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2009 FAO Agreement on Port State Measures (PSMA)

Second Meeting of the PSMA Open-Ended Technical Working Group on Information Exchange

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OPTIONS FOR THE DEVELOPMENT OF A GLOBAL INFORMATION EXCHANGE SYSTEM IN SUPPORT OF THE PSMA

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I. Introduction

1. Article 16 of the 2009 FAO Agreement on Port State Measures to prevent, deter and eliminate illegal, unreported and unregulated fishing (the Agreement or PSMA, interchangeably), states that Parties should cooperate to establish an information sharing mechanism, preferably coordinated by FAO, in conjunction with other relevant multilateral and intergovernmental initiatives, and to facilitate the exchange of information with existing databases relevant to the Agreement.

2. At the First Meeting of the Parties to the Agreement, held in Oslo, Norway, from 29 to 31 May 2017, the Parties agreed that, on the matter of data-exchange, a staged approach should be adopted, initially prioritizing the need to access basic information, such as on designated ports and national contact points, moving towards the development of more advanced information systems based on the information exchange requirements referred to in the Agreement. It was highlighted that transparency and accessibility regarding information exchange would be crucial, and that the need for accuracy would have to be taken into consideration.

3. Furthermore, Parties established an open-ended technical working group to provide guidance on elaborating information exchange mechanisms and other technical matters, including the need to provide for varying levels of access depending on the nature of the information provided.

4. The first meeting of the PSMA Open-Ended Technical Working Group on Information Exchange (TWG-IE) was convened in London, United Kingdom, from 16 to 18 April 2018¹. The TWG-IE considered the type of information exchange mechanism they wished to see developed by FAO. Options considered included a basic reporting system, a complete e-PSMA system or a system that linked with other systems and networks.

5. The Working Group noted in particular that:

- designated port and national points of contact templates should be piloted and open for review by the Parties at their second meeting;
- the near-real time exchange of information, both public and protected, was crucial;
- FAO should explore options to facilitate a standardized approach for the electronic exchange of information;
- linkages with the relevant systems of regional fisheries management organizations and global systems such as those used by the International Maritime Organization (Global Integrated Shipping Information System and Equasis) were important; and
- the Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels² is a promising platform for information sharing and could be linked with the PSMA information exchange system, as appropriate, to facilitate the exchange of information for the PSMA

6. The Working Group considered that a two-staged approach for developing a global information exchange system was appropriate. The first stage would facilitate the exchange of basic information such as designated ports and national points of contact and be implemented as soon as possible through the PSMA website. The second stage would focus on the development of a robust global system that facilitates the exchange of information and would include a publically available information section and a limited access section for protected information such as port inspection reports. This document considers options for moving forward on this second stage.

¹ Report available at: TWG-IE/2/2019/Inf.5

² <http://www.fao.org/global-record/en/>

II. Considerations for the development of a Global Information Exchange System

7. The objective of this working document is to provide the TWG-IE with background information to discuss the conceptual design and strategy for the development of a Global Information Exchange System (GIES) in support of the implementation of the PSMA, and accordingly provide further guidance for its development and implementation. In considering options, the following factors are taken into account:

- information requirements of the PSMA;
- outcomes of the relevant meetings of the Parties and working groups;
- requirements of developing States Parties, including governance and capacity issues;
- options that facilitate the use of a harmonised standard for the timely electronic exchange of information among different systems, including the use of such systems as the “Fisheries Language for Universal Exchange” (FLUX);
- opportunities to take advantage of existing information systems, including the Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record);
- confidentiality requirements;
- lessons learnt from the development of regional information systems and those of RFMO/As;
- lessons learnt from the development of the Global Record information exchange system;
- successful experiences of existing, well developed information exchange systems of other relevant regional and international organizations (e.g., International Maritime Organization’s (IMO) Global Integrated Shipping Information System (GISIS) and Equasis);
- the choice of the technologies to be used and related technical specifications for the system;
- high-level overview of the system architecture and data design associated with the system;
- roles and responsibilities of the System’s users (hosting, information uploading, maintenance, etc.);
- possible challenges in the development and implementation of the proposed GIES.

