

Boosting the Traceability of ASEAN Fish and Fishery Products through the eACDS

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Considering that illegal, unreported and unregulated (IUU) fishing had been threatening the sustainability of fisheries in the world and since IUU fishing had also been occurring in Southeast Asia, discussions had been conducted in several regional fora during the mid 2000s that came up with regional consensus in addressing the issues on IUU fishing. As a result, the ASEAN-SEAFDEC Resolution (RES) and Plan of Action (POA) on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2020 was adopted to serve as framework for the ASEAN Member States (AMSs) and SEAFDEC in planning for the necessary actions that would address among other concerns, the issues on IUU fishing in the region. Guided therefore by RES#8 encouraging SEAFDEC and AMSs to: "Foster cooperation among ASEAN Member Countries and with international and regional organizations in combating IUU fishing," RES#19 to: "Support the competitiveness of the ASEAN fish trade through the development of procedures and programs that would certify, validate or otherwise indicate the origin of fish to reflect the need for traceability, sustainable fishing practices and food safety, in accordance with international and national requirements," POA# 21 on the need to "Strengthen regional and national policy and legislation to implement measures and activities to combat IUU fishing, including the development and implementation of national plans of action to combat IUU

fishing, and promote the awareness and understanding of international and regional instruments and agreements through information dissemination campaigns," and POA# 60 to "Develop traceability systems, with mechanisms as needed to certify or validate the information, for the whole supply chain, and establish regulations and enforcement schemes in line with international standards. Align Member Countries' inspection systems and incorporate strengthened port inspections in the process as a means to improve inspection systems," SEAFDEC in collaboration with the AMSs developed in 2015 the "ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain." In support of the implementation of ASEAN Guidelines in the AMSs, the "ASEAN Catch Documentation Scheme" or ACDS for marine capture fisheries was established by SEAFDEC as a management tool for combating IUU fishing and enhancing the competitiveness of the ASEAN fish and fishery products in the region. Undertaken by SEAFDEC Marine Fishery Resources Development and Management Department (SEAFDEC/MFRDMD) in cooperation with SEAFDEC Training Department (SEAFDEC/TD) and with support from the AMSs, the ACDS concept was designed to enhance the traceability of marine capture fisheries in the AMSs, covering not only the domestic trade but also international trade.

Many of the Southeast Asian countries are major producers of fish and fishery products from marine capture fisheries. In fact, the Southeast Asian total production from marine capture fisheries had been annually contributing about 20.7% to the world's total production from marine capture fisheries during the period from 2012 to 2016 (**Table 1**).

Moreover, FAO (2018) also reported that the top 20 major producing countries from marine capture fisheries in 2016 included five Southeast Asian countries, namely: Indonesia, Viet Nam, Philippines, Thailand, and Myanmar (**Table 2**). The increasing global demand for marine fish and fishery products had therefore been fulfilled by the production from

the Southeast Asian region that had been exported to the global market, as most of the Southeast Asian countries are also major exporters of fish and fishery products.

In 2016, FAO (2018) indicated that Viet Nam and Thailand were among the top ten exporters of fish and fishery products to the world market (**Table 3**). Meanwhile, the European Union (EU) issued EC Regulation No. 1008/2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing. With the main objective of controlling IUU fishing activities, the EC Regulation which was made effective in January 2010, requires that countries exporting fish and fishery products to the EU should

Table 1. Contribution of Southeast Asian fisheries production to the world's total fisheries production (in million metric tons (mt))

	2012	2013	2014	2015	2016
Southeast Asia ¹					
From Marine Capture Fisheries	15.5	16.2	16.6	16.8	17.2
Total Fisheries Production	39.5	40.2	42.1	44.0	45.3
World's Total ²					
From Marine Capture Fisheries	78.4	79.4	79.9	81.2	79.3
Total Fisheries Production	156.2	160.7	164.9	168.7	170.9

¹ Source: SEAFDEC (2018)

² Source: FAO (2018)

