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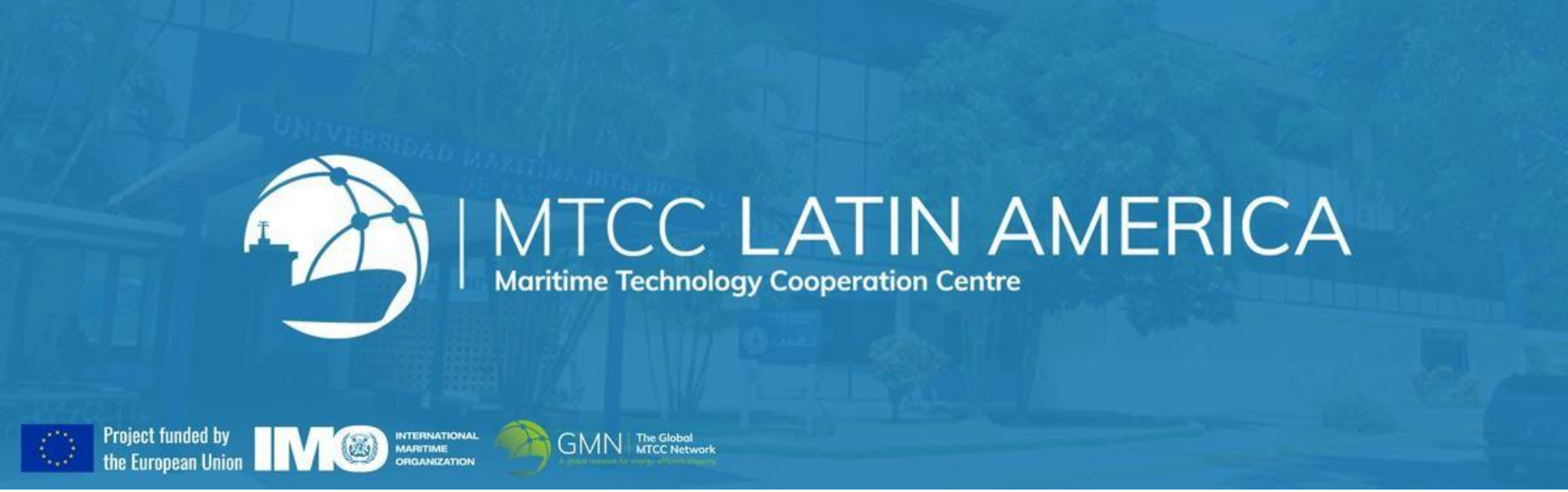
Maritime Technology Cooperation Centre

MARITIME TECHNOLOGY
COOPERATION CENTRE
FOR LATIN AMERICA


# Uptake of Ship Energy Efficient Technologies and Operations

## (Barriers and Constraints Examination)




# Pilot Project 1

# Uptake of Ship Energy Efficient Technologies and Operations

(Barriers and Constraints Examination)

# Project aim

**The MTCC Latin America Pilot Project 1**
**“Uptake of Ship Energy Efficient Technologies and Operations”**

Aims at utilizing the existing IMO regulation on ship energy efficient technologies and operations as a starting point, for examining the barriers and constraints faced by regional ship owners and operators when implementing or planning to implement such provisions and moving towards low carbon shipping.

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# General objective

The project's general objective is strengthening the uptake of ship energy efficient technologies and operations by better understanding the barriers and constraints experienced by relevant stakeholders in the Latin American region, by making recommendations to policy-makers and competent administrations on actions to overcome these issues, and by disseminating the outcomes of this pilot project.

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# Methodology

1. Literature review
2. Identification of key stakeholders
3. Selection of 6 countries to participate
4. Development of questionnaires
5. Completion of questionnaires
6. Analysis of collected data
7. Reporting on PP-1 findings
8. Dissemination of project results

## Methodology

The methodology followed for was carefully designed and planned, to cover all stakeholders views and considerations as well as all aspects of the research subject, and comprises of the steps reflected in the table on the left.

