costs incurred from adopting the eCDT system? (Costs can include both financial and non-financial aspects of your business)
c. Based on what you are learning from developing the eCDT system at [learning site], what advice would you offer to better design future eCDT systems for fishery businesses at other sites?	
i.	Have all of the stakeholders that are needed to support effective implementation of the eCDT system been engaged that should be?
ii.	What advice would you give to other fishery businesses if they decide to participate in an eCDT system?
Assumption 2: If fisheries managers use eCDT systems with other tools (including taking an Ecosystem Approach to Fisheries Management and promoting safe, legal, and equitable labor practices) to inform fisheries management plans and regulatory regimes, then local and national fisheries governance will be strengthened.	
2. How can the eCDT system be used to strengthen fisheries management?	
Review Questions	
a. How do you think that an eCDT system will help to better manage the fisheries?	
i.	What are the most important benefits that come from using the CDT system that you believe will support sustainable fisheries management?
ii.	Are the types of information collected using the eCDT system adequate to support the sustainable management of fisheries? Are they adequate to address possible issues regarding human welfare, including labor and/or gender issues?
iii.	Are there ways the eCDT system process or data can help raise awareness and/or political will for the importance of improved fisheries management?

¹ USAID Oceans Mid-term Review: Approach and Framework, March 2018

Table I. Mid-term Review Framework (USAID Oceans 2018)

<p>b. What information generated from using an eCDT system can help you with managing your fisheries?</p> <ul style="list-style-type: none"> i. Will the data help improve fisheries models and an understanding of stock status? How? Are there any data challenges that you currently face in managing fisheries that you think an eCDT system can help address? ii. How do you see linking data generated by the eCDT system with existing FIS? What are the challenges in making this happen?
<p>c. Beyond using an eCDT system, what other management efforts are needed to support sustainable fisheries management?</p> <ul style="list-style-type: none"> i. What is needed to promote the adoption and implementation of the EAFM plan at [learning site]? ii. What support do you need to adopt and implement the EAFM plan?
<p>Assumption 3: If regional capacity and cooperation is built to support EAFM and eCDT systems, then more institutions and countries in the region will endorse and sustain their use.</p>
<p>3. To what extent are the impacts and results of USAID Oceans likely to be perpetuated after the project has ended in mid-2020?</p>
<p>Review Questions</p>
<p>a. What do you think will be the primary driver(s) of eCDT system adoption in country and across Southeast Asia after the USAID Oceans has ended?</p> <ul style="list-style-type: none"> i. Are there any economic drivers? What kind? ii. What about policy or regulatory drivers? What type? iii. How are fisheries markets changing, if at all? iv. Do these changes relate to the adoption of an eCDT system?
<p>b. What approach will best promote adoption and use of eCDTs across the region?</p> <ul style="list-style-type: none"> i. What mechanisms will most effectively support adoption/use of eCDT systems in the region? ii. Who (what stakeholders) should be involved in this regional adoption? iii. How should public-private partnerships be engaged to promote adoption and use of eCDT systems?
<p>c. What are the capacity needs to promote adoption of eCDT systems regionally?</p> <ul style="list-style-type: none"> i. How effective is the current capacity in regional institutions encourage regional adoption of eCDT systems? ii. What recommendations would you offer to increase regional capacity in order to strengthen regional eCDT systems adoption? iii. What approaches to institutionalizing capacity building will be most effective to sustain USAID Oceans' outputs and lessons within national and partner institutions? iv. How can eCDT systems be made to be useful to small-scale fisheries, and not just for medium to large-scale commercial fisheries?
<p>d. What is the best way to move forward to achieve USAID Oceans' objectives by 2020?</p> <ul style="list-style-type: none"> i. Over the next two years, where should USAID Oceans' capacity building efforts for eCDT systems, EAFM, public-private partnerships, and human welfare be focused? ii. What project activities should be sustained beyond 2020? iii. How should lessons learned regarding eCDT systems development and adoption at USAID Oceans' two learning sites be 'scaled up' for use in other sites and countries across the region?

Stakeholder Identification and Response Rate. The mid-term review team worked closely with national and learning site coordinators in Indonesia and the Philippines to identify stakeholders to participate in the mid-term review. Four priority stakeholder groups were identified at regional, national, and learning site levels:

- Government (national, provincial, local)
- Private sector (fisheries industry, technology firms)
- NGO/academe
- Regional organizations

The selection of key representatives across priority stakeholder groups was accomplished using standardized selection criteria. A total 148 invitations (77, Philippines and 71, Indonesia) were sent to priority stakeholders to participate in the Mid-term Review by the Chief of Party using a standardized invitation letter with

information sheet. The estimated acceptance rate range was set at 40% for Focus Group Discussion (FGD) and 65% for Key Informant Interview (KII) based on social science (Table 2). Names and affiliations of participants of KIIs and FGDs are provided in Appendix I.

Table 2. Stakeholder Estimated Acceptance and Actual Response Rates

Dimensions	Philippines	Indonesia	Total*
Est. range of FGD acceptance rate	49 to 63	39 to 55	88 to 118
Actual total # of FGD participants	43	53	98
Est. range of KII acceptance rate	48 to 64	33 to 49	81 to 113
Actual total # of KII conducted	55	42	100

Note: * Includes Thailand

A summary of the stakeholder demographics for those who participated in the mid-term review activities is provided in Figures 1 to 4. Stakeholder participation by sex was 50-50 in both the Philippines and Indonesia (Figure 1). Most participants had graduate or post graduate education (Figure 2). Stakeholder participation was represented by a wide range in ages with the predominant ages between 36 and 59 years old (Figure 3). Stakeholder participation was predominantly from the public/government sector (Figure 4).

Figure 1. Stakeholder Participation by Sex

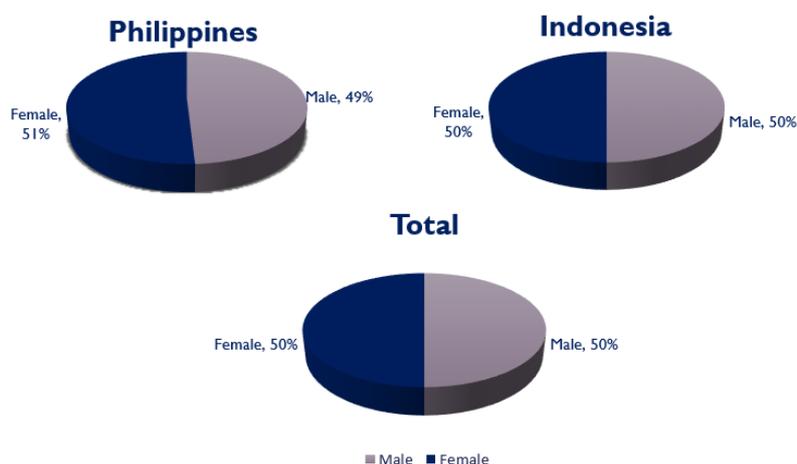


Figure 2. Stakeholder Participation by Education Level

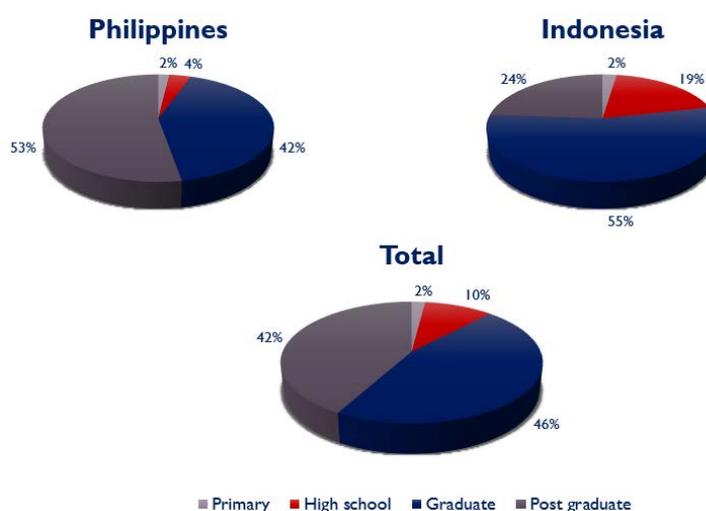


Figure 3. Stakeholder Participation by Age Group

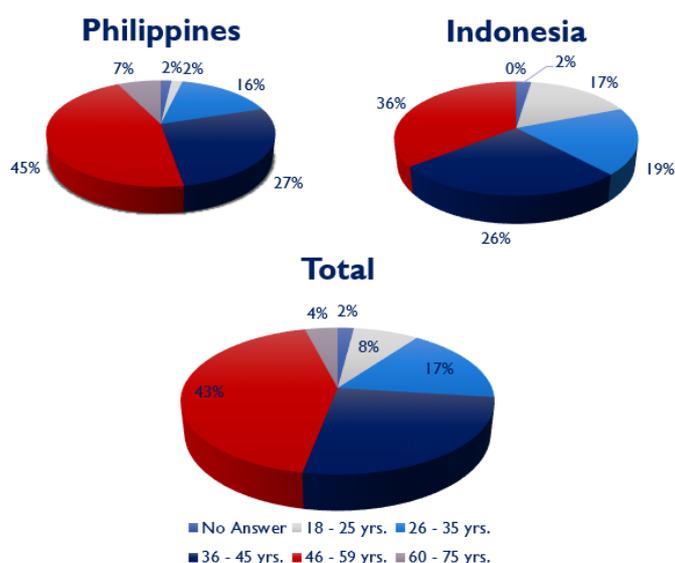
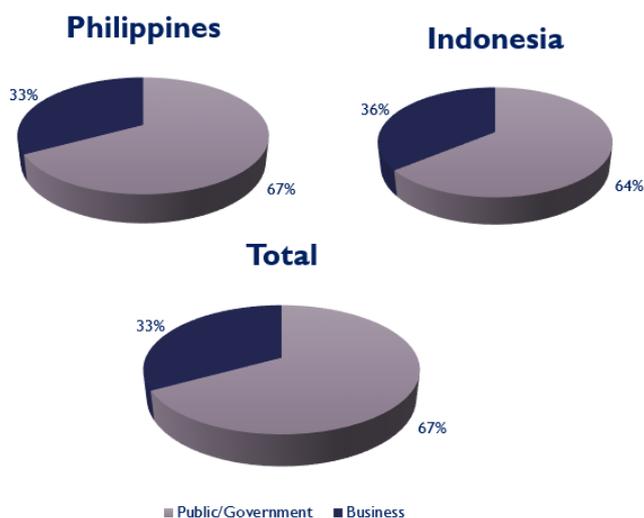


Figure 4. Stakeholder Participation by Sector



Focus Group Discussions and Key Informant Interviews. Priority stakeholders were engaged through FGDs and KIIs. Thirteen FGDs (five in the Philippines, seven in Indonesia, and one in Thailand) were conducted for regional, national, and learning site stakeholders. A total of 100 KIIs were conducted (55 in the Philippines, 42 in Indonesia, and three in Thailand).