Table 2. Marine capture fisheries production (2016): Major producing Southeast Asian countries

	Production (mt) Average (2005-2014)	Production (mt) 2015	Production (mt) 2016	Variation 2015-2016
(2) Indonesia	5,074,932	6,216,777	6,109,782	-1.7
(8) Viet Nam	2,081,551	2,607,214	2,678,406	2.7
(10) Philippines	2,155,951	1,048,101	1,865,213	-4.3
(15) Thailand	1,830,315	1,317,217	1,343,283	2.0
(17) Myanmar	1,159,708	1,107,020	1,185,610	7.1
World's TOTAL	79,778,181	81,247,842	79,276,848	-2.4

() World's ranking
Source: FAO, 2018

Table 3. Top ten exporters of fish and fishery products: Southeast Asian countries

Top exporting countries	2006		2016	
	Value (US\$ million)	Share (%) of world total	Value (US\$ million)	Share (%) of world total
(3) Viet Nam	3,372	3.9	7,320	5.1
(4) Thailand	5,267	6.1	5,893	4.1
World total export of fish and fishery products	86,293		142,530	

() World's ranking
Source: FAO, 2018

implement such EC Regulation. In responding to the request of the AMSs, SEAFDEC initiated capacity building activities to enable the AMSs to comply with the requirements of the EC Regulation (Siriraksophon *et al.*, 2016), while the AMSs also amended their laws and administrative regulations to meet the requirements stipulated in the EC Regulation.

The ASEAN Catch Documentation Scheme

While considering the importance of developing measures that could guide the countries in improving the traceability system of their respective capture fisheries and combating IUU fishing in the Southeast Asian region, the AMSs suggested that a regional catch documentation system could be developed as a management tool to improve the management of fisheries in the region. Moreover, the AMSs also proposed that such system could be developed taking into consideration the format, standard and information requirements of the existing schemes of importing countries, but should be simple enough for easy application by the region's small-scale fisheries, and should be aligned with the existing market-driven measures (Kawamura and Siriraksophon, 2014). Thus, with funding support from the Japanese Trust Fund (JTF), SEAFDEC with the collaboration of the AMSs developed various countermeasures for combating IUU fishing in Southeast Asia, which include among others, the establishment of a regional catch documentation system that takes into consideration the EC Regulation, as well as the national regulations and those of the concerned Regional Fisheries Management Organizations (RFMOs). Such a system which would initially focus on inter- and intra-regional trade of fish and fishery products from marine capture fisheries, should enable the AMSs to export fish and fishery products to the EU. Upon the endorsement of the SEAFDEC Council of Directors and the higher authorities of the ASEAN in April 2013, the

development of the so-called ASEAN Catch Documentation Scheme or ACDS had subsequently commenced.

At the onset, the development of the ACDS was intended to provide a unified framework for enhancing not only the traceability and credibility of fish and fishery products for intra-regional and international trade, but also the sustainable management of marine fisheries in the Southeast Asian region. Eventually, it had been envisioned that the ACDS would lead to the prevention of the entry of fish and fishery products from IUU fishing activities into the supply chain of the AMSs (Siriraksophon *et al.*, 2016). During the initial stage, adoption of the ACDS could be voluntary but should be made voluntary later, considering that the ACDS would also be used to improve national traceability of fish and fishery products.

In the implementation of the ACDS, completion and issuance of five main documents should be accomplished. These are: Catch Declaration (CD), Movement Document (MD), Catch Certification for Export (CC), Processing Statement (PS), and Re-export Certification (RE). In 2017, the ACDS Concept for marine capture fisheries including the structure and processes was endorsed by the SEAFDEC Council and the higher authorities of the ASEAN for pilot testing in the AMSs.

As part and parcel of the ACDS, the AMSs also recommended that an electronic catch documentation system be developed to reduce the burden of the countries in the implementation of the ACDS. After the initial pilot-testing of the ACDS in Brunei Darussalam, analysis of the results was then used for the initiation of the electronic ACDS or eACDS with the cooperation of the Fish Market Organization (FMO) of Thailand. Subsequently, training was organized in Brunei Darussalam for the hands-on use of web-based and mobile

applications of the eACDS, especially in the issuance of the CD and MD for verifying the route of the fish catch in the supply chain.