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# Breakdown of activities

1. Literature review
2. Identification of key stakeholders
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## 1. Literature review

Literature review on the nature and status of barriers and constraints

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# Breakdown of activities

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## 2. Identification of key stakeholders

Identification of the key stakeholders acting actively in the implementation of strategies for the uptake of ships energy efficiency technologies and operations and categorization based on their actual role

Stakeholders Categories:

1. Maritime Administrations
2. Government Institutions
3. Ship Owners / Ship Operators
4. Port Authorities / Operators
5. Maritime Training Centers/Institutes
6. Marine Fuel Suppliers
7. Shipyards / Dry Docks
8. Recognized Organizations
9. National Policymakers

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## 3. Selection of 6 countries to participate

Selection of six (6) Latin American countries to form part of this study, taking into account:

-Their total fleet and availability of vessels of 500GT and over that need to apply ship energy efficient provisions

-Equal participation of signatory and non-signatory (3&3) to MARPOL Annex VI, in order to ensure representative results and reliable conclusions

Participating countries:

1. Colombia
2. Ecuador
3. Honduras
4. Mexico
5. Panama
6. Peru

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# TABLE 1 – Selection of the six (6) participating countries in MTCC Latin America Pilot Project 1

| Country | Signatory to MARPOL Annex VI | Total fleet (incl. ships under MARPOL Annex VI) *as per UNCTD 2019 data | IMO Member State | IMO Council Member | PSC MOUs |
|---|---|---|---|---|---|
| Argentina | No | | Yes | No | Acuerdo Vina del Mar |
| Bolivia | No | | Yes | No | Acuerdo Vina del Mar |
| Brazil | Yes | | Yes | Yes – Category B | Acuerdo Vina del Mar |
| Chile | Yes | | Yes | Yes – Category C | Acuerdo Vina del Mar, Tokyo MOU |
| Colombia | No | 115 ships | Yes | No | Acuerdo Vina del Mar |
| Costa Rica | No | | Yes | No | Acuerdo Vina del Mar |
| Ecuador | No | 137 ships | Yes | No | Acuerdo Vina del Mar |
| El Salvador | No | | Yes | No | Acuerdo Vina del Mar |
| Guatemala | Yes | | Yes | No | Acuerdo Vina del Mar |
| Honduras | Yes | 527 ships | Yes | No | Acuerdo Vina del Mar |
| Mexico | No | 637 ships | Yes | Yes – Category C | Acuerdo Vina del Mar |
| Nicaragua | No | | Yes | No | Acuerdo Vina del Mar |
| Panama | Yes | 7860 ships | Yes | Yes – Category A | Acuerdo Vina del Mar, Tokyo MOU |
| Paraguay | No | | Yes | No | Acuerdo Vina del Mar |
| Peru | Yes | 98 ships | Yes | Yes – Category C | Acuerdo Vina del Mar |
| Uruguay | Yes | | Yes | No | Acuerdo Vina del Mar |
| Venezuela | No | | Yes | No | Acuerdo Vina del Mar |

- **Provision was taken to include countries that have significant fleet including ships to which MARPOL Annex VI regulations apply.**
- **Provision was taken to include countries that are both signatory or non-signatory to the MARPOL Annex VI:**

-MARPOL Annex VI signatory states (3): **Panama, Peru, Honduras**
-MARPOL Annex VI non-signatory states (3): **Mexico, Ecuador, Colombia**

- **Provision was taken to include countries that are both members and non-members of the IMO Council, and of various Categories of membership:**

-IMO Council Member – Category A (1): **Panama**
-IMO Council Member – Category C (2): **Mexico, Peru**
-Non IMO Council Members (3): **Ecuador, Honduras, Colombia**

- **Provision was taken to include countries represented in both PSC MOUs to which Latin America Countries participate:**

- Acuerdo Vina del Mar (6): **Panama, Peru, Honduras, Mexico, Ecuador, Colombia**
-Tokyo MOU (1): **Panama**

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## 4. Development of questionnaires

Development of comprehensive questionnaires addressing each category of stakeholders separately, for gathering of data and information on the research subject.