8. The GIES is intended to be the global Electronic-Port State Measures system (e-PSM) and therefore is only as useful as the information/data the system holds. A fundamental rationale is that to extract information/data from the system, the information/data has to be in the system and has to be accurate and validated. This principle works well when there is an existing data asset, i.e. for a system which already holds information that users want to access. Consideration should be given at the outset to ways of getting users into the system so that a critical mass can be achieved quickly enough for the System to generate momentum and affect change. If an information system takes too long to reach a critical mass of valuable information, it could be more difficult to get countries to start using the system as they do not see a clear benefit. Creating a system that offers Parties a PSMA-compliant way to manage their port entries, and therefore reduces effort, is likely to guarantee a quicker commitment from them than a system that creates some extra effort upfront with the promise of a future return of valuable information.

9. Additional considerations which may influence the decision for the approach include: the number of Parties that need to be synchronised with the GIES for it to be considered successful and the location of target areas.

III. Implementation options for the GIES

10. The discussion below presents three implementation options of the GIES:

- GIES as a Basic PSM System;
- GIES as a Global PSM System; and
- GIES as an Integrated PSM System.

11. For each option, a brief description is presented, an analysis of the strengths, weaknesses, opportunities and threats (SWOT) is made and a diagram of the workflow is presented. Additional background information on the use of terms, standardization, and workflow considerations are available in Annex 1.

12. All three options would preferably be linked to the Global Record. It is vital to have e-PSM reports linked to a unique vessel identifier. The IMO number is the obvious choice since it follows a vessel throughout its existence.

Option 1 - GIES as a Basic PSM System

13. The Basic PSM System is a direct extension of existing “paper based” PSM systems. There could be a number of ways to implement this type of GIES, differing in how far they go in automation of the workflow. Here, the approach taken assumes that GIES is a simple receiver of data, mostly pdf documents, either scanned copies of handwritten forms or electronically filled in forms saved as pdf. It is assumed that such documents are supplemented with key parameters identifying the document and actors to allow for a search tool.

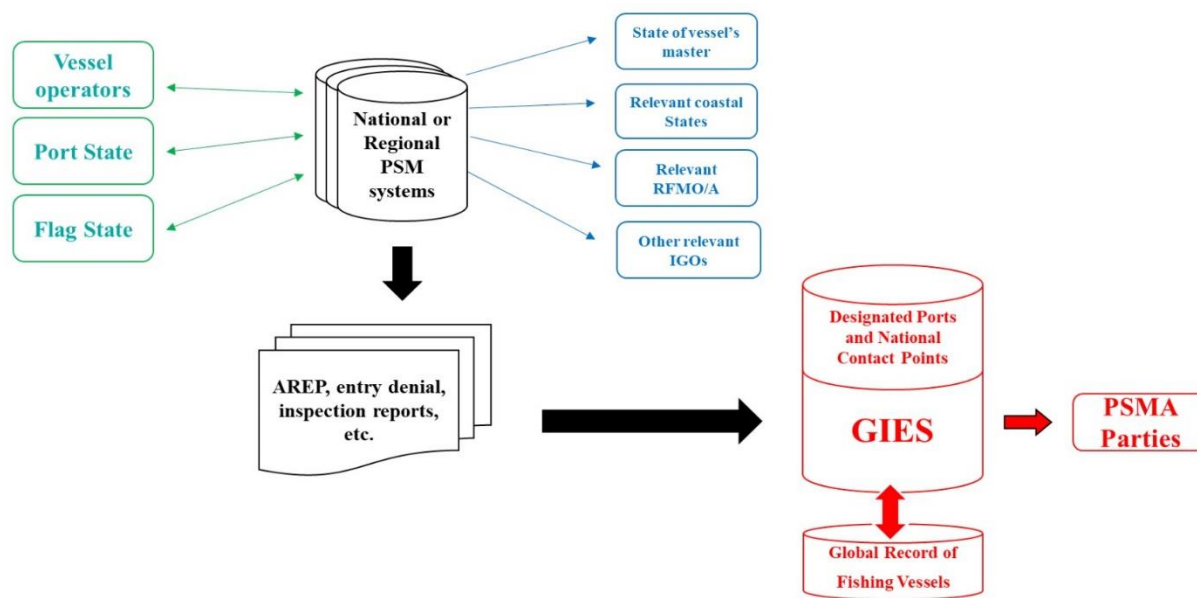
14. This type of GIES would still have an access controlled web interface, providing access to the data with web reports and queries and for uploading of completed reports. However, the data itself would be only readable with the eyes of the viewer (not computers) and therefore not allow any extensive analysis of the content of the reports. In the workflow diagram below, it is assumed that the steps are mainly manual actions, performed by the vessel operator, the operator of a national or regional PSM system (Port State or RMFO/A) and the flag State. In this case, the GIES is a passive receiver, not directly participating in the workflow. The SWOT analysis for the GIES as a basic PSM System is below in Table 1.

