

requires little software development effort and offers multiple benefits, which include *inter alia*, close to real time data updates, resource savings and improved consistency and reliability of data by reducing the possibility of human errors, decreasing delays and streamlining data transfer processes. As a result, the APIs will help to have a leaner system because of the regular updates, thus, “mass-update” bias of large and massive data information update is avoided. Since APIs, are “contracts” between systems, the API and the system architecture should be perfectly tuned up prior to the start of sharing any documentation and testing, thus, exchanging of information through the APIs would serve as a mid-term solution. When the system is ready, SEAFDEC would do its part in testing and fine-tuning the APIs.

### 6.1.1.3 Catch Documentation Schemes

Traceability system is one of the important emerging market requirements being put into force in response to the pressing needs expressed by the markets to ensure that fish and fishery products in the supply chain are not derived from IUU fishing activities. It is also being used to facilitate the tracking of the flow of products through the production processes or the supply chain to ensure that these are safe for human consumption. Since its enforcement by several markets in the mid-2000s, traceability has become a popular concept in industrial logistics, regardless of the production regimes and types of products. In the Codex Alimentarius Commission, traceability is defined as “the ability to follow the movement of a food through specified stage(s) of production, processing and distribution.” Therefore, traceability facilitates the compilation of knowledge and information regarding the identity, history and source of a product or of the materials contained within a product, and also provides information regarding the destination of a product, or any ingredient contained within it, making traceability system an information management tool.

In the fisheries sector, information on traceability is used in relation to: a) food safety to ensure that products and materials from which they are made, come from origins that meet food safety conditions; b) application of tariffs and quota tariffs, making sure that appropriate rates of duty are applied; and c) warranting that the fish is derived from sustainable sources, including those from fishing operations and vessels which follow the conservation rules.

The UN Fisheries Resolution on Sustainable Fisheries of 9 December 2013 expressed the concerns over the continued threat to marine habitats and ecosystems, such as from illegal, unregulated and unreported (IUU) fishing, and also acknowledges the negative impacts that such activities have on food security and State economies, particularly in developing regions. The Resolution therefore called upon States to, *inter alia*, initiate within FAO the elaboration of guidelines and other relevant criteria relating to catch

documentation schemes. In response to this request, as expressed in paragraph 68 of the Resolution, the Thirty-first Committee on Fisheries (COFI 31) in Rome, 9–13 June 2014, proposed that FAO undertake the elaboration of guidelines and other relevant criteria related to catch documentation schemes. Thus, the Voluntary Guidelines for Catch Documentation Schemes (VGCDS) were developed by FAO in 2017, which included the Catch Documentation Schemes (CDSs) for wild capture fish caught for commercial purposes in marine or inland areas, whether processed or not. Moreover, such Guidelines had also been elaborated to recognize that all available means are in accordance with relevant international laws and other international instruments, such as, the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) which should be used to prevent, deter and eliminate illegal, unreported, and unregulated (IUU) fishing. As part of the Guidelines, the CDSs build on the primary responsibility of the flag States to prevent, deter and eliminate IUU fishing, and also constitute a valuable supplement to port State and other measures. These Guidelines are therefore aimed at providing assistance to States, regional fisheries management organizations, regional economic integration organizations, and other intergovernmental organizations, in their efforts towards developing and implementing new CDS, or harmonizing or reviewing their existing CDSs.

A Catch Documentation Scheme (CDS) for the certification of legal provenance is referred to as the Catch Certification Scheme (CCS) with the central document referred to as a Catch Certificate (CC) - as opposed to a Catch Document or a Catch Form. Logbooks and landing records are also catch documentation schemes. Moreover, a CDS should be designed to address the concerns on IUU fishing, especially from the point of view of Monitoring, Control and Surveillance (MCS) or from a trade documentation perspective, and is an important tool in combating IUU fishing. However, since a CDS it is not equivalent *per se* to a traceability system, it has therefore become necessary to develop a Catch Documentation and Traceability System (CDT) not only to trace the fish and fishery products in the value chain but also to certify their origin and quality with respect to food safety and sustainability.