Participation in all activities followed USAID Oceans' guidance² on USAID-required research practices including the completion of informed consent forms. An information brief was provided to all participants to explain the objectives of the review and expected outputs.

Analysis of Responses. A coding sheet was developed to support analysis of the stakeholder responses (Appendix II). The coding sheet contains the names and types of variables, a description of each variable, value labels, and type of response. The key questions used in this study were mainly open-ended, subsequently answers are in multi-response format. The coding sheet also provides associated responses for each of the key

² USAID Oceans Subcontractor and Grantee Guidance for Informed Consent and Branding and Marking, December 2016

responses in multi-responses variable. The Statistical Package for the Social Sciences (SPSS) was applied for tabulation of the results from the KIIs.



USAID Oceans' review team meets with stakeholders in the Philippines (top); Indonesia (below).

3. STRATEGIC APPROACH – KEY FINDINGS & RECOMMENDATIONS

Regional Capacity and Cooperation

As a regional program, USAID Oceans works with regional, national, and local partners to develop a common understanding and consensus of the critical importance and interconnected nature of all technical components of USAID Oceans. These include CDT, EAFM, public-private partnerships (PPP), human welfare and gender equity, and communication and outreach. USAID Oceans, together with its regional partners, SEAFDEC and CTI-CFF, facilitates a regional technical working group and organizes meetings and workshops in support of regional capacity and cooperation. The technical working group is comprised of fisheries agency representatives from SEAFDEC and CTI-CFF member countries, which are classified as learning site countries (the Philippines and Indonesia) or expansion site countries (all others), dependent upon USAID Oceans' level of engagement and support to the country. Together with its regional partners, USAID Oceans is facilitating region-wide interest and adoption of eCDT systems and EAFM-based Sustainable Fisheries Management Plans that are inclusive of human welfare and partnership objectives.

Prior to the launch of USAID Oceans, SEAFDEC began developing an Asian and Southeast Asian National (ASEAN) Catch Documentation Scheme (ACDS)³ to establish a regional scheme for catch documentation. The ACDS was adopted by ASEAN member states in September 2017 as one of the fisheries management tools for enhancing intra-regional and international trades and is an essential part of the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain to be adopted by ASEAN member states. SEAFDEC is using these schemes to develop an electronic ACDS (eACDS), which is being socialized to the region and piloted in Brunei Darussalam. USAID Oceans supports these efforts, and endorses the eACDS for use in low-capacity countries that are seeking a pre-developed system. In addition, USAID Oceans is supporting high-capacity countries with complex needs to develop custom CDT systems, and is working to establish a set of data and infrastructure standards that can be demonstrated across multiple countries.

Findings. The mid-term review validated the need for regional capacity and cooperation to support EAFM and eCDT systems so that more institutions and countries in the region will endorse and sustain their use (Assumption 3). Stakeholders noted that regional forums enable countries to discuss and share the approach and status of their eCDT systems and EAFM efforts. Each country has different needs and capacities to adopt eCDT systems. Early movers in each country will play a vital role in modeling the way for demonstration of the operation of the system and benefits both within a country and the region. Data sharing and system inoperability between countries is difficult and has not been discussed at this stage.

USAID Oceans and its regional partner, SEAFDEC, appear to stakeholders to be engaged in competing CDT activities using different terminologies and conceptual designs. The use of different terminologies and conceptual system designs between USAID Oceans and SEAFDEC CDT systems is causing confusion among stakeholders and is expected to impact adoption⁴. The perception among ASEAN countries is that there are two different systems (the SEAFDEC ACDS and the USAID Oceans eCDT system) supporting different objectives.

Each country has different needs and capacities to move forward with eCDT and EAFM. There is a national thrust supported at high levels in both the Philippines and Indonesia to develop their own eCDT systems. As such, there is not likely to be a one-size-fits all for the entire region. Further, national government stakeholders considered data sharing among countries challenging limiting the potential for use of eCDT for

³ ASEAN Catch Documentation Scheme (ACDS) was adopted by 39th AMAF Meeting on September 28, 2017 with support from Japan and Sweden

⁴ The desk review conducted as part of the development of the Mid-term Review Plan identified the need to clarify the linkage between USAID Oceans-supported eCDT systems and SEAFDEC's ACDS and to determine if SEAFDEC will be prepared to become the "owner/operator" of USAID Oceans' CDTs legacy products and technical outputs.

transboundary migration. A priority of national government agencies, especially the Philippines, is ensuring seamless data exchange among existing relevant national databases as part of eCDT.

Regional Capacity and Cooperation – Key Findings

- Value of regional capacity and cooperation well recognized.
- Regional activities are essential for enabling countries to discuss and develop a common understanding of and architecture for eCDT and EAFM.
- Different terminology and system concepts between USAID Oceans and SEAFDEC were noted as confusing. USAID Oceans uses electronic catch documentation and traceability system eCDTS – SEAFDEC uses ASEAN catch documentation scheme or eACDS.
- Each country has different needs and capacities to move forward, as such, there is not likely to be a one-size-fits all for the entire region.
- Data sharing and system interoperability between countries is challenging and may not be easily resolved within the life of the project.

Recommendations. USAID Oceans and SEAFDEC need to immediately resolve issues over terminology and system design between USAID Oceans-supported eCDT systems and the SEAFDEC-developed ACDS and promote a harmonization and adoption of terminology, standards, and system design concepts for eCDT, EAFM, KDEs, DEX. In defining a common terminology and system understanding it should be clarified that an “ASEAN” system does not mean a single, one-size-fits-all system giving ASEAN member countries responsibility for development their eCDT system. Further, the Key Data Elements (KDEs) developed by USAID Oceans and SEAFDEC need to be adopted by ASEAN member countries. To promote regional adoption, it is imperative that USAID Oceans focuses the bulk of its effort on developing and testing an eCDT system for a complete supply chain in each learning site to demonstrate the benefits of eCDT systems to the region. Only after the documentation of the proof of concept, value proposition, experiences, and lessons, should USAID Oceans provide limited support for expansion sites and always with SEAFDEC leading the effort. As such, both regional partners SEAFDEC and CTI-CFF and national government agencies should actively participate in learning site demonstrations.

Regional Capacity and Cooperation – Key Recommendations

- Prioritize regional harmonization and adoption of terminology, standards, and system design concepts for eCDT, EAFM, KDEs, DEX.
- Encourage our regional partners, SEAFDEC and CTI-CFF and national government agencies to actively participate in learning site demonstrations and to support eCDT system and EAFM adoption and expansion in the region.
- Evaluate the need for a regional interoperability at this stage of eCDT systems development.

Catch Documentation & Traceability

The development and adoption of eCDT systems is USAID Oceans’ fundamental strategic approach designed to support accurate and transparent data throughout the supply chain with the goal of reducing IUU fishing and strengthening fisheries governance. USAID Oceans has worked closely with government and industry partners in the design of eCDT systems and to define KDEs, Critical Tracking Events (CTEs), and the hardware and software technology needed to support alignment of national government and industry expectations. The terminology, system concepts, and technical specifications have been well documented by USAID Oceans in collaboration with regional and national partners.

Findings. The mid-term review largely validated the basic tenets of Assumption 1 that adoption of an eCDT system. The industry expects that eCDT systems will result in more streamlined and efficient documentation needed for export to European Union (EU) and US. Currently, the fishing industry uses a paper-based process to support catch document and traceability to meet export requirements for the U.S. Seafood Import Monitoring Program and European Union regulations. The current system results in significant delays by national government agencies in processing catch certificates. From industry and other stakeholder perspectives, the eCDT system must demonstrate benefits in terms of an increased catch value based on demand or requirements for traceable fishery products; reduced operational costs including improved, timely, efficient certification process over status quo; and improved business decision-making supported by access to data relevant to business planning and investment. Until these systems are demonstrated, there will remain uncertainty and a wait-and-see attitude that could hinder regional adoption.

Analysis of stakeholder opinions on the status of eCDT systems development as well as the advantages and disadvantages of adoption and use are provided in Figures 5, 6, and 7, respectively. The majority of stakeholders interviewed were supportive of the progress in development; however, more capacity building is needed to support systems development (Figure 5). Stakeholders identified potential benefits of eCDT systems to be fast, easy, and accurate processing of catch certificates, better access to markets, and traceability of products (Figure 5). Cost and loss of confidentiality was identified by stakeholders as the greatest disadvantages of using eCDT systems (Figure 7).

Processors, who don't own a fishing fleet, enthusiastically supported catch documentation and traceability, however some resistance to adopt an eCDT system was encountered by suppliers (small, medium, and large-scale fishers) which could undermine the assumption that economic motivation for export will support adoption. The lack of transparency regarding catch value could undermine the economic motivation for suppliers (especially small- and medium-scale fishers). Conversely, increased transparency regarding the tax liability could make suppliers more resistant to adopt an eCDT system. Processors noted that the current supply of fish is not meeting the demand. If the eCDT system is too complex or fishers reject the transparency of the system for any reason, such as tax liability, then these suppliers will sell to exporters that focus on markets, such as China, that do not require catch documentation and traceability. As such, a legal requirement for adoption of an eCDT system by national government for any export may be required to bolster the assumption on adoption of an eCDT system. The industry anticipates that government may eventually require the use of an eCDT system; however, this wasn't perceived as a negative development unless government data requirements became too onerous. Industry representatives were concerned that national government will develop an eCDT system that expands the Key Data Elements beyond even European Union requirements.

In the Philippines, BFAR is leading the development of the Philippines-based eCDT system and DEX that will interface with different government databases such as commercial fishing licenses, municipal fisherfolk and boat registration. An initial lesson expressed was the need to have a complete understanding of the system requirements before initiating programming. Industry perceives the development and testing of an eCDT systems as occurring too slowly and that national government will require too much information beyond what is necessary for export or fisheries management. They also expect that the government will eventually make catch documentation and traceability a national legal requirement which they viewed as positive if the information requirements are not too onerous. Processors complain about the lack of supply of fish products. As many fishing industry stakeholders are family-owned businesses, these companies are diversifying their businesses in other areas such as aquaculture and real estate because of decreasing fish supply.

In Indonesia, fishing industry stakeholders are anxious to adopt an eCDT system; however, development and testing of an eCDT system in Indonesia remains at a conceptual stage. Fish landings in Bitung have been depressed for several years. Processors complain about a shortage in fish supply due to several factors including the legal requirement that fishing captains be Indonesian citizens. Evidently, local fishing captains do not have the same level of fishing experience as foreign captains.

