

# Factors for the implementation of electronic certification on small traditional boats and fishing vessels in Indonesia.

Diaz Saputra<sup>1,2</sup> and Agung Trisetyarso<sup>2</sup>

<sup>1</sup>Sub-Directorate of Ship Tonnage Measurement, Registration and Nationality, Directorate of Shipping and Maritime Affairs, Jakarta 10110, Indonesia

<sup>2</sup>Department of Computer Science, Bina Nusantara University, Jakarta, Indonesia

**Abstract.** On September 2019, Directorate General of Sea Transportation, the government who in charge for the safe operation of ships in Indonesia, has introduced a new model of ship certification form. It is an electronic certificate that is used for traditional boat and fishing vessel of less than 7 gross tonnage. This electronic certificate is for the first time being applied to a ship in Indonesia. This marks a new era for ship certification in Indonesia. The conventional paper format of certification had been applied before it was changed to electronic certification. Indonesia is implementing electronic certificates on traditional vessels and fishing vessels of less than 7 gross tonnage due to several reasons. The first is the need for durable form material due to lifetime validation of certificates. The second due to problems related to misuse of previous type of conventional paper format certificates that caused difficulties in determining the number of this type of vessels in Indonesia.

## 1. Introduction

### 1.1 Research background

Traditional ships in Indonesia are ships that have existed since time immemorial. It is undeniable that Indonesia as a vast country and an archipelago whose number of islands is recorded to be around 17,000 islands has caused ships to become one of the main modes of transportation used as a means of liaison between economic island-mover in the region.

Traditional vessels owned by middle to lower class people in general are small vessels. The size of the ship is small so it is easy in terms of maintenance and can be moored in the river waters close to houses of their owners. Therefore, in practice, small vessels are not always moored in the port area. Boat owners prefer to tether their ships to the place closest to their residence.

Ships with small size are widely used by people with various functions, including ships that function as cargo carriers, passenger carriers and ships used as fishing vessels. Based on data from the Ministry of Transportation in 2018, the most types are fishing vessels.

According to the Minister of Transportation Decree number PM. 39 year 2017 regarding Ship Registration system in Indonesia, it is explained that ships which can be registered, as Indonesian-flagged vessels are only ships with a size of GT.7 and above. This means ships with size <GT.7 do not need to be registered. Vessels with size <GT.7 or commonly called tonnage size <GT.7 have not been registered as Indonesian-flagged vessels. Vessels of this size are measured and a nationality certificate is called Pas Kecil



but not registered in the Indonesian ship list. Pas Kecil is a Nationality Certificate of Ship intended for ships with Tonnage Less than GT 7, most of which are traditional ships and fishing vessels in large numbers.

Prior to the enactment of Law No.23 of 2014 on Local Government, the issuance of a Pas Kecil nationality certificate was implemented by the Office of the District Government Transportation at the location of the ship. The Pas Kecil nationality certificate is valid for a period of 1 (one) year. For later when the Pas Kecil nationality certificate reaches its end, it can be extended again.

Provision of Pas Kecil carried out by each of these agencies lasted for years and no problems were found until the government through the Ministry of Maritime Affairs and Fisheries tried to record fishing vessels in Indonesia. Problems found include: the size of the ship which is physically visibly incompatible, the number of vessels that cannot be known with certainty, and the possibility of foreign vessels sneaking into fishing vessels operating in Indonesian territory.

### *1.2 Problem identification and formulation*

In its application, apparently new problems have arisen. Not as expected, this problem resulted in the ineffectiveness of the application of electronic certificates.

Some of the new problems that have arisen include:

- This electronic certificate has implemented several front, rear and side view of the ship. But because there are also many ships that are built with the same model and colour and size so looking at the photos alone cannot distinguish one ship from another. Recently it is realized that from the photos of the ship which are taken from different view have not enough to satisfy and make sure the inspector or officer who came to check the vessel. Mostly the vessel that is built from the same craft man or ship builder will come with exactly the same model of the vessel. It has name of vessel, however the name of vessel has been placed by painting that can be easily changed at any time.
- It is also understood that the focus of the problem currently faced is the unavailability of adequate data storage media (Storage Database) to record data on traditional ships and fishing vessels centrally.
- The possibility one E-Pas Kecil being used for different vessel. Material of ships made of wood, so that at one time weathering will occur and of course there will be a change of wood that can make a difference with photographic images, will increase the difficulty for inspectors or officers who inspect the vessel.
- The possibility that for the same vessel, it has several E-Pas Kecil certificates.