Structure and Processes Involved in the eACDS

As a simplified format of the ACDS, the eACDS generates the certificates for all the important points in the supply chain, such as: Catch Declaration (CD) for fishing masters/operators to ensure that they are not involved in IUU fishing activities; Movement Document (MD) for fish buyers who are authorized by the government to report the fish purchased and transported to other destinations such as processing plants or local markets; and Catch Certification (CC) for processors to be able to export their fish and fishery products. Based on these documents, an importer would be able to make clearance

based on the CC and trace the origin of the fish and fishery products along the supply chain (Siriraksophon *et al.*, 2017). An example of the eACDS software on web-based application is shown in **Figure 1**, and that of the eACDS software on mobile application in **Figure 2**.

For the development of the software framework of the web-based and mobile application of eACDS, two major phases had been determined. The first phase had been designed for domestic marine capture fisheries, and the second phase is meant for the traceability system of imported fish and fishery products, including products that have been moved through transshipment vessels. The key data elements (KDEs) required for the eACDS include: point of catch, buyers/receivers and sellers (broker/wholesale), processors, exporters and international shipping, importers, and end consumers (**Figure 3**).

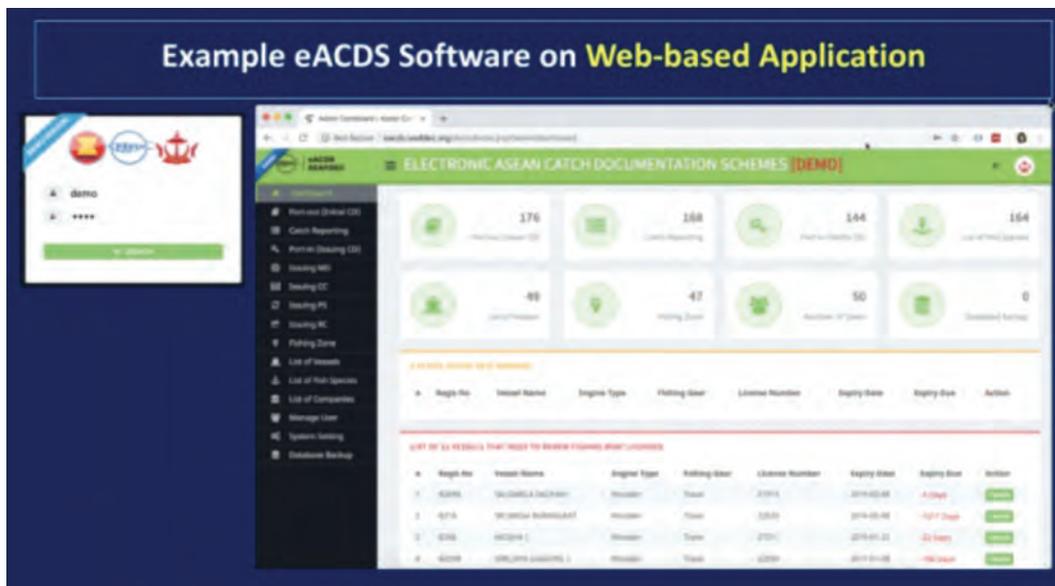


Figure 1. The eACDS software on web-based application

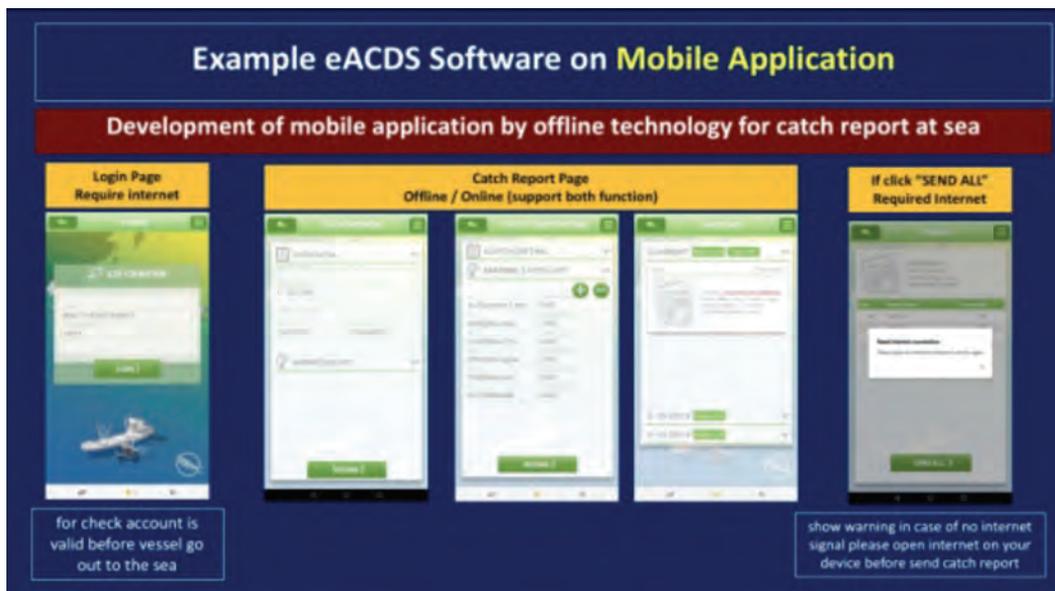


Figure 2. The eACDS software on mobile application

KEY DATA ELEMENTS (KDEs)



Figure 3. Key data elements required for the eACDS software

Promotion and Implementation of the eACDS in the AMSs