Table 1. SWOT Analysis for GIES as a Basic PSM System

Strengths	• Likely easy to implement. • Known, simple procedures to complete forms.
Weaknesses	• Uniformity of data not guaranteed except for some key parameters. • Limited automation of data processing or analysis, including limited possibility for automated risk analysis features. • Time-delay constraints for real time exchange of information, as speed of information exchange depends on speed of upload of information by relevant actors.
Opportunities	• Considerable contribution to fight against IUU fishing and to sustainability, relatively quick to develop.
Threats	• Lack of trust means implementation could be low, lack of resources creates performance issues and confidence is dented.

15. Figure 1 below presents the workflow diagram for the GIES as a Basic PSM System. In this case, existing national and regional PSM systems would be the core for receiving information from the various actors and sending on the information to the required actors and other relevant contacts. Information such as the AREP, denial of entry, and inspection reports would be submitted to the GIES in document (pdf) format, just as it would be submitted to other relevant contact points. Information, as submitted would be sent to Parties, or they could access this information through the GIES.

Figure 1. Option 1 - Workflow diagram for GIES as a Basic PSM System



Option 2 - GIES as a Global PSM System

16. The GIES as a Global PSM System option would mean one central e-PSM system to be used globally. For this option, existing national and regional PSM systems would be replaced and all would implement the PSMA workflow for all Port States. The web-based, access-controlled user interface would provide all types of users with all foreseeable data entry and viewing capabilities needed for the workflow, as defined in the PSMA.

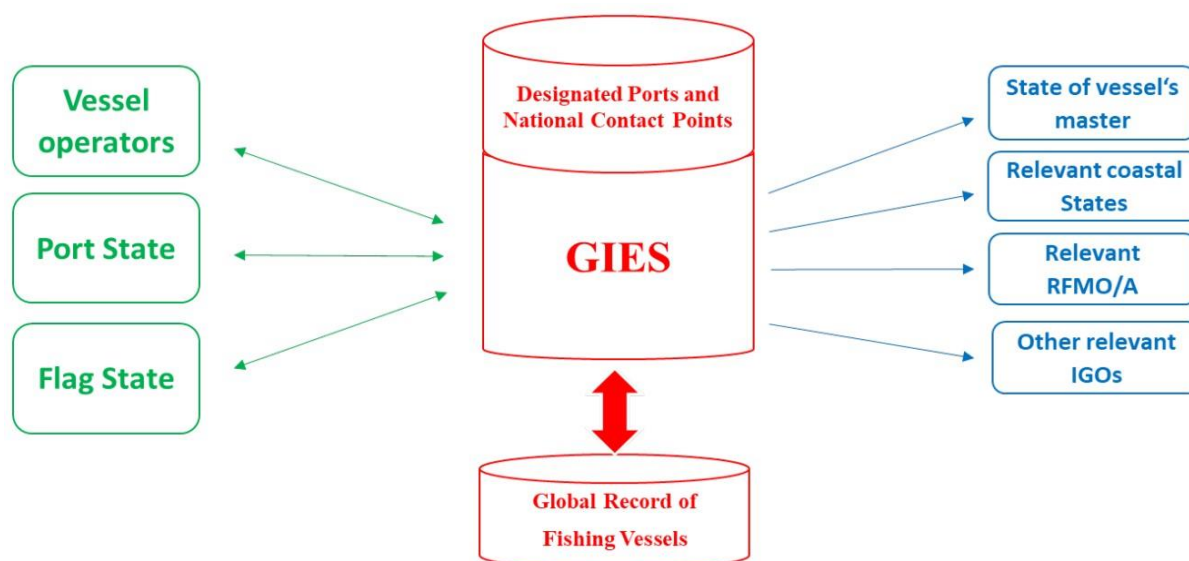
17. This option can be compared to a global version of some of the current RFMO/A systems, which would replace existing systems. This approach is well known on a regional level and so could be considered a proven workflow. The SWOT analysis of the GIES as a Global PSM System is outlined in Table 2.