Electronic CDT Systems Development – Key Findings

- Most stakeholders were supportive and encouraged by progress made in eCDT systems development.
- Stakeholders not as supportive of eCDT had concerns about level of transparency that would lead to tax liability and other issues.
- Increased tax liability could lead some producers to sell to markets that do not require catch documentation (e.g. China).
- Stakeholders identified improvements as engaging a broader range of stakeholders, capacity building, incentives, and making sure that the system was user friendly system.

Recommendations. USAID Oceans has worked effectively with large commercial fishing industry players and government partners to document the requirements and limitations of the current paper system for catch documentation and traceability of tuna. With this foundational understanding of the motivations, data requirements, and processes of the fishing industry and government, USAID Oceans should now focus on eCDT system development and testing for adoption by medium and small-scale pole and handline fishers.

In Year 4, it is imperative that USAID Oceans focuses the bulk of its efforts on developing and testing an eCDT system for a complete supply chain in each learning site in the Philippines and Indonesia. Many stakeholders expressed that an eCDT system can only be promoted after successful testing and documentation of benefits. In addition, a functional Data Exchange Server (DEX) should be developed to support database integration and reporting in each country.

USAID Oceans may wish to explore with national government stakeholders the need to establish a legal requirement for an eCDT system for all fish exports. National and local public-private partnerships should be pursued to support the start-up cost for an eCDT system for small and medium-scale fisheries.

Figure 5. Stakeholder opinions on electronic catch document and traceability systems development and testing

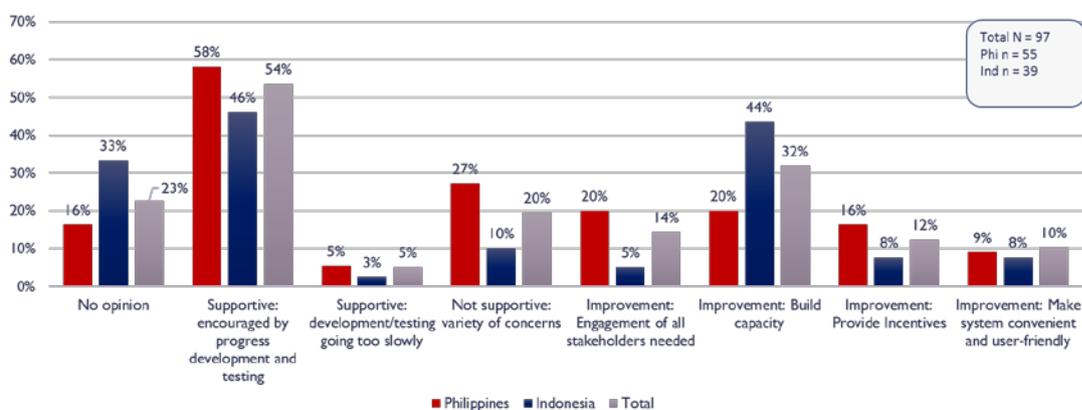


Figure 6. Stakeholder identified advantages of electronic catch document and traceability systems

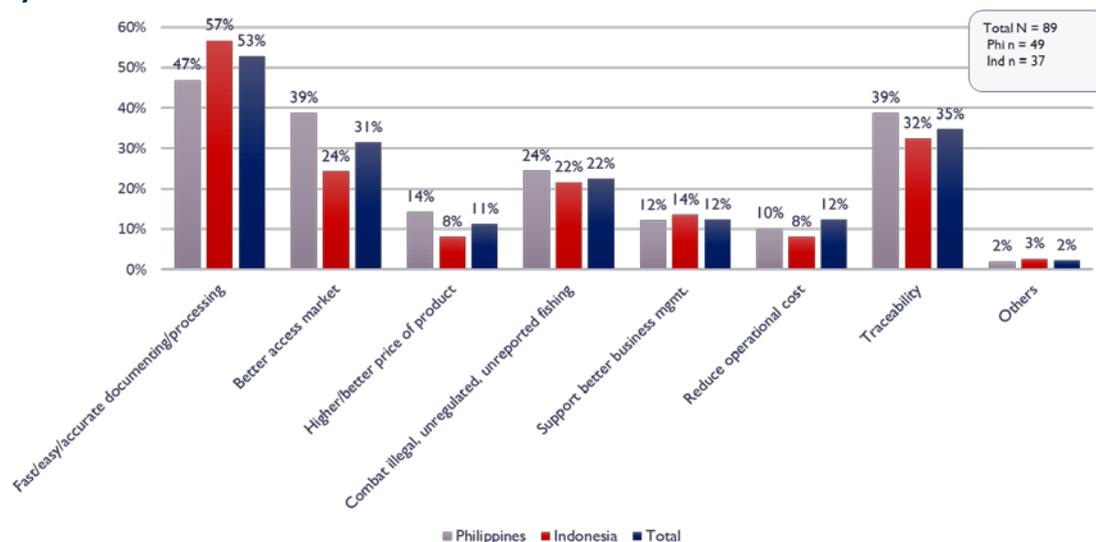
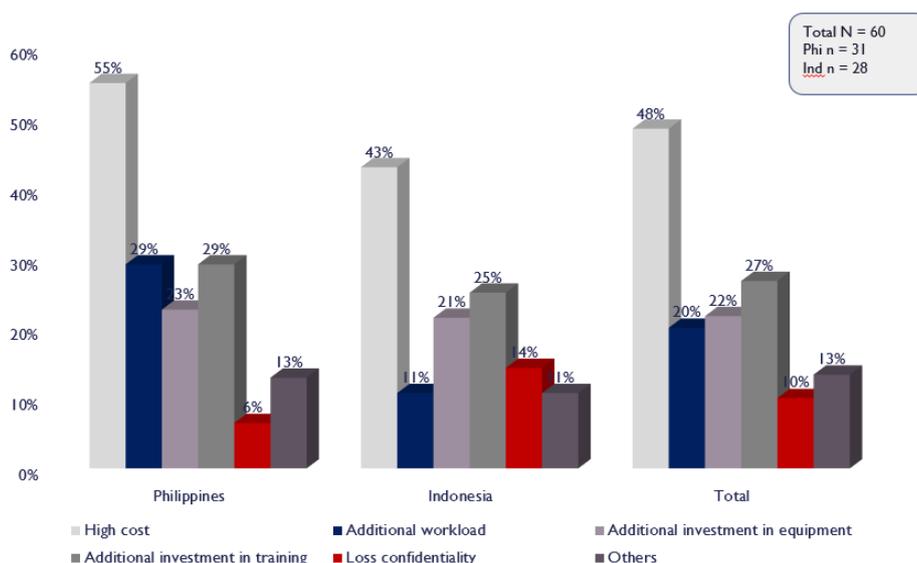


Figure 7. Stakeholder identified disadvantages of electronic catch document and traceability systems



Electronic CDT Systems Development – Key Recommendations

- Expedite development and testing of an eCDT system within complete supply chains in learning sites in the Philippines and Indonesia.
- Explore with national government partners requiring or additional incentives to support adoption of eCDT systems.

Ecosystem Approach to Fisheries Management

USAID Oceans promotes EAFM as a foundation for enhancing sustainable fisheries management. EAFM strives to balance diverse societal objectives by considering the knowledge and uncertainties about biotic, abiotic, and human components of ecosystems and their interactions, applying an integrated approach to fisheries within ecologically meaningful boundaries. USAID Oceans has supported the development of EAFM plans between countries and among national and local governments bordering the Sulu-Sulawesi Marine Ecoregion. An eCDT system is an important fisheries management tool in implementing EAFM, not only for providing data to

improve stock assessments and regulating fish catch but also for monitoring, control, and surveillance. A Data Exchange (DEX) system is being developed to support linkage with other fisheries-related databases.

Key Findings. The mid-term review confirms the basic tenets of Assumption 2 that an eCDT system could serve as tool to inform EAFM plans and fisheries regulations; however, the specific uses of eCDT system data for fisheries management remains fairly abstract to the stakeholders interviewed. USAID Oceans’ capacity building efforts for stakeholders to develop and implement EAFM plans serves as the foundation for using eCDT system data to feed back into EAFM plans to support improved fisheries governance. While EAFM is the accepted framework for supporting sustainable fisheries management, and adopted by countries in the Coral Triangle region, the use of robust and location specific data for managing fishing grounds, fishing zones, or larger marine managed areas, that is accessible to fisheries managers in real time and for in depth analysis is untested.

Analysis of stakeholder opinions on the use of eCDT system data for fisheries management, as well as other fisheries management measures needed, is provided in Figures 8 and 9, respectively. The majority of stakeholders recognized the importance of eCDT system data for monitoring fish stock status and modeling (Figure 8). Other important uses identified establishing fishing regulations and overall better decision making. Stakeholders identified the top three fisheries management measures needed other than eCDT systems as law enforcement, education on resources management, and the establishment of marine protected areas (Figure 9).

Ecosystem Approach to Fisheries Management – Key Findings

- Stakeholders identified a range of uses of eCDT systems including establishing fisheries regulations, combatting IUU by having information about each fishing vessel and their catch, monitoring and modeling fish stocks to support establishment sustainable yield.
- Specific uses of eCDT system data for fisheries management; however, remains abstract to the majority of the stakeholders.