The steps involved in the implementation of the web-based and mobile applications of the eACDS, are shown in **Box 1**, and the flowchart of the web-based and mobile applications of the eACDS is shown in **Figure 4**. The eACDS which was developed through a series of consultations among the AMSs, was pilot-tested in Brunei Darusslam in 2017. The prototype eACDS software is also being promoted in Malaysia, Myanmar (**Figure 5**), and Viet Nam (**Figure 6**).

The process in the promotion and implementation of the eACDS in the AMS would involve five phases (**Box 2**), while the status of the promotion of the eACDS is summarized in **Box 3** (Imsamrarn *et al.*, 2019).

Way forward

The eACDS which has been pilot-tested in Brunei Darussalam is already operational in the country. As experienced during the pilot-testing, the effective use of eACDS should also take into account various good practices, such as catch reporting at

Box 2. Process in the promotion and implementation of eACDS in the AMSs

Introduction - the eACDS system including its structure and functions is demonstrated to relevant authorities and stakeholders in participating countries
Baseline survey and situation analysis - baseline survey is carried out and analysis of the situation in issuing CD, MD, and CC as well as identification of KDEs is conducted involving relevant authorities and stakeholders in the respective AMSs
Prototype development - the eACDS is modified and appropriate prototype developed taking into consideration the context of the respective AMSs
Testing and improving the system - the eACDS is pilot tested with relevant users (e.g., relevant authorities, fishing master, fishing vessel owners, buyers, and processors) who are trained on the use of the application, and problems addressed in order that the system is tailored to the context of the respective AMSs
IT transfer - During the testing phase, all data are stored in the SEAFDEC cloud server, and afterwards, the database would be transferred to and maintained by the respective AMSs