- Catch Documentation and Traceability Systems in Southeast Asia

The fisheries sector in Southeast Asia is critically important considering its significant contribution to the people’s social, economic, and livelihoods. Several ASEAN Member States (AMSs) have been the top ten seafood producing countries exporting to the world seafood market during the past decades and even now. However, challenges in addressing the international fish-trade related issues, particularly the IUU fishing issues, have significantly impacted on the ASEAN seafood export until the present.

At the beginning, Catch Documentation and Traceability System (CDT) was considered as a relatively new concept for fisheries managers and seafood companies, not only in Southeast Asia but also globally. Nonetheless, in the Southeast Asian region, efforts had been made by SEAFDEC in collaboration with the AMSs to establish and promote a CDT under the Japanese Trust Fund (JTF)-funded Project “Combating IUU Fishing in the Southeast Asian Region through Application of Catch Certification for Trading of Fish and Fishery Products” implemented by SEAFDEC/MFRDMD since 2013. The Project came up with the “ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain” which supported as one of its activities, the promotion and implementation of the “ASEAN Catch Documentation Scheme” in the Southeast Asian region.

In 2015, the AMSs requested SEAFDEC to develop the ASEAN Catch Documentation Scheme (ACDS) to enhance the traceability of fish and fishery products in the Southeast Asian region. SEAFDEC therefore, through technical consultations with its Member Countries, drafted the ACDS concept during 2015–2017, and the concept was endorsed by the ASEAN during the 25<sup>th</sup> Meeting of the ASWGF in 2017, and subsequently adopted by the SOM-AMAF Meeting, also in 2017. The ACDS concept constituted one of the most significant regional initiatives pursued by SEAFDEC with the collaboration of the AMSs for improving the traceability of marine capture fisheries to ensure that the entry of fish and fishery products from IUU fishing activities into the supply chain is prevented; and this led to the development of national CDTs by the respective AMSs for their fish and fishery products bound for the export market based on the ACDS concept.

- Development of the Electronic ASEAN Catch Documentation Scheme

As of 2018, it was found that most AMSs remain fully or largely reliant on the use of paper-based CDTs, particularly at the point of catch and at landing, and subsequently at the processing plants and distribution of processed products. Except for some countries like Indonesia, Singapore, Thailand, and Viet Nam, many countries continue to use paper-based collection of data across all stages in the fish supply chain, *e.g.* at sea during capture, at port upon landing, in processing plants. In order to address such concern, initiatives had been launched to establish the electronic format of the CDT or eCDT, like for example the electronic ASEAN Catch Documentation Scheme or eACDS.

The eACDS was developed by SEAFDEC/TD to support the implementation of the ACDS concept, taking into consideration the instruction of the SEAFDEC Council of Directors that the ACDS should not create unnecessary burdens, costs or lengthy processes for the supply chain,

especially to the importers and exporters. Thus, SEAFDEC/TD developed the eACDS applications, and in June 2017, the eACDS was pilot tested in Brunei Darussalam and a series of consultations and on-site trainings on the use of eACDS ensued with involvement of relevant stakeholders in collaboration with the DOF of Brunei Darussalam to apply, test and improve the applications of the eACDS, especially making the application more user-friendly. This led to the development of the web-based and mobile applications of the improved eACDS, for offline reporting of the catch at sea. During the succeeding years, the eACDS has also been pilot tested in Viet Nam, Myanmar, and Malaysia.

SEAFDEC/TD developed the 1<sup>st</sup> Version of the electronic system of the ACDS (eACDS-VER.1) in collaboration with Brunei Darussalam as the pilot country in 2017–2018. The prototype eACDS covers the management of the Catch Declaration (CD), Movement Document (MD), and issuance of Catch Certification (CC). However, catch reporting at sea became a fundamental problem when mobile devices operated offshore do not have internet signal. As a result, there was no monitoring system on how raw-fish materials were used in the processing plants and no vessel tracking functions. For these reasons, SEAFDEC/TD has improved the eACDS applications in collaboration with the Directorate of Fisheries (D-Fish) of Viet Nam from 2019 until the 3<sup>rd</sup> Quarter of 2020. Based on the lessons learned from the existing paper-type Viet Nam Catch Certification for the EU Market, SEAFDEC developed the 2<sup>nd</sup> Version of the eACDS (eACDS-VER.2) in close collaboration with the Sub D-Fish in Binh Thuan Province, Viet Nam.