Figure 8. Stakeholder opinions on the value of electronic catch documentation and traceability systems in supporting better fisheries management

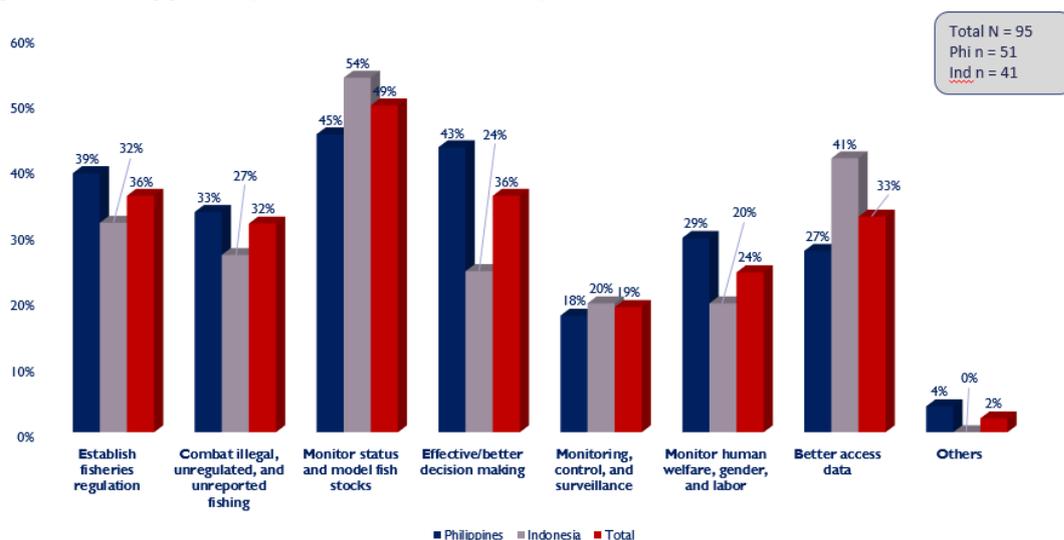
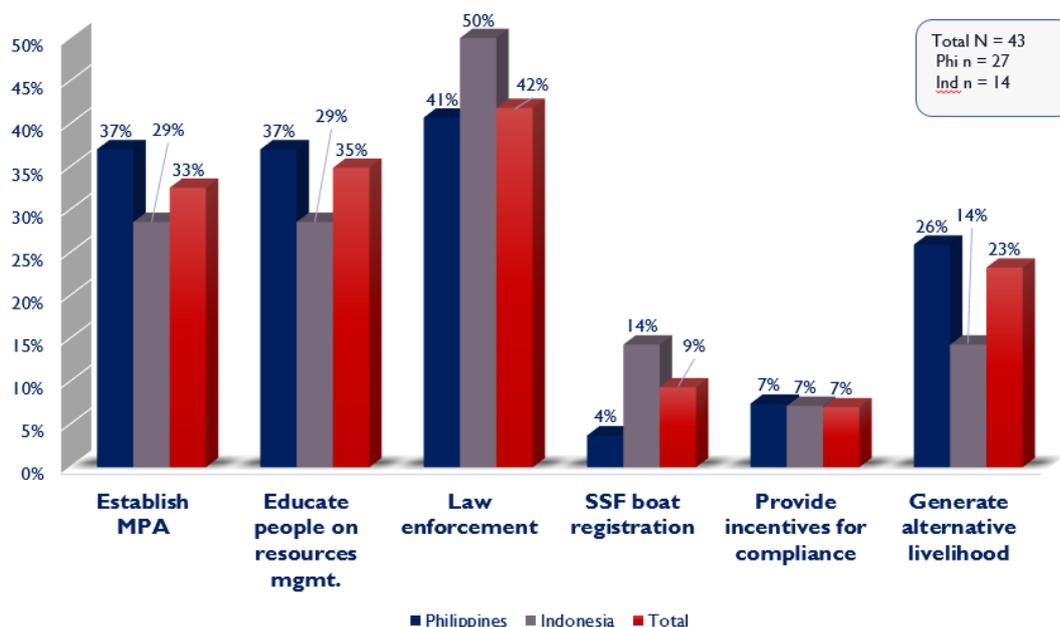


Figure 9. Stakeholder opinions on other fisheries management measures needed beyond electronic catch documentation and traceability systems



Recommendations. The recommended focus of developing an eCDT system for medium and small-scale fisheries provides opportunities to apply eCDT system data to fisheries management in designated fishing grounds or zones and nearshore waters under national or local government jurisdiction. Specific fisheries management interventions using the eCDT system data should be described and tested. Partnerships between local governments, local academic institutions, and national fisheries agencies at each learning site should be pursued to demonstrate the proof of concept in applying eCDT system data to fisheries management.

Ecosystem Approach to Fisheries Management – Key Recommendations

- Develop partnerships between national and local government and academic institutions at each learning site to demonstrate how to apply eCDT system data for fisheries management.
- Demonstrate proof of concept of DEX for integrating fisheries-related databases.

Public-Private Partnerships

Public-private partnerships (PPP), at a global, regional, and local levels, are part of USAID Oceans’ strategic approach for the adoption of eCDT systems. Partnerships are envisioned to support the expansion and replication of eCDT systems throughout all stages of the supply chain and bolster the long-term adoption and sustainability of the system. USAID Oceans engages with a variety of fisheries stakeholders, governments, regional institutions, and private sector actors to leverage both public and private sector investment to support marine conservation and sustainable fisheries management in Asia.

Findings. USAID Oceans’ “early mover” industry partnerships provide the foundation for developing and testing eCDT systems.⁵ These early movers focus primarily on processors with and without dedicated suppliers, which could limit eCDT system testing of a complete supply chain. Actual partnerships between industry and national government are not well defined. Industry stakeholders are frustrated over what they

⁵ “Early movers” are engaged in the Philippines (Michael Sea Ventures, Rell & Renn Fishing Corporation, Jebo Fishing, Ronnie Handline Operator, Tuna Explorers, Inc., Dex Sea Trading, General Tuna Canning Corporation, Rell & Renn Seafood Sphere, Inc., Philcinmic Industrial Corporation, Mommy Gina Tuna Resources, Celebes Canning Corporation, Sta. Cruz Seafood, Inc., Citramina Canning Corporation) and Indonesia (Johanis Mangiloahe, Pilihan Tagengge, Robert Rakinaung, Desi Tagengge, Abubakar Musa, Risat Elyas, Kisman, Elias, Syamsuddin Beddu, Muchsin, Efraim Lumentut, Blue Ocean Grace International, Nutrindo Fresfood Internasional).

perceive as a slow-down in eCDT system development caused by the government and potential data reporting requirements which exceed export requirements currently supported through manual systems.

Local government stakeholders expressed keen interests in partnering with USAID Oceans to develop and test eCDT systems for small- and medium-scale fisheries. Partnerships between local government and small-scale fisheries and their associations could enable them to sell to processors or export their fresh catch. In the Philippines, new commercial handline fishery zones are being established by BFAR Region 12 and provide an important opportunity to demonstrate the use of an eCDT system for export and as part of EAFM implementation. Local governments in the learning site including the Sarangani Province and the municipalities of General Santos City, Glan, and Maasim expressed keen interest in supporting an eCDT system for managing municipal fisheries. General Santos City has already passed a resolution in city council requiring use of an eCDT system. Of all stakeholders interviewed, local government had the clearest picture of the value of an eCDT system for fisheries management but had concerns about how to support the cost of operating eCDT systems for small- and medium-scale fishers.

Public-private Partnerships – Key Findings

- Early mover” industry partnerships provide the foundation for developing and testing the eCDT systems at both sites.
- Partnerships are currently focused on processors, and USAID Oceans need more suppliers to complete the supply chain testing.
- The producer side is apparently challenging for processors.
- Local government partners are keenly aware of the potential for eCDT systems to reduce local IUU fishing.

Recommendations. In shifting focus to small- and medium-scale fishers, USAID Oceans should focus on ensuring strong and willing partnerships to complete the supply chain in each learning site. Greater emphasis should be placed on engaging small and medium-scale pole and handline fishers as early adopters with existing partner processing companies in each learning site. In support of this shift, partnerships should be developed between fishers and fishing associations that represent small- and medium-scale pole and line fishers and local governments. Of all the stakeholders interviewed, local government staff were the most keenly aware of the potential for eCDT systems to reduce local IUU fishing and for the information generated by eCDT systems to support management interventions needed for sustainable fisheries. Towards this end, partnerships between national and local government and local academic institutions with fisheries science and management programs should be formed and capacity developed to demonstrate the use of eCDT system data for fisheries management.

Public-private Partnerships – Key Recommendations

- Engage local government through public-private partnerships with small and medium-scale pole and handline fishers and associations as early adopters with existing partner processing companies to complete supply chains in each learning site.
- Develop public-private partnerships with national and local private sector institutions to support start-up costs for eCDT system adoption for small- and medium-scale fishers.

Human Welfare and Gender Equity

USAID Oceans incorporates human welfare and gender considerations throughout all program strategies and activities. Through detailed gender and labor studies, USAID Oceans identified key human welfare concerns and supports the development of policies and interventions that address these issues. KDEs on gender and labor have been developed as part of the eCDT system development process.

Findings. Aside from the KDEs, human welfare and gender equity issues were highlighted by national government agencies involved with labor and employment such as the need for a minimum wage for fish workers on vessels in addition to a share of the catch. In times of declining fish catch, this would help fish workers obtain some compensation for time spent at sea when catch was low. These issues were not raised by the fishing industry nor by national fisheries agencies. A number of stakeholders interviewed highlighted the need to involve women in the eCDT system development and use especially for small-scale fisheries (see Figure 12).

Human Welfare and Gender Equity – Key Findings

- Women play a ubiquitous role in the supply chain beginning at the landing site and especially within processing.
- Human welfare issues were limited to concerns about safety-at-sea and minimum wages for fish workers on commercial vessels.

Recommendations. The regional adoption of the KDEs by ASEAN and CTI-CFF member countries, developed by USAID Oceans together with SEAFDEC, provide the best assurance for supporting human welfare and gender equity as a legacy for USAID Oceans. Further, eCDT system development and testing should include features for supporting maritime safety. This was raised on numerous occasions in the context of small- and medium-scale fishers.

Human Welfare and Gender Equity – Key Recommendations

- Engage women buyers and processors where possible in the supply chains for each learning site.
- Consider maritime safety add-on features, such as the ability to receive weather notifications or transmit text messages, into eCDT systems offerings for suppliers.

Communications and Outreach

USAID Oceans supports communications and outreach as a crosscutting activity to raise program visibility, disseminate program findings, and document thought leadership. Documents such as the CDT 101, CDT 201, and the KDE Manual are examples of technical documents that USAID Oceans has developed to support a collective understanding of eCDT systems among partners.

Findings. Many stakeholders highlighted the need for more education and outreach in non-technical and local language on the benefits and operational features of an eCDT system. The use of the term “gadgets” to describe eCDT systems was used by many stakeholders interviewed. The system details and benefits of adoption need to be socialized with government and industry groups, and documentation of successful demonstration of an eCDT system in both learning sites is necessary for the development of communication materials that promote adoption. Stakeholder-identified approaches and mechanisms to promote adoption and use of eCDT systems highlight the need for increasing awareness of the benefits of eCDT systems (Figure 10). Training is needed on using the eCDT system (Figure 11 and 12).

Communications and Outreach – Key Findings

- Observed lack of awareness amongst local stakeholders regarding specifics of eCDT systems.
- More education and outreach is needed on the benefits and operational features of an eCDT system in non-technical and local language.