Box 1. Steps involved in the implementation of the eACDS

Step 1: Port-out control - for permission and issuance of initial Catch Declaration (CD) to Fishing Master who informs the Fishing Port Authority before going out for fishing operation. The Fishing Port Authority issues the initial CD with password for accessing the mobile application for catch reporting at sea.
Step 2: Catch reporting at sea - after each fishing operation at sea, Fishing Master reports their estimated catch via mobile eACDS application using the access accounts and password that appear on the initial CD form (features for offline reporting is also available if fishing vessel does not have communication signal)
Step 3: Port-in control and catch-weight verification - reporting by the Fishing Master to the Port-in Control, of catch-weight and species, and issuance of the CD by the Fishing Port Authority to the Fishing Master, to guarantee that the catch is regulated and does not come from IUU fishing activities.
Step 4: Catch movement to local market - purchasing of fish by buyers and processors for local markets and/or for processing, registered buyers to report the necessary information to the center/port using mobile application, while the MD will be issued by the Fishing Port Authority. At the markets, consumers would be able to trace the origin of the fish catch and other information from the QR-Code attached to the MD.
Step 5: Catch movement to processing plants - issuance of Movement Document (MD) by authorized fishery officer at port, for transferring of fish to either local markets or fish processing plants.
Step 6: Issuance of CC to processors - fish sent to processing plants, and in case the processed products are meant for export, the processor should request for Catch Certificate (CC) from competent authority using web-based application.
Step 7: Issuance of the CC by Competent Authority (CA) - when CA receives request from processors, CA will validate all information and if found okay, CA will issue the CC to the processor for exportation of the products.
Step 8: Issuance of CC and QR-Code - for exportation of fish and fishery products for tracing of the origin of the fish and fishery products
Step 9: Use of mobile QR-Code application - for consumers/importers to trace the origin of the fish and fishery product