The eACDS-VER.2 application is meant to replace the eACDS-VER.1 as a new prototype application for promotion in the AMSs. The new eACDS system includes mobile apps in both online and offline modes for catch reporting at sea, which is part of the Catch Declaration process. Also added in the 2<sup>nd</sup> Version are other critical functions on traceability called the Statement of Catch (SC) for monitoring the use of raw-fish materials in the processing plants. The system also includes information on transshipment at sea and many new features in the applications, such as vessel tracking on the eACDS Mobile app., timeline activities recording, summary report, a dashboard for the manager, among others. As the eACDS-VER.2 include traceability of fish in the whole value chain, new features had been added, such as:

1. Request port-out/port-in by vessel owner/fishing master via an online webpage
2. Bilingual for both eACDS web-based and eACDS mobile application (English-local language)
3. eACDS-catch report application can provide the date, start, and end position
4. eACDS-catch report application for transshipment at sea

5. Dashboard to summarize report for the manager
6. Mapping the status of a vessel (online and offline)
7. Information and timeline of fishing vessel activities
8. Vessel tracking system on eACDS
9. New application on mobile for purchasing: eACDS-Market Application

Currently, the eACDS consists of two applications: (I) *web-based application* which is designed for: (a) port-out permission and issuance of initial Catch Declaration (CD) to fishing masters, (b) port-in permission including catch weight and species verification and issuance of the CD to fishing masters, (c) issuance of Movement Document (MD), (d) issuance of Statement of Catch (SC), and (e) requirement of Catch Certification (CC) and issuance of CC; and (II) *mobile application* designed for catch reporting at sea and purchasing fish. The eACDS requires several inputs of basic data and information called “Key Data Elements” (KDEs) including information on: 1) Point of Catch, 2) Buyers/ Receivers and Sellers (Broker/Wholesaler), 3) Processors, 4) Exporters and International Shippers, 5) Importers, and 6) End Consumers.

The promotion and implementation of eACDS in participating AMSs, namely: Brunei Darussalam, Viet Nam, Myanmar and Malaysia were carried out in response to their requests during the SEAFDEC high level meetings. The progress of such implementation is summarized as follows:

#### *Brunei Darussalam*

The selection of Brunei Darussalam in 2016 as the first country to pilot test the eACDS had an advantage because Brunei Darussalam has only one fishing port, the Muala Fishing Port which is near the offices of the Department of Fisheries, besides, not many fishing vessels are in operation. The sea areas and fishing grounds are also clearly divided into zones so that vessels can be easily controlled and monitored. There are only 3-4 processing companies in the country that purchase their raw materials from their own vessels. A challenge of Brunei Darussalam is to encourage stakeholders to use the eACDS application to issue Catch Certification, and use it for their export of fish and fisheries products even if their export may not be in large quantities. After pilot testing the eACDS in Brunei Darussalam in June 2017, series of consultations and on-site trainings on the use of eACDS application for all relevant stakeholders were conducted in collaboration with the Department of Fisheries (DOF) of Brunei Darussalam.

#### *Viet Nam*

In responding to the request made by Viet Nam during the 40<sup>th</sup> Meeting of SEAFDEC Program Committee in November 2017, the eACDS was introduced to relevant stakeholders in Binh Thuan Province, as the first pilot site in Viet Nam. Four sites in Viet Nam have been considered to pilot test the eACDS, namely: Phan Thiet Fishing Port, Lagi Fishing Port, Phu Hai Fishing Port, and Phan Ri Cua

Fishing Port. Participated by 50 fishing vessels, the pilot test carried out several activities including discussions on development and verification of the eACDS application, training on the use of the eACDS application through trials on the use of eACDS application conducted in Binh Thuan Province as the pilot site, in collaboration with the Sub D-Fish.