Figure 10. Stakeholder identified approaches and mechanisms to promote adoption and use of electronic catch documentation and traceability systems

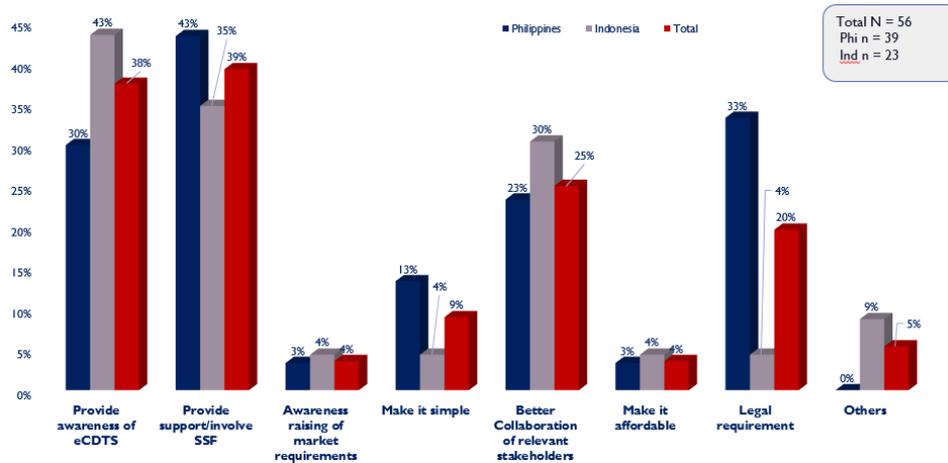


Figure 11. Stakeholder identified capacity needed to promote adoption of electronic catch documentation and traceability systems

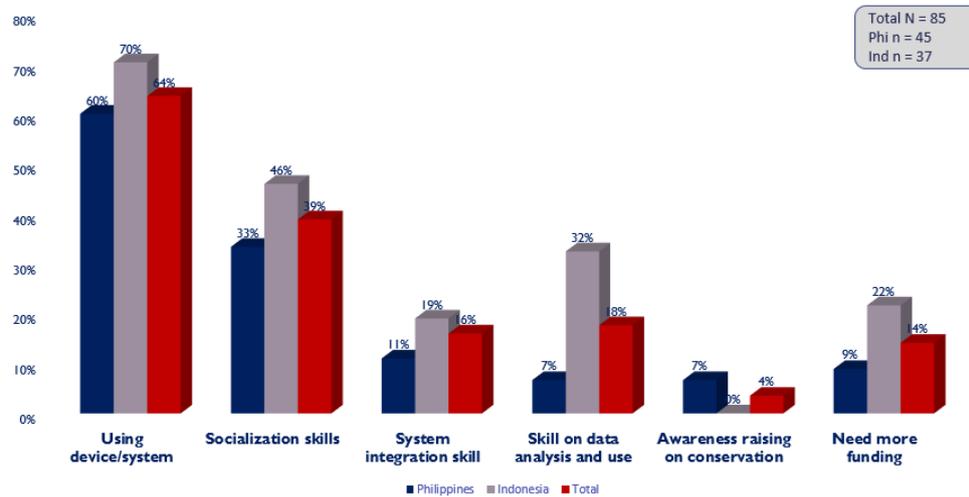
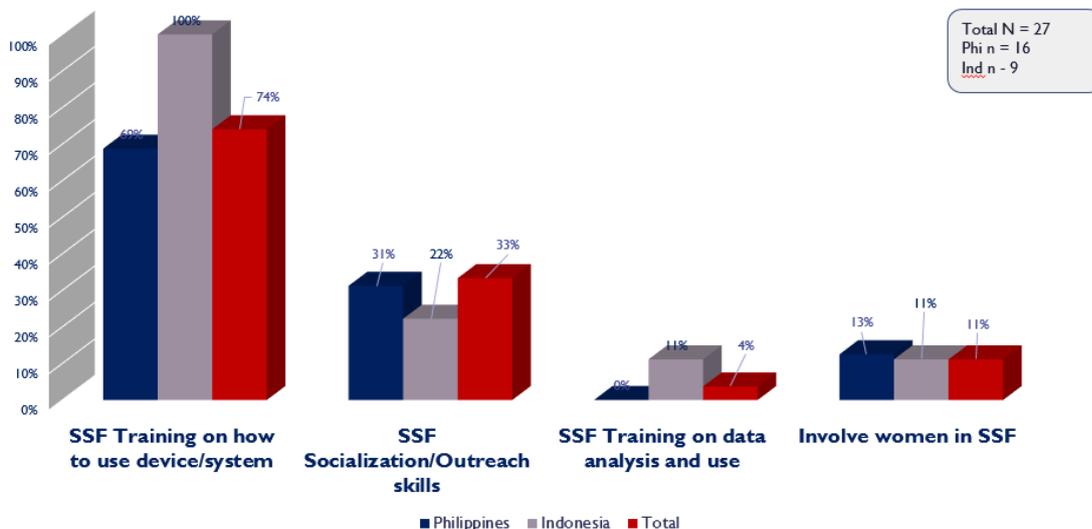


Figure 12. Stakeholder identified capacity needed to promote adoption of electronic catch documentation and traceability systems (specifically for small-scale fisheries (SSF))



Recommendations. A more comprehensive communication strategy is needed to support adoption and use of eCDT systems. Communications materials need to be developed in local language and in a less technical approach to mainstream understanding of the system operations and benefits. Port facilities such as at General Santos City and Bitung could serve as interpretative centers for eCDT systems and EAFM.

Communication and Outreach – Key Recommendations

- Develop a unified and regional communication strategy with SEAFDEC and CTI-CFF to generate widespread awareness and interest in eCDT systems and EAFM.
- Document experiences and lessons learned in demonstrating eCDT systems and EAFM within and between countries and learning sites.
- Develop videos and informational materials on eCDT system operations and benefits that can be used during and after USAID Oceans.

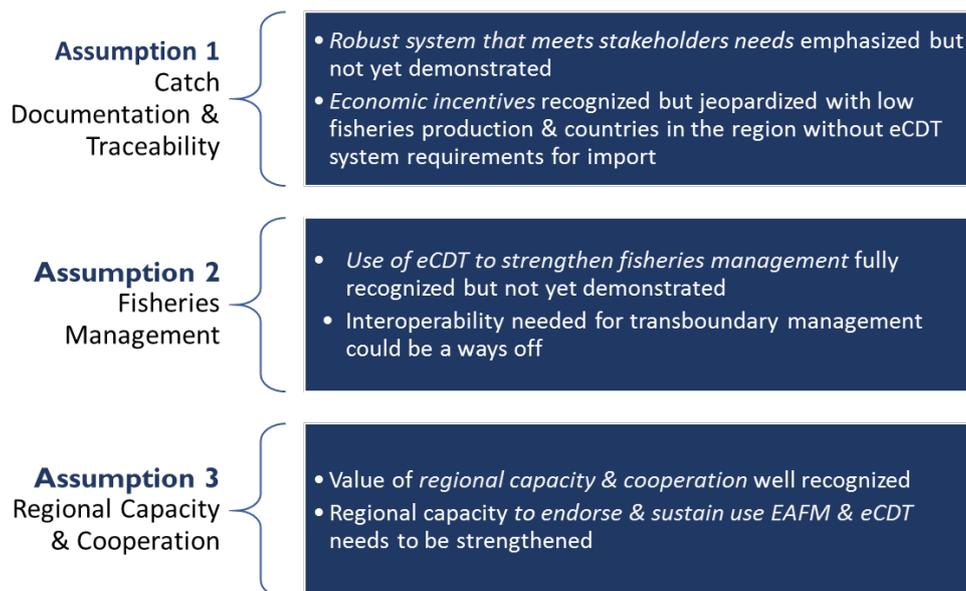
4. THEORY OF CHANGE ASSUMPTIONS REVIEW

Through the mid-term review process, the TOC's assumptions were largely validated but not yet demonstrated (Figure 13). Stakeholders reported that an eCDT system that is accurate and efficient would promote adoption. Some caveats exist about the role economic incentives play in encouraging adoption of an eCDT system. If the eCDT system requirements are too onerous and the benefits not tangible, producers, who are the most critical part of the supply chain, may not adopt eCDT. These conditions, together with reported declining production, may result in producers selling to countries like China that don't have import requirements like the US and EU. This would greatly impact the processors in the supply chain who are advocates of eCDT systems. For this reason, processors appear to support the establishment of a national government requirement to use eCDT in all supply chains whether or not it is exported.

Midterm review findings indicated that stakeholders recognize the importance of eCDT to strengthen fisheries management; however, their understanding of how eCDT data can be used for fisheries management remains vague. Data sharing challenges among countries may limit the interoperability needed for transboundary management of migratory species.

Finally, stakeholders recognize the value of regional capacity and cooperation needed to support adoption of eCDT systems and improved fisheries governance. However, as each country has different needs and capacities to move forward with eCDT systems and EAFM, there is not likely a one-size-fits all for the region.

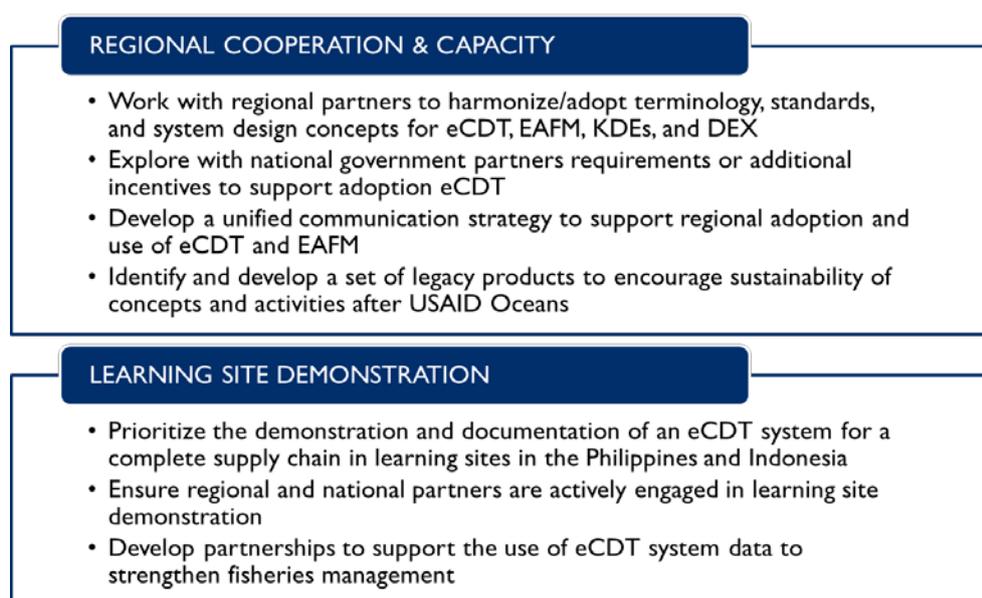
Figure 13. Review of theory of change assumptions



5. STRATEGIES TO MOVE FORWARD

To support the findings and recommendations of this report, USAID Oceans should begin by restructuring remaining annual work plans into two “operational” workstreams: (1) Regional Capacity and Cooperation and (2) Learning Site Demonstration (Figure 14). This is a departure from previous work plans that included detailed activities by “technical” workstreams (e.g., Catch Documentation and Traceability, Ecosystem Approach to Fisheries Management, Public-Private Partnerships, etc.). The original focus on “technical” workstreams was appropriate during the “standards setting” stage of USAID Oceans where thought leadership was needed to explore a range of technologies and to define system concepts and standards, such as KDEs, that would be needed before demonstration was possible on the ground. In the first two years, USAID Oceans recognized that there is no “one-size-fits-all” technological solution for catch documentation and traceability, and that multiple types of technologies should be identified and combined to establish tailored eCDT systems, especially as innovative technologies will continue to emerge and evolve. Further, the development of KDEs as a set of standards that can be demonstrated on the ground establishes the foundation for sustainability beyond the life of the project. Now, the nexus of technology, standards setting, and development can proceed on a focused operational level. Strategies to move forward under these two operational workstreams are described below.