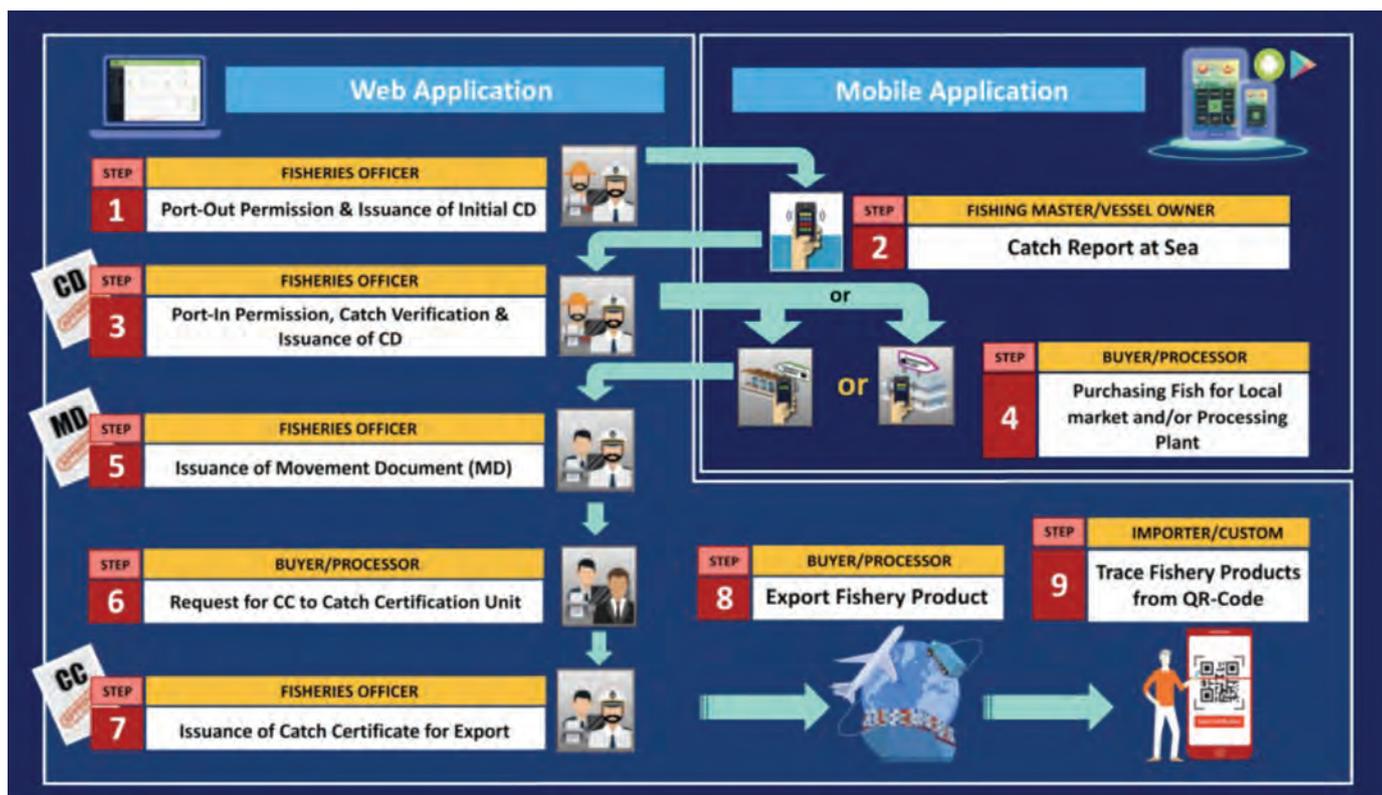


Figure 4. Flowchart of the web-based and mobile applications of the eACDS

Box 3. Status of promotion and implementation of the eACDS (as of December 2019)

Brunei Darussalam

With the collaboration of the Department of Fisheries (DOF) of Brunei Darussalam, series of consultations and on-site training on the use of eACDS with relevant stakeholders had been carried out. Presently, the eACDS is in the process of testing and improvement. In 2019, the pilot testing was monitored and the application was adjusted to make it user-friendly. The DOF staff had been trained on the use of the offline web-based and mobile applications.

Malaysia

The eACDS was introduced to the staff of the Department of Fisheries (DOF) Malaysia and relevant stakeholders. With the cooperation of DOF Malaysia, the initial planning and discussion were facilitated through the conduct of baseline survey and analysis including collection of KDEs for eACDS database development. Kelantan and Kuantan were selected as the project sites. The verification of development of the eACDS application in Port In-Port Out was conducted in November 2019 and the process is now going into prototype development.

Myanmar

SEAFDEC introduced the eACDS system to the Department of Fisheries (DOF) of Myanmar and relevant stakeholders. Discussion on initial planning and cooperation with DOF of Myanmar for eACDS implementation was facilitated through the preparation of KDEs for eACDS database development and selection of pilot area. Presently, the eACDS system is in the process of prototype development and the KDEs were collected to develop the eACDS database and application. Verification on the development of eACDS application in the part of Port In-Port Out was conducted in December 2019 in collaboration with the DOF of Myanmar.

Viet Nam

In 2017, The eACDS system was introduced to the Directorate of Fisheries (D-Fish) of Viet Nam and relevant stakeholders. Subsequently, the initial planning including the preparation of KDEs and selection of pilot areas were carried out in 2018. Presently, the process of eACDS prototype development and several activities are being implemented in Binh Thuan Province as the project site. The development and verification of eACDS and on-site training on the use of eACDS web-based and mobile applications were conducted for fishery officers and stakeholders in the part of Point In-Port Out, catch report at sea through offline technology, movement procedure, purchasing, request of Catch Certification which came upon issuance of Catch Declaration (CD), Movement Document (CD), Statement of Catch (SC), and Catch Certification (CC).

sea which requires good communication system through the use of mobile telephone and satellite communications. In case there is no communication system or mobile signal especially for medium and small-scale fishing vessels, the offline system for mobile application of the eACDS has been developed to

support such good practices for implementing the eACDS. It is expected that the testing phase in Brunei Darussalam would be completed very soon, while its promotion and implementation in the other AMSs would be continued. This has been made possible through the continued support

of the JTF for the implementation of activities related to coordination, facilitation, development, and expansion of the eACDS under the five-year plan (2020-2024) of the project “Strengthening Regional Cooperation and Enhancing National Capacities to Eliminate IUU Fishing in Southeast Asia.”



Figure 5. Demonstration of eACDS applications in Myanmar



Figure 6. Demonstration of eACDS applications in Viet Nam

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