Table 2. SWOT Analysis of the GIES as a Global PSM System

Strengths	• Technically simplest and quickest to deploy, as most countries do not have an existing system. • Uniformity of data guaranteed as single central production of user input interfaces. • Fewer experts involved so likely to be cheaper overall, although more complex in size and capacity. • Near-real time exchange of information guaranteed. • Possibility for some automated risk analysis features.
Weaknesses	• Data sharing and security concerns. • Size would require resources to support. • Transparency required in system for subscribing users. • Current regional efforts would be discarded.
Opportunities	• Massive contribution to fight against IUU fishing and for sustainability. Relatively quick roll out.
Threats	• Lack of trust makes implementation difficult, lack of resources creates performance issues and confidence is dented. Large and complicated task to organize.

18. The workflow for the GIES as a Global PSM System is presented below in Figure 2. In this option, the information related to AREP, inspection reports, and entry denial would be inputted directly into the GIES by the various actors where those that should receive the information would also directly access it on the GIES. Automatic notifications would also be included in this system, such as a notification to the port State that it has received an AREP, to the vessel that the port State has received the AREP, and the decision of port State regarding entry of a vessel. In certain conditions, (eg. inspection takes place, evidence of IUU fishing, denial of port entry) the reports and notifications would be forwarded to the relevant actors and contacts.

Figure 2: Option 2 - GIES as a Global PSM System



Option 3 - GIES as an Integrated PSM System

19. In the GIES as an Integrated PSM System, the GIES implements the workflow of the PSMA for those States that choose to use it (i.e. States that are not Party to any RMFO/A). In short, the workflow for option 3 is the same as in option 2 but with the addition of an Application Program Interface (API) for existing national and regional PSM systems to automatically feed-in completed AREPs, denials or approvals of port entry, inspection reports, and other related information when they have completed the workflow according to national or regional procedures.

20. This option will require some additions to current work procedures and functionality in existing (and future) national and regional PSM systems. Exact needs will need to be evaluated on a case by case basis.

21. For this option, the GIES would contain all available PSMA-related data, stored in the same data structures as if entered via the GIES web interface and providing the search capabilities and statistics for the whole dataset. The API will restrict the data to be fed into the system in a standardised form with all required data fields populated.

22. This option would have the characteristics of a centralised system adding the global data without participating in the workflow globally. This option would utilise the existing national and regional systems, with their own workflow as is, although requiring additional support for the GIES's API to upload data. The SWOT analysis for the GIES as a basic PSM System is below in Table 3, and the workflow is presented in Figure 3.