#### *Myanmar*

The Council Director for Myanmar reiterated during the 50<sup>th</sup> Meeting of the SEAFDEC Council in March 2018 that he looked forward to cooperating with SEAFDEC in strengthening regional cooperation to combat IUU fishing by supporting the implementation of the eACDS at the national level. To follow up on such proposition, the eACDS system was introduced to relevant stakeholders and the Department of Fisheries (DOF) of Myanmar through a discussion on the initial planning and cooperation with DOF of Myanmar for the eACDS implementation. The DOF proposed Yangon as its pilot site with the participation of three private jetties, namely: Aung Phyto Myat Jetty, Ei Phyto Yanada Jetty, and Nrwe Pinle Jetty, and involvement of about 100 fishing vessels. Training was conducted on the collection of KDEs, verification of the application to develop the eACDS database, and use of the version of eACDS application,

#### *Malaysia*

In 2019, the eACDS system was introduced for all relevant stakeholders and the Department of Fisheries Malaysia, as requested by Malaysia during the 41<sup>st</sup> Meeting of SEAFDEC Program Committee in November 2018. Two pilot sites in Kelantan and Kuantan were selected as proposed by DOF Malaysia. Initial discussion on planning and cooperation with DOF Malaysia agreed that a baseline survey would be conducted, and training would be organized for the analysis of the data as well as for the collection and verification of KDEs for the eACDS database development, and also on the use of the eACDS application.

- Development of Other Regional Initiatives on Catch Documentation and Traceability

Other initiatives on eCDTs have also been promoted in the Southeast Asian region, including the development of a transparent and financially sustainable electronic Catch Documentation and Traceability (eCDT) system by the USAID Oceans Project (a five-year collaborative project between SEAFDEC and USAID (2015–2020)). This was carried out through the establishment of a wide range of partnerships in both the public and private sector, including productive partnerships with government ministries, global seafood companies, processors, suppliers, sector associations, non-governmental organizations (NGOs), and academic institutions. The development of such eCDTs had added to the regional momentum for action on seafood traceability where the industry (suppliers, processors,

buyers) had been encouraged to invest in eCDT systems to improve the efficiency of their operations and regulatory compliance.

More specifically, the USAID Oceans Project supported the development of national eCDTs and complementary private sector technologies in Indonesia and the Philippines. In Indonesia, this comprised supporting the development of the Government of Indonesia's national systems (e-logbook and Stellina) and three private sector technologies, such as the following:

- The **Pointrek** two-way communication Vessel Monitoring System (VMS) which was developed for large and medium-scale capture fisheries, is a web-based application at sea that can connect with Inmarsat's satellite networks to monitor the movement of vessels, including data such as: speed, heading, distance, weather information and two-way communications. Pointrek VMS provides real-time VMS and electronic catch data via a mobile tablet, installed onboard fishing vessels. The system offers person-to-person communication from ship to shore by offering onboard Wi-Fi to connected mobile devices via text message, email, and the conventional SMS technology.
- **Trafiz** was developed as a mobile catch documentation application for small-scale fish suppliers and buyers that provide first data entry point for seafood products originating from small-scale fishers. Trafiz enables data collection at the landing site, allowing users to enter and submit catch data via a mobile device and cellular connectivity. Trafiz also includes value-added user functions that support loan and payment management and other tools that add user value. Trafiz therefore, supports catch reporting, as well as business functionalities that help small-scale fishers manage their business.
- **TraceTales** was developed to enable the processing companies to capture data throughout the processing stage. With the system, processors can quickly and easily compile the information that are essential to comply with the various national and international traceability requirements, thereby ensuring the company's access to valuable export markets, as well as bring paper-based record keeping online for improved business and resource management.