Figure 14. Strategies to Move Forward



Regional Cooperation and Capacity

Work with regional partners to harmonize/adopt terminology, standards, and system design concepts for eCDT, EAFM, KDEs, and DEX. USAID Oceans should work with its regional partners, SEAFDEC and CTI-CFF, to develop a harmonized set of terminology, standards, and design concepts that can be adopted by ASEAN and CTI member countries and promoted regionally. This harmonization should be prioritized in the remaining months of Year Three and promote: (1) diversity and innovation in technologies for eCDT systems design, (2) KDEs as standards for eCDT systems region-wide, and (3) retention of national sovereignty over certification of catch documentation with openness for international certifying bodies in the future. USAID Oceans, together with its regional partners, should also develop a coherent package of communication and outreach materials based on this harmonization. This package should include technical documents, information briefs, and other media for use by both USAID Oceans and SEAFDEC. Further, as the KDEs set the standards for sustaining efforts on eCDT systems after USAID

Oceans, the program should work with ASEAN (through SEAFDEC) and CTI-CFF (directly) for regional and national adoption of KDEs by their member governments.

Explore with national government partners requirements or additional incentives to support adoption eCDT. USAID Oceans should explore with national partners the need to develop legislative or regulatory requirements to support adoption of eCDT. These requirements may be needed to maintain fish supply to processors as part of a supply chain to reduce IUU fishing. In addition, national government partners may wish to explore additional incentives to support eCDT system adoption especially focused on small- and medium-scale producers. USAID Oceans' public-private partnerships with corporate social responsibility programs may be able to cover some of the start-up costs for local government and their small- and medium-scale fishery constituency.

Develop a unified communication strategy to support regional adoption and use of eCDT and EAFM. The communication strategy should be developed together with SEAFDEC and CTI-CFF and incorporate the harmonized terminology and concepts recommended above. The strategy should target all levels (regional, national, and learning sites) as well as all stakeholders (national and local government, small- and large-scale fisheries).

Identify and develop a set of legacy products to encourage sustainability of concepts and activities after USAID Oceans. In concert with the regional harmonization package described above, USAID Oceans should identify and develop a set of legacy products to encourage sustainability after the life of the project. These products should be multi-media and geared toward multiple audiences including small-scale fishers, and some of which should be in local languages.

Learning Site Demonstration

Prioritize the demonstration and documentation of an eCDT system for a complete supply chain in learning sites in the Philippines and Indonesia. As part of USAID's "Pause and Reflect" workshop in February 2018, a strategic decision was made to shift to site level results chains rather than "technical" workstream results chains. This shift reflects the findings and recommendations of this mid-term review, which are to focus on demonstrating an eCDT system for a complete supply chain in each learning site. Depending on the site and opportunities in each, USAID Oceans should work with interested local governments to demonstrate an eCDT system for small-scale fisheries.

The demonstration should include education and outreach materials in local languages to describe operational elements and benefits of catch documentation and traceability. The General Santos and Bitung ports could serve as "interpretative" centers for education and outreach with an informational kiosk with short videos about catch documentation and traceability and EAFM, a 3-D model of an eCDT system, or just informational materials. In addition, case studies should be developed for each demonstration that document benefits, challenges, and lessons for designing and adopting eCDT systems and using system data to support EAFM and fisheries regulations.

Develop partnerships to support the use of eCDT system data to support fisheries management. USAID Oceans should develop partnerships with national and local academic institutions and national and local government "champions" in each learning site to demonstrate the use of eCDT system data to support EAFM and fisheries regulations.

Ensure regional and national partners are actively engaged in learning site demonstration. Regional and national government partner staff should be directly engaged in developing and testing eCDT systems and using system data for fisheries management at the learning site level. These experiences will provide hands on capacity building that is needed to support national and regional expansion of eCDT and EAFM.



(Top) Participants of focus group discussions in the Philippines; Indonesia (Below).

APPENDIX I. PARTICIPATING STAKEHOLDERS

List of Respondents Participating in Key Informants Interview (KII)

No	Name	Sex		Organization
		M	F	
Philippines				
1	Franca Sprong		x	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
2	Marion Antonette		x	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
3	Zes Martinez	x		Futuristic Aviation and Maritime Enterprise Inc. (FAME)
4	Zaldy Perez	x		Office in Charge for Fisheries Information Management Center (OIC, FIMC)
5	Rafael V Ramiscal	x		Bureau of Fisheries and Aquatic Resources (BFAR)
6	Cristina Opao		x	Tuna Explorers Inc.
7	Arcelio "June" Fetizanan, Jr.	x		Futuristic Aviation and Maritime Enterprise Inc. (FAME)
8	Peter Erick Cadapan	x		Bureau of Fisheries and Aquatic Resources (BFAR)
9	Usop Pandaliday Jr.	x		Bureau of Fisheries and Aquatic Resources (BFAR)
10	Mary Macalalag	x		Bureau of Fisheries and Aquatic Resources (BFAR)
11	Mercy M Tomo		x	Bureau of Fisheries and Aquatic Resources (BFAR)
12	Edison Pesario	x		Bureau of Fisheries and Aquatic Resources (BFAR) 12
13	Lilly Anna Lando		x	World Fish
14	Rosanna Contreras		x	SOCKSARGEN Federation of Fishing and Allied Industries Incorporated (SFFAI)
15	Perdo Samarca	x		No answer
16	Paul Ramierez	x		World Fish
17	Ramier Randon	x		No answer
18	Eugene M. Casas	x		Bureau of Fisheries and Aquatic Resources (BFAR) 12
19	Gemma Chyvel Garvia Moreno		x	Bureau of Fisheries and Aquatic Resources (BFAR) 12
20	Domain Canizar Jr.	x		Department of Information and Communications Technology
21	Minda Faelunar		x	Village Seaweed
22	Glenn Prado	x		Bureau of Fisheries and Aquatic Resources (BFAR) 12
23	Laila Emperua		x	Bureau of Fisheries and Aquatic Resources (BFAR) 12
24	Faith Batatin		x	Sarangani Province
25	Dr. Asuncion de Guzman		x	Mindanao State University
26	Christi de la Rosa		x	Department of Trade and Industry Region 12
27	Carlota Hanawi		x	Women Fisherfolks Organization
28	Virginia Musa		x	Municipality of Glan
29	Mary Grace		x	RR Fishing Corp
30	Michele Lyn Louh		x	Mommy Gina Tuna Resources, Inc.
31	Maria Angelica F. Cecilio		x	Bureau of Fisheries and Aquatic Resources (BFAR) 12
32	Shalimar Abdurahman		x	SOCKSARGEN Federation of Fishing and Allied Industries Incorporated (SFFAI)
33	Jonathan Balili	x		Office of City Agriculturist, General Santos
34	Diosdado Cequina	x		Office of City Agriculturist, General Santos
35	Jayson Kaisim	x		Bureau of Fisheries and Aquatic Resources (BFAR) 12
36	Venancio Banquil	x		Municipality of Kaimba
37	Arlyn Hollero		x	Municipality of Maasim
38	Ronald P. Sombero	x		Mindanao State University
39	Wondell Cantero	x		Municipality of Kaimba
40	Jerson G. Norez	x		Municipality of Alabel
41	Faul A. Gonzales	x		Boat Owner
42	Daryl Fernandez	x		Mayor Office of General Santos

No	Name	Sex		Organization
		M	F	
43	Jaime Quingnel	x		Village Cooperatives of Glan
44	Joaquin T. Lu	x		SOCSKSARGEN Federation of Fishing and Allied Industries Incorporated (SFFAI)
45	Javier N Masangkay Jr.	x		Celebes Canning Corporation
46	Eng. Ginalyn Fe Chachuela		x	SOCSKSARGEN Federation of Fishing and Allied Industries Incorporated (SFFAI)
47	Vivera Dinopol		x	Santa Cruz Sea Food, Inc.
48	Fatima Bataga		x	Department of Labor and Employment
49	Movima Gono		x	Senior Aquaculturist, General Santos City
50	Marvin Arreo	x		Philcinmic Industrial Corp.
51	Lovellia Magnayon		x	Sta. Cruz Seafood Inc.
52	Carmelu M. Velasco	x		Municipality of Kaimba
53	Alma C. Dickson		x	Independent Consultant on Fishing Technology and Management
54	Susan Baya		x	Municipality of Maasim
55	Dinna Umengan		x	Tambuyog Development Centre
Indonesia				
56	Professor Umdi	x		Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
57	Fritz Kaihaton	x		Marine Affairs and Fisheries, (DKP) Province of Manado
58	Decky Tiwow	x		Marine Affairs and Fisheries, (DKP) Province of Manado
59	Daisy Malapedua		x	Sam Ratulangi University, Manado (UNSRAT)
60	Reiny Tumbol		x	Sam Ratulangi University, Manado (UNSRAT)
61	Andie Wibanto	x		Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
62	Cepy F Syahda	x		Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
63	Destyriani Liana Puti		x	Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
64	Fallez George		x	P.T. SIG Asia
65	Irawati Tobangen		x	P.T. Nutrindo Freshfood International
66	Amelia Klampung		x	Ministry of Marine Affairs and Fisheries (MMAF)
67	Meiti Kolang		x	DKP Fisheries, Manado
68	Sharivan Nora Ibranim		x	Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
69	Nurafina Suwadji		x	P.T. SIG Asia
70	Adrianus Sethino Lami Boro	x		P.T. Nutrindo Freshfood International
71	Lumpat Sormin	x		Ministry of Marine Affairs and Fisheries (MMAF)
72	Marwia Lahaji		x	Usaha Tamba FF
73	Pasrait Sarumaha	x		P.T. Blue Ocean Grace International (BOGI)
74	Anita Febrianti		x	P.T. Samudra Mandiri Sentosa (SMS)
75	Riza Baroqi	x		Masyarakat dan Perikanan, Indonesia (MDPI)
76	Nyoman Supawan	x		P.T. Singa Purefoods International
77	Pingkan Wokas		x	P.T. Nutrindo Freshfood International
78	Feisal R. Pamikiran	x		DKP Provinsi Sulawesi Utara
79	Maureen Tangkudung		x	Fisheries Service North Sulawesi Province
80	Stephani Mangunsong		x	Masyarakat dan Perikanan, Indonesia (MDPI)
81	Yulian Toni		x	DKP Provinsi Sulawesi Utara
82	Janti Djuari		x	Indonesia Pole & Handline Fisheries Association (AP2HI)
83	Miton Uliharsih		x	Center for Fisheries Research
84	Andrew Bassford	x		Marine Change
85	Godfried S. Badoa	x		P.T. Nutrindo Freshfood International
86	Oryssa S.P.		x	Ministry of Marine Affairs and Fisheries (MMAF)
87	Jayawijaya	x		Ministry of Marine Affairs and Fisheries (MMAF)
88	Indra Alurahyo Sjarif	x		Ministry of Marine Affairs and Fisheries (MMAF)
89	Karmin Naser Mayau	x		P.T. Sari Tuna Makmur