### *1.3 Research purposes*

The purpose of writing this paper:

- Search new methods in determining the identification of ships, especially small ships of the same size, and have the same model and style of the ship. The method of certification by electronic certification has given assurance of durability of certificate against water and also other benefits that came along the electronic certificates. However it is also required for the officer on how they can identify the vessel easily.
- Because every ship that changes size / changes name / and reshuffles is required to be measured, a method must be made to identify the age of the ship based on the age of the ship and the availability of a reminder system to the officer regarding the age of the ship that has been checked.
- Providing information on the rules and laws that apply to small traditional boat and fishing Vessel owners and establishing a periodic audit system for vessels with <GT size 7.

### *1.4 Benefits of research*

As for the benefits of implementing the E-Pas Minor, among others, provide benefits to:

#### *1.4.1 Ship's Owner*

The ship owner has protection against the ownership status of his ship, because E-Pas Kecil is a Ship Nationality Certificate that is legal and recognized by the government. E-Pas Kecil is also resistant to water, so ship owners do not need to worry if the E-Pas Kecil is exposed to water directly or indirectly.

Ship's owner will also get benefit of fast and easy process applying E-Pas Kecil certificate.

#### 1.4.2 Government

With this new E-Pas Kecil system it can provide accurate data about traditional vessels, especially vessels that are <GT. 7, so as to create good data governance on traditional ships and <GT. 7. The data that is collected by the inspectors or officers on the field then stored in the card is also sent to data base centre.

#### 1.4.3 Writer

Add insight into new methods in overcoming the possibility of manipulation of ship data / ship identity, as well as facilitate field officers in making decisions.

## 2. Literature review

### 2.1 Current regulation

Each vessel before the time of operation is measured to determine the length, width, depth and tonnage of the ship in accordance with the measurement method. The results of the measurement will determine what certificate will be given. One of them is the National Ship Certificate. Ship Nationality Certificate is the main certificate for the ship, which is used as basis for the issuance of certificates and other ship certificates.

Vessels with gross tonnage of GT.7 and above will be required to be registered if they wish to operate in Indonesian waters. While ships with a gross tonnage of less than GT.7 based on minister regulation number PM 39 of 2017 concerning vessel registration, are not required to be registered. However, these ships must be recorded and given Pas Kecil.

Ship's Nationality Certificate is a ship certificate that granting the ship to have right to fly Indonesian flag as the national flag of the ship. There are 3 (three) types of certificates for vessel sail at sea and one certificate of inland waterways vessel available in Indonesia:

- Surat Laut Nationality Certificate for vessel >GT.175;
- Pas Besar Nationality Certificate for vessel of GT. 7 to GT. 174;
- Pas Kecil for vessel Nationality Certificate <GT. 7; and
- Pas Sungai dan Danau Nationality Certificate for all sizes of vessel which do not sail at sea.

Under the Directorate General of Sea Transportation Circular letter no No. SE.87/PK/DK/2019 Penerapan Pas Kecil Elektronik Sebagai Pengganti Pas Kecil Untuk Kapal Dengan Ukuran Tonase Kotor Kurang Dari GT.7 Pada Kantor Kesyahbandaran Dan Otoritas Pelabuhan Kelas IV Muara Angke, it is declared the use of Electronic Certificates for vessel of <GT.7 that issued for time being only for Port of Muara Angke, Jakarta.

### 2.2 International Maritime Organization (IMO) guidelines.

According to the International Maritime Organization (IMO) Guidelines For The Use Of Electronic Certificates FAL.5/Circ.39/Rev.2 in 2016 explained that any administrations or government who decided to use electronic certificates should ensure that the certificates used must following features such as:

- a. Validity and format have to be consistent with the requirement of relevant international convention or instrument;
- b. The content of certificates have to be protected from edits, modifications or revisions made by any other than authorized issuer or administration;
- c. It should be printable and visible symbol that confirms the source of issuance.

Electronic Pas Kecil, which is issued by the government of Indonesia, followed that requirement. However this is the requirement made by IMO for those vessels which following international convention or instruments and does not regulate for small fishing vessel and traditional vessel.

2.3 Pas Kecil data base

There is a database for Pas Kecil, which has been made prior the implementation of E-Pas Kecil. It is called simkapeldev. This database is online at <https://simkapeldev.dephub.go.id> and can be accessed by all harbour masters as direct reporting tools for the Pas Kecil being issued by each port. There are all together about 260 ports, which are able to issued Pas Kecil including Port of Muara Angke, which has issued electronic type of certificate.

Based on recapitulation data of the Pas Kecil issuance for traditional vessels and fishing vessels, it is seen that the number of Pas Kecil continues to increase. Therefore the E - Pas Minor Information System at the Directorate of Shipping and Maritime Affairs of the Directorate General of Sea Transportation at the Ministry of Transportation is very precisely implemented.