In the Philippines, the USAID Oceans Project supported the Bureau of Fisheries and Aquatic Resources national eCDT system and one private sector to develop a technology known as the "Futuristic Aviation and Maritime Enterprises, INC. (FAME)" for small-scale vessel trackers and monitors that also serves as communication devices, enabling small-scale fishers to participate in the eCDT system and establishing increased communication and safety at sea. FAME makes use of radio frequency to send and receive

information, and its gateways receive the information from transponders and sends to the cloud. Telemetry data can be sent up to 50 km offshore and can be extended farther via mesh technology between the transponders. Even if a vessel/device is out of range, but within range of another vessel equipped with a FAME transponder, the data can still be sent to a gateway. Personal communication, together with telemetry data can also be sent through the FAME transponders. FAME also provides a dashboard through a web and mobile browser-based application, allowing users to see the details of each transponder and other related data in near real-time, anywhere. The dashboard allows users to draw geofencing areas for remote areas or areas to prioritize, as well as generate custom reports with integrated graphs. FAME users can receive notifications (alerts) both to fishers at-sea and users on-shore. Fishers can use their mobile phones with USB On-The-Go (OTG) or Bluetooth to send and receive messages without mobile phone tower connectivity. Their platform is fully customizable and has been modified to incorporate the required Key Data Elements (KDEs).

- Issues and Concerns

Adoption of the eCDTs is a relatively new concept in fisheries in the Southeast Asian region, and lessons on their implementation are to be learned. During the 2019 Workshop on the Technical Guidance on the Design and Implementation of Electronic Catch Documentation and Traceability Systems in Southeast Asia, gaps were identified by the AMSs during their adoption of the eCDTs, as shown in **Box 19**.

#### *Way Forward*

Among the major benefits of traceability include the prevention of damages to human health due to food safety concerns, in terms of illness or death, as the distribution of the contaminated products is avoided. Furthermore, if the source of the problem and the precise batches of contaminated products could not be identified, then the food business operator concerned will be obliged to withdraw and destroy all batches which could have been potentially affected. Promotion of traceability which provides the tool to address the aforesaid issues, should therefore be enhanced.

Moreover, traceability can improve stock control and reduce out-of-date product losses, lower inventory levels, quicken the identification of process and supplier difficulties, and raise the effectiveness of logistics and distribution operations. In the longer term, better food safety management resulting from improved traceability, provides greater guarantee in terms of sustained market access and buyer confidence. Improved customer confidence also helps with branding and improved brand equity. In this regard, traceability should be promoted as