No	Name	Sex		Organization
		M	F	
90	Novry Susanto	x		Ministry of Marine Affairs and Fisheries (MMAF)
91	Destyariani Lianna Puti		x	Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
92	Daniel Ndahawali	x		Marine Science and Fisheries in Bitung
93	Maghelhias Takulamangari	x		Masyarakat dan Perikanan, Indonesia (MDPI)
94	Revico Walukow		x	DKP Bitung
95	Liftia Makangiras		x	P.T. Blue Ocean Grace International (BOGI)
96	Abubakar Musa	x		Fisher in Sangihe Island
97	Muchsin	x		Fisher in Sangihe Island
Thailand				
98	Dr. Yuttana Theparoonrat	x		Southeast Asian Fisheries Development Center (SEAFDEC_
99	Panitnard Taladon		x	Southeast Asian Fisheries Development Center (SEAFDEC_
100	Dr. Somboon Siriraksophon	x		Southeast Asian Fisheries Development Center (SEAFDEC_

List of Respondents Participating in Focus Group Discussion (FGD)

No	Name	Sex		Organization
		M	F	
Philippines (Group 1)				
1	Kaye Kirsteen Alegado		x	Bureau of Fisheries and Aquatic Resources (BFAR)
2	Jomarie Mandas	x		Bureau of Fisheries and Aquatic Resources (BFAR)
3	Peter Erick Cadapan	x		Bureau of Fisheries and Aquatic Resources (BFAR)
4	Rafael V Ramiscal	x		Bureau of Fisheries and Aquatic Resources (BFAR)
5	Usop Pentaliday Jr.	x		Bureau of Fisheries and Aquatic Resources (BFAR)
6	Mary Macalalag	x		Bureau of Fisheries and Aquatic Resources (BFAR)
7	Mercy M Tomo		x	Bureau of Fisheries and Aquatic Resources (BFAR)
8	K-marx Macalalag	x		Bureau of Fisheries and Aquatic Resources (BFAR)
9	Febbie Mollada		x	Bureau of Fisheries and Aquatic Resources (BFAR)
Philippines (Group 2)				
10	Laila Emperua		x	Bureau of Fisheries and Aquatic Resources (BFAR) I2
11	Glenn Prado	x		Bureau of Fisheries and Aquatic Resources (BFAR) I2
12	Eugene M. Casas	x		Bureau of Fisheries and Aquatic Resources (BFAR) I2
13	Jason Kasim	x		Bureau of Fisheries and Aquatic Resources (BFAR) I2
14	Ramair Rendon	x		The City Fisheries and Aquatic Resources Council (CFARMC) of General Santos
15	Pealle Samsarca	x		The City Fisheries and Aquatic Resources Council (CFARMC) of General Santos
16	Maria angelica Cecilio		x	Bureau of Fisheries and Aquatic Resources (BFAR) I2
17	Pesario Edison	x		Bureau of Fisheries and Aquatic Resources (BFAR) I2
18	Gemma Mareno		x	Bureau of Fisheries and Aquatic Resources (BFAR) I2
19	Mercy Tomo		x	Bureau of Fisheries and Aquatic Resources (BFAR) I2
20	Kaye Daga		x	Bureau of Fisheries and Aquatic Resources (BFAR) I2
21	Darly Fernandel	x		Bureau of Fisheries and Aquatic Resources (BFAR) I2
Philippines (Group 3)				
22	Arlyn Hollero		x	Municipality of Maasim
23	Movima Gono		x	Senior Aquaculturist, General Santos City
24	Virginia Musa		x	Municipality of Glan
25	Faith Batatin		x	Sarangani Province
26	Carmelu M. Velasco	x		Municipality of Kaimba
27	Susan Baya		x	Municipality of Maasim

No	Name	Sex		Organization
		M	F	
28	Jerson G. Norez	x		Municipality of Alabel
29	Dasdaya Cermin	x		N.A
Philippines (Group 4)				
30	Faul A. Gonzales	x		Boat Owner
31	Eric Sison	x		SOCSKSARGEN Federation of Fishing and Allied Industries Incorporated (SFFAI)
32	Rosanna Contreras		x	SOCSKSARGEN Federation of Fishing and Allied Industries Incorporated (SFFAI)
33	Shalimar Abdurahman		x	SOCSKSARGEN Federation of Fishing and Allied Industries Incorporated (SFFAI)
Philippines (Group 5)				
34	Lovellia Magnayon		x	Santa. Cruz Seafood Inc.
35	Vivera Dinopol		x	Santa Cruz Sea Food, Inc.
36	Javier N Masangkay Jr.	x		Celebes Canning Corporation
37	Cristina Opao		x	Tuna Explorers Inc.
38	Marvin Arreo	x		Philcinmic Industrial Corp.
39	Domain Canizar Jr.	x		Department of Information and Communications Technology
40	Eng. Ginalyn Fe Chachuela		x	SOCSKSARGEN Federation of Fishing and Allied Industries Incorporated (SFFAI)
41	May Enark		x	Rell & Renn Fishing Corporation
42	Beverly Cariala		x	Rell & Renn Seafood
43	Michele Lyn Louh		x	Mommy Gina Tuna Resources Inc.
Indonesia (Group 1)				
44	Febrina Antoy		x	DPKP Manado
45	M. Hatta Arisompi	x		BFIPM Manado
46	Muty Kolang		x	DKP Sulut
47	Auby Dien	x		BPPP Tumumpa
48	Juvx Mogga	x		BPPP Tumumpa
49	Frits Kaihaty	x		DKP Sulut
Indonesia (Group 2)				
50	Andie Wibanto	x		Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
51	Destyriani Liana Puti		x	Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
52	Dr. Nora Ibrahim		x	Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
53	Cepy F Syahda	x		Coral Triangle Initiative on Coral Reefs, Fisheries, and Food (CTI-CFF)
Indonesia (Group 3)				
54	Jull Takaliuang		x	Yayasan Suara Nurani Minaesa
55	Mayang Harikedua		x	Yayasan Suara Nurani Minaesa
56	Decky Tiwow	x		Marine Affairs and Fisheries, (DKP) Province of Manado
57	Daisy Malapedua		x	Sam Ratulangi University, Manado (UNSRAT)
58	Reiny Tumbol		x	Sam Ratulangi University, Manado (UNSRAT)
Indonesia (Group 4)				
59	Irawati Tobangen		x	P.T. Nutrindo Freshfood International
60	Pingkan Wokas		x	P.T. Nutrindo Freshfood International
61	Nurafina Suwadji		x	P.T. SIG Asia
62	Pusruh Sarumh	x		P.T. Bolti
63	Uttia Makagiras		x	P.T. Blue Ocean Grace International (BOGI)
64	Mr. Aug	x		No answer
65	Godfried S. Badoa	x		P.T. Nutrindo Freshfood International
66	Marimmit S.	x		P.T. BMB Bitung
Indonesia (Group 5)				
67	Ahmad Zunaidi	x		PSDKP Bitung
68	Daniel Ndahawali	x		PSDKP Bitung
69	Amelia Klampung		x	PPS Bitung

No	Name	Sex		Organization
		M	F	
70	Novty Susanto	x		PSDKP Bitung
71	Lumpu	x		DKP Provinsi Sulawesi Utara
72	Yulian Toni	x		DKP Provinsi Sulawesi Utara
73	Zainal Asifin	x		No answer
74	Agnes W		x	No answer
75	Stanley T	x		No answer
Indonesia (Group 6)				
76	Riza Baroqi	x		Masyarakat dan Perikanan, Indonesia (MDPI)
77	Stephani Mangunsong		x	Masyarakat dan Perikanan, Indonesia (MDPI)
78	Iny Supawanomman	x		P.T. Singa Purefoods International
79	Kasmin			P.T STM Bitung
Indonesia (Group 7)				
80	Eko Djalmo	x		Ministry of Marine Affairs and Fisheries (MMAF)
81	Berng Subli	x		Ministry of Marine Affairs and Fisheries (MMAF)
82	Train Yuwanda	x		Ministry of Marine Affairs and Fisheries (MMAF)
83	Wiwik F		x	Ministry of Marine Affairs and Fisheries (MMAF)
84	Jaya W	x		Ministry of Marine Affairs and Fisheries (MMAF)
85	Wihasih		x	Ministry of Marine Affairs and Fisheries (MMAF)
86	Dwi Prasetyo	x		Ministry of Marine Affairs and Fisheries (MMAF)
87	Rikik Rahadim	x		Ministry of Marine Affairs and Fisheries (MMAF)
88	Reni Prani		x	Ministry of Marine Affairs and Fisheries (MMAF)
89	Trios Abrosin		x	Ministry of Marine Affairs and Fisheries (MMAF)
90	Fallim	x		Ministry of Marine Affairs and Fisheries (MMAF)
91	Revi Irvita		x	Ministry of Marine Affairs and Fisheries (MMAF)
92	Widya Indri		x	Ministry of Marine Affairs and Fisheries (MMAF)
93	Rizka F		x	Ministry of Marine Affairs and Fisheries (MMAF)
94	Devi Hermi		x	Ministry of Marine Affairs and Fisheries (MMAF)
95	Oryssa Pradianti		x	Ministry of Marine Affairs and Fisheries (MMAF)
96	Dewi Mufite			Ministry of Marine Affairs and Fisheries (MMAF)
Thailand (Group 1)				
97	Dr. Yuttana Theparoonrat	x		Southeast Asian Fisheries Development Center (SEAFDEC_
98	Panitnard Taladon		x	Southeast Asian Fisheries Development Center (SEAFDEC_