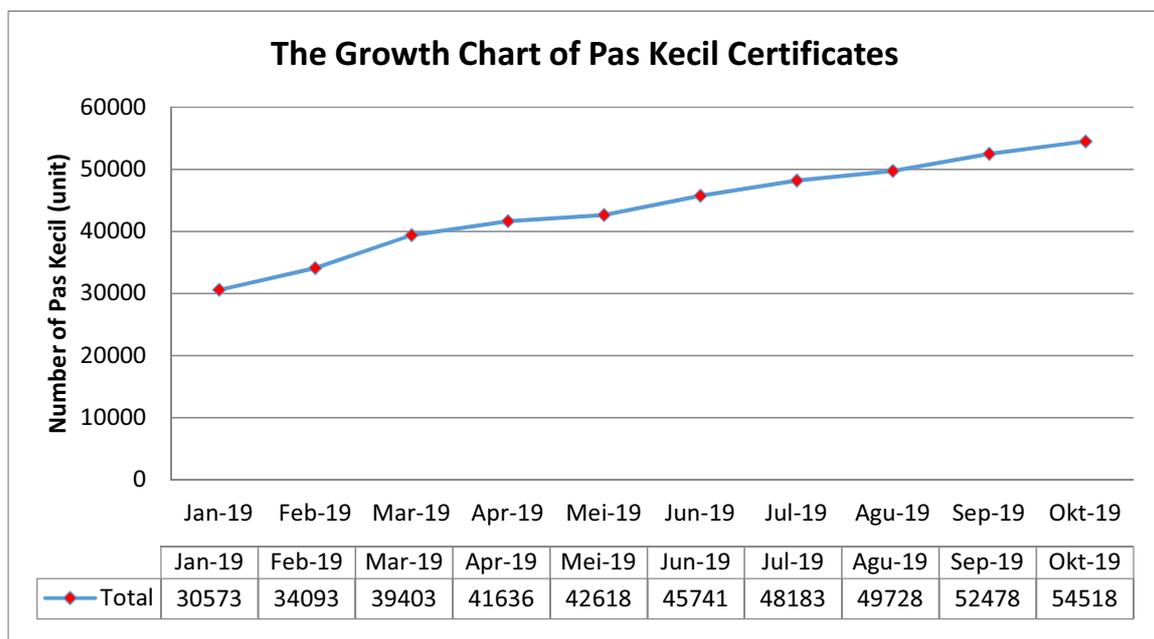


Figure 1. Pas kecil growth

The growth of Pas Kecil issued by administration is increased significantly from 30.73 Pas Kecil in January 2019 to 54.518 Pas Kecil in October 2019. There were 23.945 Pas Kecil issued in 9 months. That means about 2.660 Pas Kecil issued in a month or about 88 to 89 Pas Kecil issued a day.

3. Current Strategy

3.1 SWOT Analysis

SWOT analysis is a strategic planning method for evaluating the factors that influence the effort to achieve goals, namely strengths, weaknesses, opportunities, and threats, both short and long-term goals.

According to Ferrell and Harline (2005), the function of the SWOT analysis is to obtain information from the analysis of the situation and the issues separating the internal (strengths and weaknesses) and the external issues (opportunities and threats).

In this case, if we use a SWOT analysis in evaluating the application of the Small E-Pas Information System for ships with gross tonnage size <GT.7, it is as in the following matrix:

<p><b>INTERNAL FACTORS</b></p>	<p><b>STRENGTH (S)</b></p> <ul style="list-style-type: none"> <li>• Strong commitment from the government to improve ship safety &lt;GT.7.</li> <li>• E-Pas Kecil is smaller in shape, easier to store and waterproof.</li> <li>• E-Pas Kecil can provide certainty of vessel data, vessel history, and other vessel data so that it can make certainty of the number of vessels and protection of these vessels.</li> <li>• Quantity of number of ships &lt;GT.7.</li> </ul>	<p><b>WEAKNESS (W)</b></p> <ul style="list-style-type: none"> <li>• Lack of coordination with ship owners and other agencies.</li> <li>• Ship movements that cannot always be predicted when returning to port (for existing).</li> <li>• The construction of ships carried out without notifying officers from the beginning of the construction resulting in a lack of supervision</li> </ul>
<p><b>EXTERNAL FACTORS</b></p>	<p><b>STRATEGY (SO)</b></p> <ul style="list-style-type: none"> <li>• Empowerment of UPT to carry out tasks according to the applicable rules by using a better system.</li> <li>• Socializing change programs and using better systems.</li> <li>• With the increase in the number of ships must be accompanied by supervision and fulfillment of the E-Pas Kecil document before the ship is operated. With fast service in accordance with the rapid increase of ships.</li> </ul>	<p><b>STRATEGY (WO)</b></p> <ul style="list-style-type: none"> <li>• More intense communication must be carried out between agencies to ensure the integration of planned activities.</li> <li>• Need to increase coordination between UPTs to ensure monitoring of vessel movements so that no vessels are not served.</li> </ul>
<p><b>PELUANG (O)</b></p> <ul style="list-style-type: none"> <li>• Law No.17 of 2008 concerning Shipping and other regulations relating to ship safety and the legal status of ships.</li> <li>• The spread of UPT Directorate General of Sea Transportation in every port.</li> <li>• Number of shipbuilding &lt;GT.7</li> </ul>	<p><b>ANCAMAN (T)</b></p> <ul style="list-style-type: none"> <li>• Reliability of the tools used at UPT.</li> <li>• The ability of officers at UPT to use IT-based tools.</li> </ul>	<p><b>STRATEGY (ST)</b></p> <ul style="list-style-type: none"> <li>• The ability of officers at each UPT to implement the E-Pas Minor that uses modern technology and supervision must be owned by each officer by providing training.</li> </ul> <p><b>STRATEGY (WT)</b></p> <ul style="list-style-type: none"> <li>• Flexible / adjust to the ship's schedule.</li> <li>• The use of tools that are reliable and can be carried out easily maintenance.</li> <li>• Development of systems that must pay attention to human resource capabilities. Good socialization needs to be done before.</li> </ul>