<b>Box 19. Identified gaps in the implementation of Electronic Catch Documentation and Traceability systems by the ASEAN Member States</b>
<p><b>Brunei Darussalam</b></p> <ul style="list-style-type: none"> <li>• Large volume of capture fisheries production is contributed by small-scale fishers (70 %)</li> <li>• Limited human resources and assets for MCS activities</li> <li>• Selectivity of jobs by local youth</li> </ul>
<p><b>Cambodia</b></p> <ul style="list-style-type: none"> <li>• Limited market access due to inability to keep up with production and marketing systems of neighboring countries</li> <li>• Insufficient cross-border collaboration among key players</li> <li>• Inadequate cross-border trade regulations and means of implementing the regulations</li> <li>• Limited incentives for the private sector to enter into development of commercial post-harvest facilities</li> <li>• Insufficiency of appropriate financial resources</li> <li>• Absence of port-in port-out system to meet the ASEAN Catch Documentation Scheme (ACDS) requirements</li> <li>• Fisheries Administration being challenged by traders selling fish at sea without transmission of catch records to authorities</li> <li>• High numbers of small-scale fishers</li> </ul>
<p><b>Indonesia</b></p> <ul style="list-style-type: none"> <li>• Absence of integrating data from downstream and upstream in a single national data system, to support decision making for fisheries management</li> <li>• Identification of responsible unit to monitor compliance</li> <li>• Accountability towards verification and validation processes</li> </ul>
<p><b>Lao PDR</b></p> <ul style="list-style-type: none"> <li>• Absence of any catch documentation or traceability system</li> <li>• Recording of information includes only the amount of sale at landing sites</li> <li>• Fishing ports consist mainly of small local landing sites along the Mekong River, reservoirs and lakes</li> <li>• Fisheries sector is characterized by 95 % small-scale fishing activities</li> <li>• Inadequacy of necessary resources</li> <li>• Inadequate capacity building programs for staff</li> </ul>
<p><b>Malaysia</b></p> <ul style="list-style-type: none"> <li>• Only 6 states implement Catch Certificate - Penang, Perak, Selangor, Johor, Pahang, and Sabah</li> <li>• Need for additional resources (manpower, financial) necessary for monitoring, auditing, and verification</li> <li>• Need for training of new officers and conduct of refresher courses for existing officers</li> <li>• Key Data Elements are collected more than once through different forms managed by different agencies with very limited scope for data sharing, resulting in lack of proper consolidation and organization of these KDEs under one eCDTS platform</li> <li>• Current approach to CDT is very compartmentalized within government and should be streamlined</li> <li>• eCDT, let alone CDT, across fisheries in Malaysia is not yet officially mandated or streamlined under any policy</li> </ul>
<p><b>Myanmar</b></p> <ul style="list-style-type: none"> <li>• Fisheries sector is characterized by predominantly vessel type(s) for offshore fisheries (trawlers)</li> <li>• Catch documentation and traceability system is largely paper-based</li> <li>• Low interest of policy makers and decision makers in the fisheries sector</li> <li>• Insufficient technical capacity and financial resources</li> <li>• Inadequate post-harvest facilities</li> </ul>
<p><b>Philippines</b></p> <ul style="list-style-type: none"> <li>• Lack of appreciation of CDT as a mechanism for sustainable fisheries development</li> <li>• Need to harmonize CDT systems of trading partners in the development of IT system for CDT in the Philippines</li> <li>• Catch documentation is mainly paper-based and primarily for business dealing purposes</li> <li>• Non-uniform methodology for data capture, storage, and sharing; differences in terminology used by different players along the chain; and differences in the types of data captured and transmitted by different players along the chain</li> <li>• Restrictive policies and unsupportive governance</li> <li>• Subscription or adherence to several standards dictated by international markets and other international and non-regulatory standards which have their own lists of certification requirements</li> <li>• Compliance with regulations and certification requirements are considered labor and resource intensive</li> <li>• Inactions on the part of the government agencies tasked with regulating food systems hamper the maturation of technologies and standards necessary for achieving whole-chain traceability</li> <li>• Lack of buy-in and commitment to implement an electronic CDT system by both small- and large-scale sector stakeholders</li> <li>• Limited awareness of the CDT system brought about by the diversity of nature and technology (e.g., computers, smartphones) and multiplicity of fishing gear and target species of the small-scale fisheries sector</li> <li>• Limited capacity to pay for increased CDT, particularly in the case of small-scale fishers</li> <li>• Inadequacy of needed skills and human capacity</li> <li>• Absence of trust among companies to participate in the implementation of CDT system which they believed could result to data breach</li> </ul>
<p><b>Singapore</b></p> <ul style="list-style-type: none"> <li>• Limited domestic fishing grounds</li> <li>• Extensive species and sources of seafood imports</li> <li>• No commercial fishing</li> </ul>
<p><b>Thailand</b></p> <ul style="list-style-type: none"> <li>• Ability and willingness to adopt technology that is not compulsory, depend on the personalities and progressiveness of boat captains and owners</li> <li>• Fisheries regulations of Thailand including VMS requirements have been changing frequently in recent years causing mistrust in the government ...</li> </ul>

**Box 19. Identified gaps in the implementation of Electronic Catch Documentation and Traceability systems by the ASEAN Member States (Cont'd)**