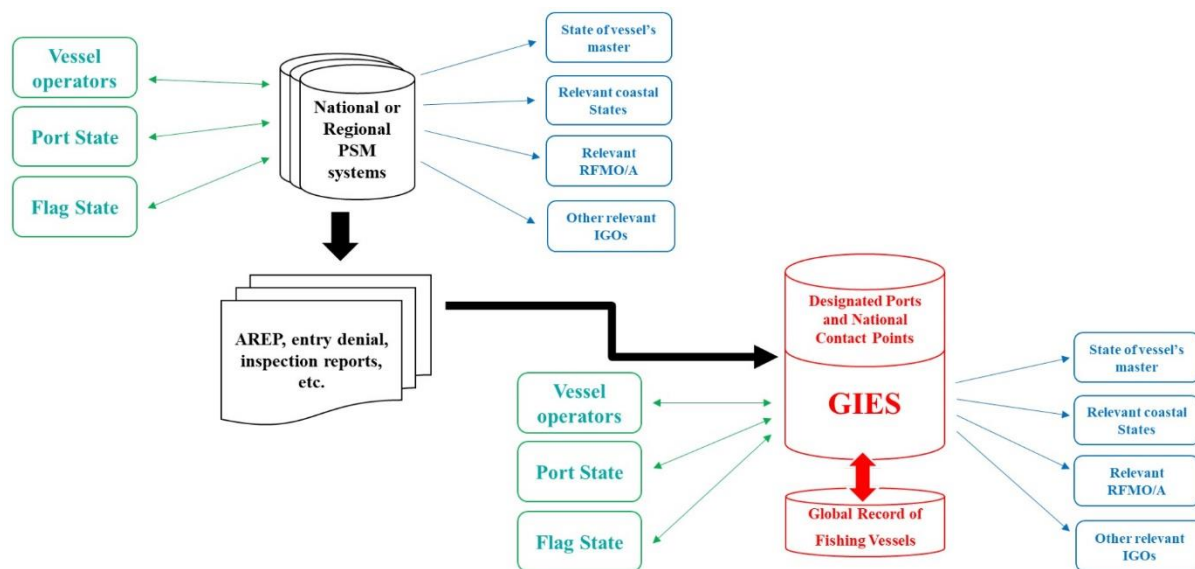
Table 3. SWOT Analysis of GIES as an Integrated PSM System

Strengths	• Preserves the opportunity for developing countries to get access to PSM work procedures without having to implement their own system, either temporarily or permanently. • Uniformity of data guaranteed as single central production of user input interfaces and API restricting the uploaded data to comply with format. • Near-real time exchange of information guaranteed. • Possibility for some automated risk analysis features.
Weaknesses	• Data sharing and security concerns. • Size would require some resources to support. • Transparency required in system for subscribing users. • Global need for IT experts to support regional PSMA systems.
Opportunities	• Massive contribution to fight against IUU fishing and for sustainability, relatively quick roll out. • Slightly more complicated in implementation than the GIES as a Global PSM System as it requires the development and use of the API.
Threats	• Lack of trust makes buy in hard to get, lack of resources creates performance issues and confidence is dented. • Large and complicated task to organize.

23. The workflow for the option of the GIES as an Integrated PSM System is presented below in Figure 3. The workflow provides the option for national and regional PSM systems to maintain their own existing workflows and feed into the GIES, provided adjustments are made to ensure that all information required in the GIES is included in their own systems. Those States that do not have an existing PSM system have the option to process the PSM procedures through the GIES.

24. For this option, port States may need to use a combination of the GIES and national and/or regional systems, where applicable.

Figure 3. Options 3 - GIES as an Integrated PSM System



IV. Analysis of the implementation options for the GIES

25. The three implementation options as presented below are presented in Table 4, comparing the workflow for each side-by-side, in terms of what role the GIES would play in each workflow point. In the case of Option 1: GIES as a Basic PSM System, only some of the noted workflow steps would be included, while for Options 2 and 3, GIES as a Global PSM System and GIES as an Integrated PSM System, respectively, all workflow steps would be included, including automatic notifications.