Figure 2. SWOT analysis

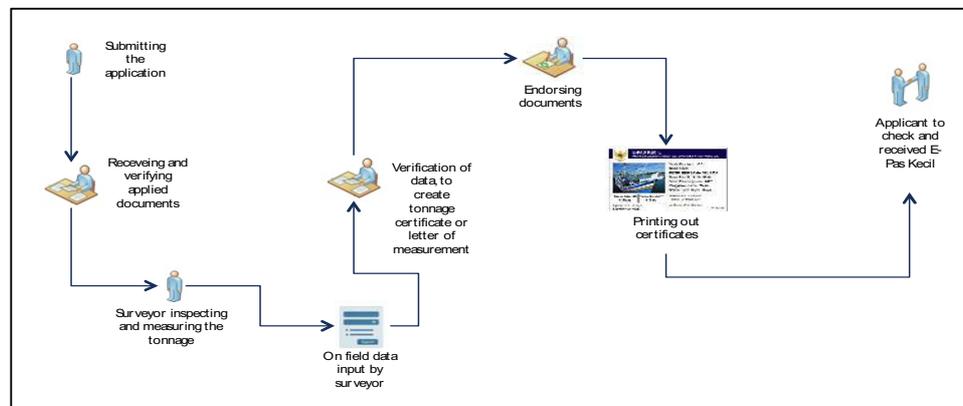
3.2 First implementation at port of muara angke

Port of Muara Angke has been declared to be the first port that implements E-Pas Kecil as a pilot project on September 2019. The port will be studied further for the successful implementation of E Pas Kecil before it is being implemented in other ports.



Figure 3. Format of Electronic Pas Kecil

In applying for the processing of Small E-pas electronic certificates. Can be done according to the following chart. The process is expected to be carried out with shorter time. This of course depends also on the completeness of documents and data about the ship.



**Figure 4.** E-Pas kecil processing procedure

#### 4. Conclusion

The change in the basic format that previously used paper to plastic materials with the ability to save memory makes electronic certificates very helpful for sailors and fishermen who sail using small vessels under the size of <math>GT.7</math>. This is also a new era for shipping in Indonesia, which first used the electronic certificate format. Several factors in the application of Electronic Certificates for traditional vessels and fishing vessels illustrate how technology is needed in the operation of an activity to make a better system.

#### References

- [1] International Maritime Organization, 2016, Guidelines For The Use of Electronic Certificates.
- [2] Direktur Jenderal Perhubungan Laut, Surat Edaran No. SE.87/PK/DK/2019 Penerapan Pas Kecil Elektronik Sebagai Pengganti Pas Kecil Untuk Kapal Dengan Ukuran Tonase Kotor Kurang Dari GT.7 Pada Kantor Kesyahbandaran Dan Otoritas Pelabuhan Kelas IV Muara Angke.
- [3] Ferrell, O., and M. Harline, 2005,. Marketing Strategy, 3<sup>rd</sup> ed. Mason, OH: Southwestern-Thompson.
- [4] Bickerstaff, K., Tolley, R., Walker, G., 2002. Transport planning and participation: the rhetoric and realities of public involvement. *J. Transp. Geogr.* 10 (1), 61–73.
- [5] Innes, J.E., Booher, D.E., 2003. Collaborative policymaking: governance through dialogue. In: Hajer, Maarten A., Wagenaar, Hendrik (Eds.), *Deliberative Policy Analysis—Understanding Governance in Network Society*. Cambridge University Press.