**Thailand (Cont'd)**

- Insufficient technical capacity and interest of fishers on the technology (as suggested by the following findings during the pilot testing of the Hi-Chat application and e-logbook technology), e.g. the use of e-logbook technology, for some older captains who are resistant to change and end up designating the filling of the e-logbook to a crewmember, although most boat captains use the Hi-Chat application, so that the problem is more on users' interest rather than technical capability
- Companies are wary of authorities getting data for the eCDT, implying the need for bridging over through incentives, demonstrating the benefits, and so on
- Need improvements in terms of the number of KDEs collected by the e-logbook system, as additional data points are necessary for the system to be compatible with the CDT system in use by the Department of Fisheries of Thailand, and with other international standards—including USAID Oceans' recommended point of production KDEs
- Needs value proposition analysis based on the evaluation of efficiencies and benefits
- Unclear cost-sharing structure

**Viet Nam**

- Fisheries sector is characterized by small-scale fishing (71 % small vessels)
- Low awareness of fishers on IT
- Limited application of IT for the CDT
- Country's catch documentation system is mainly paper-based up to the point of the processors
- Low awareness of the need for CDT on the part of fishers and limited application of IT for CDT

a marketing tool, by providing customers with unique information about the products they are buying and their origin. This also implies the need for the AMSs to consider the development and improvement of their traceability systems that could complement those of the importing countries not only in commercial/large-scale fisheries but also by exploring appropriate approaches for the small-scale fisheries in coastal and inland waters through the use of new technologies that support traceability processes and systems. This would enhance the intra- and inter- regional trading of fish and fishery products.

During the 2019 Workshop on the Technical Guidance on the Design and Implementation of Electronic Catch Documentation and Traceability Systems in Southeast Asia, gaps were identified by the AMSs (Box 19), which could be summarized into: inadequate capacity building not only of the human resources but also institutional, especially in IT as the traceability systems require sufficient knowledge in IT to be able to use the applications; limited mainstreaming of the concepts of eCDTs in national policies, laws, and regulations; laws and regulations do not generally address the concerns on the need to promote traceability of fish and fishery products at national level; weak cooperation and collaboration among agencies concerned with traceability as well as with the private sector, among others. Efforts should therefore be exerted to plug these gaps in order that the benefits of traceability with respect to the sustainable management of the fishery resources could be realized.

More specifically at the regional level, AMSs should harmonize the catch documentation scheme importer's requirements (paper-based and electronic), including IT Catch. Furthermore, the AMSs should move toward ensuring compatibility and linking of data in the future for the traceability processes and systems. This would necessitate the development of new projects or additional activities for the existing relevant projects being implemented in the Southeast Asian region.

**6.1.1.4 Port State Measure (PSM) Implementation**

As a legally binding international instrument to prevent, deter, and eliminate IUU fishing by preventing foreign vessels engaged in IUU fishing from using ports and landing their catches, the 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA) was approved by the FAO Conference on Fisheries at its 36<sup>th</sup> Session, 22 November 2009 and open for signature from 22 November 2009 until 21 November 2010, by all States and regional economic integration organizations. During that period, 23 States and the European Union (EU) signed such PSMA, which was then subsequently entered into force on 5 June 2016. As of 8 March 2021, there were 69 Parties to the PSMA, including the European Union as one Party representing its 27 Member States. Nine new Parties have deposited their instruments of accession to the PSMA since the Second Meeting of the Parties held in Santiago, Chile on 3–6 June 2019.

From a global perspective, the proportion of coastal States where the PSMA is in force is 56 % and the proportion of the total States where the PSMA is in force is 48 %. Coastal and landlocked States represent 81 % and 19 % of the total States, respectively. From the regional perspective, the proportion of PSMA enforcement in the coastal States is lowest in the Near East (29 %) and Southwest Pacific (38 %); medium in Latin America and the Caribbean (52 %), Asia (58 %), and Africa (58 %); and highest in Europe (73 %) and North America (100 %). Meanwhile, the proportion of PSMA enforcement in the total States is lowest in the Near East (24 %), Southwest Pacific (38 %), and Africa (39 %); medium in Asia (46 %) and Latin America and the Caribbean (48 %); and highest in Europe (69 %) and North America (100 %).

Currently, six (6) ASEAN Member States (AMSs) are Parties to the PSMA, namely Cambodia, Indonesia,