Table 4. Comparison of workflow for different GIES implementation options

Step / action	Description of the step	Option 1 Basic	Option 2 Global	Option 3 Integrated
1	Vessel operator sends an AREP by filling out and submitting a GIES web form.	X	X	X
2	Automatic notification to the Port State of received AREP that needs to be acted upon .		X	X
3	The Port State acknowledges the reception of the AREP.		X	X
4	Automatic acknowledgement to the vessel operator saying that the Port State is aware of the request.		X	X
4.1	<i>Although not spelled out in the PSMA, the Flag State might be notified at the same time of the AREP, allowing the Flag State to review and verify the data/information.</i>	X	X	X

Step / action	Description of the step	Option 1 Basic	Option 2 Global	Option 3 Integrated
5	The Port State verifies the data/information in the AREP. (contacting other relevant Parties or other information systems)		X	X
5.1	<i>The Flag State validates (or not) the AREP data/information.</i>		X	X
5.2	<i>The Port State receives a notification (email) of the response from the Flag State.</i>		X	X
6	The Port State , after verifying the AREP data /information, takes a decision (“authorise entry”, “authorise entry for inspection” or “deny entry”).	X	X	X
7	The decision of the Port State is automatically sent to the vessel operator .		X	X
7.1	Other relevant contacts are notified at the same time if the decision is “deny entry” (Flag State, relevant Coastal States, RFMO/As, other IGOs).		X	X
8	If port inspection takes place, the Port State inspector logs on the GIES to fill out and submit Inspection report .	X	X	X
8.1	GIES forwards the Inspection report to the Flag State .		X	X
8.2	If there is evidence of IUU, the Inspection report is forwarded to other relevant contacts (relevant Coastal States , State of master nationality, relevant RFMO/As, FAO and other relevant IGOs).	X	X	X
9	If an inspection results in a withdrawal of prior denial of the use of port, automatic notification sent to other relevant contacts (relevant Coastal States , relevant RFMO/As).	X	X	X
10	Flag State sends report on “ follow up actions by Flag State ” to Port State or RFMO/A .		X	X
11	AREP workflow is completed.	X	X	X

Annex 1**Considerations for the development of the GIES**

1. For the purposes of this document the terms “Actors” is used to indicate stakeholders which act within the workflow of the port entry and landing requests (by sending information or taking decisions which are then relayed to others) and “other relevant contacts” are those stakeholders who need to be informed, but which do not act. Actors and other stakeholders directly identified in the PSMA are:

Actors

- Vessel operators (vessel captains/masters or their representatives, such as agents or owners)
- Flag State³
- Port State

Other relevant contacts

- Coastal States
- RFMO/As
- FAO
- State of captain/master’s nationality
- Other IGOs

Workflow for Advance Request for Port Entry

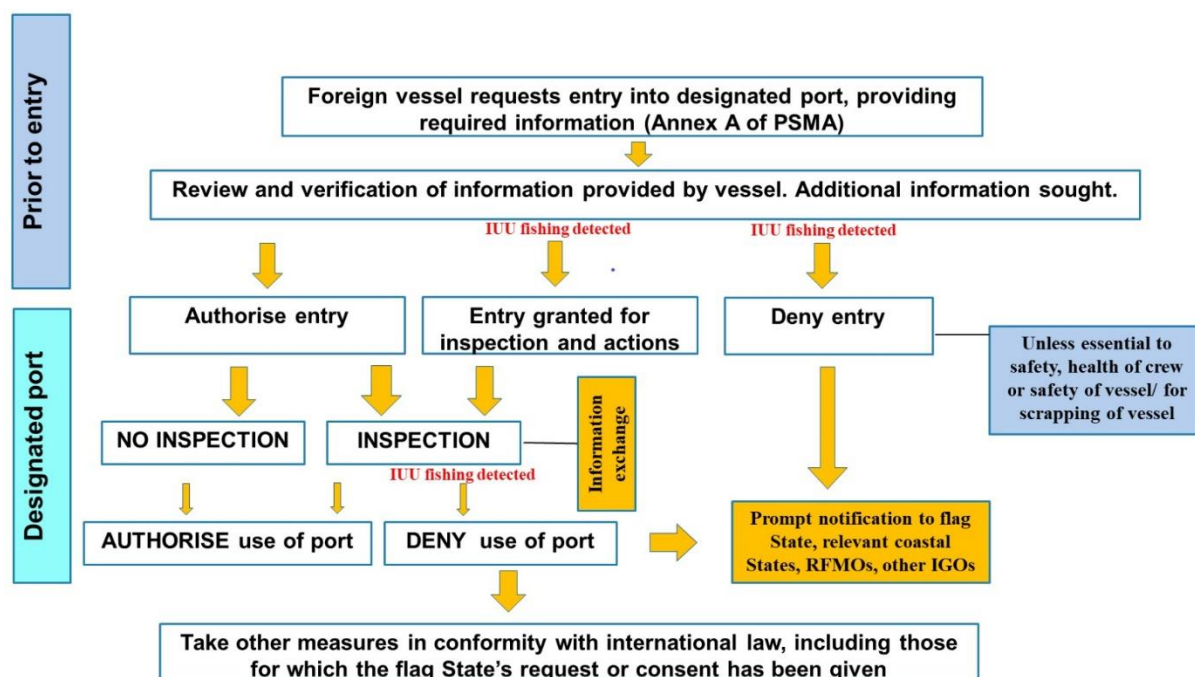
2. Workflow actions directly identified in the PSMA are:

- Advance request for port entry (AREP)
- where AREP = denial
 - Information to actors and relevant parties
- where AREP = authorised
 - Information to the vessel or its representative
 - Inspection
 - Information to actors
- where AREP = authorisation exclusively for inspection
 - Information to actors
 - Inspection
 - Authorise the use of port
 - Information to actors
 - Confirmation of IUU
 - Information to actors and relevant parties

Figure A1 below describes the minimum set of workflow actions, as set out in the PSMA.

³ While the step of confirmation by Flag-States is not specified in the PSMA, in this document it is considered as a standard practice, employed wherever possible, to speed up the workflow procedure and to contribute to the context of the information. Therefore, Flag-State has been included as an Actor, although in practice it is understood that this may not be applicable in every case.

Figure A4. Minimum workflow in the PSMA



Use of Standards

3. Certain data is needed for the E-PSM workflow to work properly, e.g. to verify the identity of vessels, restrict values to defined codes, etc. Such data should be based on existing global standards, as much as possible. The following four standards are directly referred to in the PSMA.⁴

- Countries/territories: ISO-3166 3-alpha Country Code
- Species: ASFIS 3-alpha code (known as FAO 3-alpha code)
- Vessel types: ISSCFV code (known as FAO alpha code)
- Gear types: ISSCFG code (known as FAO alpha code)

Vessel registry data

4. Incoming reports need to be referenced uniquely to a recorded vessel. This would preferably be based on/linked to the Global Record. It is vital to have a unique identifier that links the E-PSM reports to a vessel in a unique way. The IMO number is the obvious choice since it follows the vessel throughout its existence. These might require further mandates and actions.

Information on designated authorities and ports

5. Each Party of the Agreement needs to provide various contact information. The list below identifies some of them but may not be exhaustive:

- List of designated authorities in each Party and/or organisation;
- Contact details for designated authorities – for notifications and requests for actions;

⁴ Additional standards may be relevant and will be identified at later stages.

- List of designated ports (preferably UN-LOCODE based)⁵, information would include:
 - Activities allowed/services available (landing/transshipment/other)
 - Specific conditions or limitations (i.e. EU Border Inspection Post, or frozen landings only)
 - Advance time period (72/48/24/12 hours)
 - Contacts to port authorities
 - Validation (signatures/seal/stamp) by National or Regional authorities, if required.
6. Applications for contact points and designated ports have been developed by FAO to respond to this immediate need of the Parties. The existing online database/upload facility⁶ will be considered in the development of the PSMA GIES.

Additional Requirements

7. Various requirements will have to be discussed and decided at a later stage, including:
- Access to data - A system like GIES will have to have flexible access control, allowing different users with different roles to have access to the relevant data to their role. Not all users will see all data. It should be understood that this principle underpins any automatic system, there are however many ways to arrange this and so the details of these requirements are not part of this stage of feasibility planning.
 - Capacity requirements, technology, security, business continuity, etc.

⁵ <http://www.unece.org/cefact/locode/service/location.html>

⁶ <http://www.fao.org/port-state-measures/operational-resources/en/>