## 5. Completion of questionnaires

Application and completion of questionnaires by the key stakeholders for collection of data;

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# Content of devised questionnaires for countries

## General

**Through specially devised questionnaire, an investigation was carried out to the six (6) selected countries, in order to establish:**

- Classification/description of actors involved in:
  - the public sphere (Key Industry Players)
  - private stakeholders
- Country policies on climate change and energy efficiency
- Legal Framework of Maritime Administrations and any entity with competence and jurisdiction in the subject matter
- Climate change provisions
- Environmental provisions
- Provisions on emission reduction in the maritime transport sector
- Provisions on energy efficiency in the maritime field

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# Content of devised questionnaires for stakeholders

## General

A set of questionnaires was created, each addressing a specific category of key stakeholders, with an aim of receiving detailed information, views and considerations by each category of stakeholders separately, thus ensuring accurate and complete insights.

In particular, the questionnaires were devised in a way to provide detailed insights on:

- organization details
- level of familiarization with adopted / implemented policies and regulations on both national & international level
- national & international policies & regulations affecting the organization
- organization's main activities and details on ships served / fleet
- whether a policy on Energy Efficiency implementation in place
- measures on Energy Efficiency for avoiding or reducing atmospheric pollution
- preparations and considerations adopted to meet requirements
- processes adopted / implemented

**and finally views and considerations on:**

1. Barriers/Challenges/Constraints
2. Opportunities
3. Lessons Learned
4. Recommendations

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## 6. Analysis of collected data

Qualitative and quantitative analysis of data collected during this pilot project.

1.Quantitative Analysis:

for establishing level of engagement and participation.

2. Qualitative Analysis:

per participating country and stakeholders category, with an aim of receiving detailed information, views and considerations, thus ensuring accurate and complete insights.

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# Sources of data

**The sources of data for analysis are:**

## Participating Countries Reports

A literary review of the six (6) countries selected was conducted to tackle the regulatory framework of Annex VI of MARPOL 73/78. The countries were divided in two (2) groups of three (3) countries each one, one group for signatories to MARPOL Annex VI and the other non-signatories to MARPOL Annex VI.

## Stakeholders Questionnaires

The detailed responses in the duly filled in questionnaires of all key stakeholders active in each selected participating country, including:

1. Maritime Administrations
2. Government Institutions
3. Ship Owners / Ship Operators
4. Port Authorities / Operators
5. Maritime Tr. Centers/Institutes
6. Marine Fuel Suppliers
7. Shipyards/Dry Docks
8. Recognized Organizations
9. National Policymakers

## Ships Questionnaires

The detailed responses on energy efficient measures implemented onboard a total of 82 vessels (of over 500 GT), managed by companies from the participating countries.

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# TABLE 2 – Filled in questionnaires, in line with the requirements of PP-I

| | | Maritime Administrations | Government Institutions | Ships Owners Operators | Ports Authorities Operators | Maritime Training Centers & Institutes | Marine Fuel Suppliers | Shipyards Dry Docks | Recognized Organizations | National Policymakers |
|---|---|---|---|---|---|---|---|---|---|---|
| Distribution per country / participating organization | Panama | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 1 | 0 |
| | Peru | 1 | 5 | 3 | 0 | 2 | 2 | 1 | 0 | 0 |
| | Mexico | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Ecuador | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| | Colombia | 1 | 2 | 0 | 1 | 2 | 1 | 1 | 0 | 0 |
| Filled in Questionnaires: | Honduras | 1 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 1 |
| 44 | Totals | 6 | 12 | 7 | 2 | 6 | 5 | 4 | 1 | 1 |