APPENDIX 2. CODING SHEET FOR KII RESPONSES

No.	Name of Variable	Type of Variable	Description	Possible Code (Value)	Value Label	Associated Responses	Type of Response
1	ID Number	Numeric	Unique code of questionnaire	001-100	N.A	N.A	Single response
2	Country	Numeric	Country of conduct of mid-term review	0-3	0=No Answer 1=Philippines 2=Indonesia 3=Thailand		
3	Sex	Numeric	Sex of key informant	0-2	0=No Answer 1 = Male 2=Female	N.A	Single response
4	Age group	Numeric	Age of key informant	0-6	0=No Answer 1=18-25 yrs. 2=26=35 yrs. 3=36-45 yrs. 4=46-59 yrs. 5=60-75 yrs. 6=75+	N.A	Single response
5	Educ.	Numeric	Highest education level achieved	0-5	0=No Answer 1=Primary 2=Secondary 3=High school 4=Graduate 5=Post graduate	N.A	Single response
6	Nationality	Numeric	Nationality of key informant	0-4	0=No Answer 1=Philippines 2=Indonesia 3=Thai 4.=Others	N.A	Single response
7	TWG	Numeric	TWG Status	0-3	0=No Answer 1=No 2=National TWG 3=Local TWG	N.A	Single response
8	PRN	Numeric	Type of partner with Oceans	0-3	0=No Answer 1=Partner 2=Grantee 3=Subcontractor	N.A	Single response
9	Type of Govt.	Numeric	Type and level of organization of government sector interviewee working with	0-8	0=Not Applicable 1=Reg. Org. 2=Gov: national 3=Gov: provincial 4=Gov: local 5=NGO: national 6=NGO: local 7=Academe 8=Others	N.A	Single response
10	Private	Numeric	Type of fisheries business interviewee working with	0-9	0=Not Applicable 1=Large-scale 2=Medium-scale 3=Small-scale 4=Artisanal fisher	NA	Multi-responses

No.	Name of Variable	Type of Variable	Description	Possible Code (Value)	Value Label	Associated Responses	Type of Response
			(only for industry)		5=Fisheries association 6=Processor 7=Buyer 8=Exporter 9=Others (technology)		
11	Years	Numeric	Number of years interviewee has been working in occupation/profession	0-5	0= No Answer 1=1 - 5 yrs. 2=6 - 10 yrs. 3=11 - 15 yrs. 4=16 - 20 yrs. 5= More than 20 yrs.	N.A	Single
12	Ecdisopi	Numeric	Opinions on eCDTS development/testing	1-8	0=No Answer	N.A	Multi-responses
					1=No idea/opinion	No idea, do not know system, too soon to share idea, no experience with system, not aware/understand how system works, newly introduced, not aware of benefits, no improvement/result yet, not know result, not yet started,	
					2=Supportive, encouraged by progress development and testing	Knows about eCDTS and is encouraged by progress made, standardizing of existing traceability systems, development process is going well, better/more convenient than paper based,	
					3- Supportive, development/testing going too slowly	Supports eCDTS but is wants development and testing to proceed more quickly	
					4- Not supportive, variety of concerns	Not supportive, concerns relate to cost, manpower, transparency (tax liability), problem with local internet connection, problem with unregistered boats unable to participate,	
5 - Improvement: Engagement of all stakeholders needed	Engage all stakeholders/low level staff in development process, need more cooperation from suppliers, involve SSF,						

No.	Name of Variable	Type of Variable	Description	Possible Code (Value)	Value Label	Associated Responses	Type of Response
					6=Improvement Build capacity	Need more training on use of device/system, SSF have limited capacity/education background to use,	
					7=Improvement: Provide Incentives	Provide subsidy to first moves, incentives needed for participants, free WIFI at port, free device/gadget	
					8= Improvement; Make system convenient and user-friendly	Design needs to be easy/friendly use, compatible	
13	Advcdts	Numeric	Advantages of eCDTS	1-8	0=No Answer		Multi-responses
					1=Fast/easy/accurate documenting/processing	Faster/easier/accurate for processing document, real time data, faster documented, rapid data sharing, easy to obtain result, reduce human errors, better than paper/paperless,	
					2=Better access market	Able to access/compete in legal/global market, able to compete with other countries better competitiveness, able to export, economic benefit,	
					3= Higher/better price	Able to sell fishing product at higher/better price, better income	
					4= Reduce IUU	Reduce IUU fishing, sustainable fisheries, protect habitats, monitor healthiness of habitat, reduce illegal fishing	
					5=Help business management	Able to predict market, real time data, better aware of market needs/requirements, promote transparency, support fisheries management/policy making,	
					6=Reduce operational cost	Save space for paper filing, save paper, save time, reduce human errors,	
					7= Traceability	Able to trace fish back to source in case of issues with the product, easy to trace,	

No.	Name of Variable	Type of Variable	Description	Possible Code (Value)	Value Label	Associated Responses	Type of Response
					8=Others	LGU making more tax/income,	
14	Disadv	Numeric	Disadvantages of eCDTS	1-6	0=No Answer	N.A	Multi-responses
					1=High cost	Limited budget, high cost/costly, expensive device/equipment/intermet cost,	
					2=Additional workload	Investing more manpower, additional work for assigned staff, burden for companies to work with two systems	
					3= Additional investment in equipment	Additional investment for companies to buy additional equipment,	
					4=Additional investment in training	Need more training/skill in use, need more knowledge about benefits, no system integration skills, SSF has limited skill/education background	
					5=Others	Data may be destroyed, may cause unemployment, convincing stakeholders, those not apply will be suffered, maintenance concern,	
					6. Loss confidentiality	Disclose of confidential data, unwilling to be tracked, losing confidential data of business	
15	Fishmgmt.	Numeric	How eCDTS help to better manage fisheries	1-8	0=No Answer	N.A	Multi-Reponses
					1= Establish fisheries regulation	When to stop fishing, seasonal closure, set fishing policy, decision making, set fisheries standard, more effectively regulated, help regulate where to fish, close fishing ground where fishes with disease found,	
					2= Combat IUU	Reduce IUU, reduce illegal fishing, able to monitor point of catch, gear type, species, prevent illegal fishing, promote sustainable fisheries,	

No.	Name of Variable	Type of Variable	Description	Possible Code (Value)	Value Label	Associated Responses	Type of Response
					3=Monitor status and model fish stocks	Monitor stock status/assessment, able to identify fishing ground/point of catch, when/where caught data make better understand of fisheries status, grading fishing product, value chain analysis, fish stock management	
					4=Effective/better decision making	Real time/accurate/faster data, support in licensing, supporting for business mgmt, less time than paper based, better quality control, easier to communicate with clients, support policy making,	
					5=Monitoring, control, and surveillance	Help monitor illegal fishing in fisheries management areas, or restricted areas such MPAs	
					6=Monitor HWGE	Monitor human welfare of women/underage workers, monitor working condition, safety/SOS,	
					7= Better access data	Still challenge for linking eCDTS with FIS, better data integration, better access data, better data secured	
					8=Others	Need more capacity, promote good governance,	
16	Beyondcdts	Numeric	Beyond eCDTS, other mechanisms used to promote sustainable fisheries management	1-7	0=No Answer	N.A	Multi-responses
					1=Establish MPA	Establish MPA/FMA/area based plan	
					2=Educate on resources mgmt.	More educate/awareness raising fishers on sustainable fisheries/natural resources management,	
					3=Law enforcement	Law enforcement, fully implement law enforcement/need legal framework, implementing EAFM plan, restrict illegal gear types, VMS for boat >30 GT,	
					4=SSF boat registration	SSF boat registration, vessel registration,	

No.	Name of Variable	Type of Variable	Description	Possible Code (Value)	Value Label	Associated Responses	Type of Response
					5= Incentives	Provide incentive/subsidy to those able to comply	
					6=Alternative livelihood	Provide alternative livelihood in close season. Involve women for livelihood, reduce poverty,	
					7=Others		
					0=No Answer	N.A	
					1=Provide awareness of eCDTS	Raise awareness/understanding /socialization of benefits/value of eCDTS,	
					2= Provide support/involve SSF	Government supporting subsidy to SSF, LGUs supporting marketing information to SSF, provide loan to SSF, stronger support from LGUs to SSF, subsidize devices to first movers,	
					3=Awareness raising of market requirements	Conduct awareness raising/lobby stakeholders on market trend/requirements,	
					4=Make it simple	Make it simple/easy to use, friendly used, SSF able to easily use	
17	Ecdtsadopt	Numeric	Approach/mechanism to promote adoption and use of eCDTS	1-8	5= Better Collaboration	Better collaboration/involvement in implementation of eCDTS, collaboration with other funding source to make it sustainable, better regional collaboration, initial platform, internal collaboration, engage relevant agencies, strengthen inter-organization collaboration,	Multi-responses
					6=Affordable	Not high cost, avoid to put additional cost in the use,	
					7=Legal requirement	Government should require adoption/not option,	
					8=Others	Use ASEAN mechanism, regional consultation meeting, socialize USAID Oceans	
18	Capneed	Numeric		1-7	0=No Answer	N.A	

No.	Name of Variable	Type of Variable	Description	Possible Code (Value)	Value Label	Associated Responses	Type of Response
			Important capacity need to promote adoption of eCDTS		1=Training on how to use device/system	Training on how to use/operate devices/system, ongoing training how to use system, how to collect data, how to maintain	Multi-responses
					2=Socialization, outreach	Training on IEC material production, capacity building to participate and promote adoption, skill on awareness raising/socialization	
					3=Training in system integration	Capacity building on integration of different databases to one system, standardize system, one data policy,	
					4=Training on data analysis and use	Training/capacity building on data analysis, provide human resource for data analysis, data sharing, research skills,	
					5=Training in system integration	For local government together	
					6. Awareness raising on conservation	Raise awareness/better understanding of resources conservation/sustainable fisheries,	
					7. Need more funding	Need fund to support implementation, free device for first movers, incentive, limited budget of organization, need additional funding assistance/equipment, subsidy	
19	SSFcap.	Numeric	Important capacity need to promote adoption of eCDTS among SSF	1-4	0=No Answer		Multi-responses
					1=SSF Training on how to use device/system	For SSF and local governments	
					2=SSF Socialization, outreach	For SSF and local governments	
					3=SSF Training on data analysis and use	For local government together with academe	
					4.=Involve women	Training women on processing, involving in selling/processing after landing, fisher's wife also to be trained.	

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