# TABLE 3 – Summary on Energy Efficient Measures implemented onboard participating ships

| No. | Ship (Type/No.) | GT | DWT | YOB | Last Hull Maint. | EEOI (g/DWT.nm) | Energy Savings Technologies Utilized During the Voyages within the reporting period | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Hull Air Lubrication | Waste Heat Recovery | Solar Electricity | Wind Power | Weather Routing | Autopilot | Trim/Draft Optimization | Optimum Ballast Condition | Other : New Propeller | Other : PBCF / EPF | Other : Efficient hull coating | Other : Podded Propulsion | Other : Ducktail |
| 1 | Oil Tanker No.1 | 24048 | 38472 | 2005 | 01/02/2018 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 2 | Oil Tanker No.2 | 20121 | 33755 | 2010 | 08/01/2018 | 9.164 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 3 | Oil Tanker No.3 | 56172 | 105778 | 2004 | 13/06/2016 | 23.195 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 4 | Oil Tanker No.4 | 3248 | 4999 | 2005 | 11/08/2017 | --- | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 5 | Oil Tanker No.5 | 3248 | 4999 | 2005 | 08/11/2017 | 25.470 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 6 | Oil Tanker No.6 | 2865 | 3543 | 2006 | 23/06/2018 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 7 | Oil Tanker No.7 | 61888 | 11364 | 2017 | 01/03/2017 | 99.927 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 8 | Oil Tanker No.8 | 13666 | 22062 | 2008 | 06/06/2018 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 9 | Oil Tanker No.9 | 8848 | 14581 | 1999 | 09/02/2017 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 10 | Oil Tanker No.10 | 38997 | 68500 | 2008 | 26/03/2018 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 11 | Oil Tanker No.11 | 13425 | 21081 | 2003 | 16/05/2018 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 12 | Oil Tanker No.12 | 27505 | 46683 | 2004 | 20/07/2017 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 13 | Oil Tanker No.13 | 38997 | 63589 | 2008 | 07/12/2018 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 14 | Oil Tanker No.14 | 30109 | 51215 | 2009 | 06/07/2014 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 15 | Oil Tanker No.15 | 30010 | 49999 | 2009 | 15/09/2014 | 18.615 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 16 | Oil Tanker No.16 | 42096 | 74543 | 2006 | 08/12/2018 | 5.562 | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 17 | Oil Tanker No.17 | 42096 | 74543 | 2006 | 22/12/2018 | 6.633 | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 18 | Container No.1 | 6406 | 8715 | 1998 | 20/12/2018 | 20.032 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 19 | Container No.2 | 6385 | 8672 | 2000 | 02/02/2016 | 17.985 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 20 | Other Cargo No.1 | 9611 | 12798 | 2004 | 01/10/2018 | 26.163 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 21 | Bulk Carrier No.1 | 9961 | 17013 | 2007 | 09/09/2018 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 22 | Bulk Carrier No.2 | 7265 | 12274 | 2001 | 16/02/2016 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 23 | Bulk Carrier No.3 | 40040 | 76741 | 2006 | 05/11/2015 | 5.250 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 24 | Bulk Carrier No.4 | 40040 | 76737 | 2004 | 21/01/2018 | 4.869 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 25 | Bulk Carrier No.5 | 19920 | 32873 | 2000 | 01/11/2017 | --- | --- | --- | --- | --- | Yes | Yes | Yes | --- | --- | --- | Yes | --- | --- |
| 26 | Container No.3 | 37518 | 42966 | 1996 | 29/10/2015 | 1.297 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | --- | Yes | Yes | --- | --- |
| 27 | Container No.4 | 54304 | 68599 | 2004 | 04/06/2017 | 8.124 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 28 | Container No.5 | 35954 | 42183 | 2004 | 28/12/2016 | 13.432 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 29 | Container No.6 | 74071 | 74453 | 2002 | 10/07/2016 | 10.415 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 30 | Container No.7 | 40108 | 52806 | 2002 | 25/11/2016 | 8.270 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 31 | Container No.8 | 54304 | 68307 | 2004 | 07/08/2017 | 8.133 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 32 | Container No.9 | 48220 | 56152 | 1993 | 04/06/2018 | 7.900 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 33 | Container No.10 | 21586 | 21370 | 1982 | 21/11/2018 | 14.673 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 34 | Container No.11 | 52181 | 60350 | 1990 | 22/02/2018 | 11.653 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 35 | Container No.12 | 30280 | 35848 | 1998 | 27/11/2016 | 11.118 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | --- | Yes | Yes | --- | --- |
| 36 | Container No.13 | 53208 | 67678 | 1999 | 07/08/2017 | 9.296 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 37 | Container No.14 | 21586 | 21370 | 1982 | 31/08/2016 | 14.287 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 38 | Container No.15 | 36389 | 42465 | 1988 | 05/09/2016 | 10.285 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | --- | Yes | Yes | --- | --- |
| 39 | Container No.16 | 53208 | 67615 | 1999 | 14/09/2017 | 8.237 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 40 | Container No.17 | 54881 | 68121 | 2004 | 02/05/2017 | 9.150 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 41 | Container No.18 | 54304 | 68372 | 2004 | 25/05/2017 | 8.877 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 42 | Container No.19 | 37579 | 45544 | 1997 | 08/09/2017 | 9.167 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |

# TABLE 3 – Continued…

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | Container No.20 | 52181 | 60350 | 1990 | 20/06/2017 | 10.771 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 44 | Container No.21 | 41225 | 53335 | 2008 | 22/06/2018 | 9.989 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 45 | Container No.22 | 52191 | 67639 | 1989 | 06/04/2018 | 9.025 | --- | Yes | --- | --- | Yes | Yes | --- | Yes | Yes | Yes | Yes | --- | --- |
| 46 | Oil Tanker No.18 | 28278 | 46337 | 2000 | 00/01/1900 | 13.582 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 47 | Chemical Tanker No.1 | 27533 | 45063 | 1999 | 08/11/2018 | 15.309 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 48 | Chemical Tanker No.2 | 27530 | 44577 | 1999 | 12/06/2016 | 13.841 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 49 | Oil Tanker No.19 | 23298 | 37269 | 2005 | 24/08/2015 | 16.135 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 50 | Gas Carrier No.1 | 22352 | 37661 | 1997 | 29/01/2017 | 28.152 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 51 | Chemical Tanker No.3 | 30099 | 51392 | 2008 | 26/09/2016 | 13.339 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 52 | Gas Carrier No.2 | 23519 | 29378 | 1996 | 15/01/2016 | 40.951 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 53 | Chemical Tanker No.4 | 8259 | 14298 | 2002 | 02/11/2016 | 16.842 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 54 | Chemical Tanker No.5 | 25507 | 38847 | 2004 | 23/06/2017 | 13.749 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 55 | Chemical Tanker No.6 | 25431 | 49358 | 2005 | 07/07/2018 | 13.203 | --- | --- | --- | --- | Yes | Yes | --- | --- | --- | --- | Yes | --- | --- |
| 56 | LPG Carrier No.1 | 10692 | 13777 | 1998 | 2018 | --- | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 57 | Passenger No.1 | 128052 | 10250 | 2012 | 30/04/2017 | 135.857 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 58 | Passenger No.2 | 110239 | 10000 | 2002 | 14/10/2017 | 116.878 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 59 | Passenger No.3 | 128251 | 13815 | 2009 | 10/02/2017 | 105.661 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 60 | Passenger No.4 | 70526 | 7200 | 1991 | 23/01/2017 | 119.878 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 61 | Passenger No.5 | 70390 | 7498 | 1998 | 27/09/2017 | 102.972 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | Yes | Yes |
| 62 | Passenger No.6 | 70367 | 7200 | 1990 | 19/02/2016 | 129.098 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 63 | Passenger No.7 | 70538 | 7180 | 1994 | 16/02/2018 | 130.072 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 64 | Passenger No.8 | 110320 | 12870 | 2007 | 03/05/2014 | 108.182 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 65 | Passenger No.9 | 110239 | 11100 | 2003 | 10/03/2017 | 107.934 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 66 | Passenger No.10 | 133500 | 11000 | 2018 | 2018 | 117.375 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | Yes | Yes |
| 67 | Passenger No.11 | 70367 | 7180 | 1995 | 19/09/2016 | 127.122 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 68 | Passenger No.12 | 70367 | 7180 | 1996 | 03/02/2016 | 118.286 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 69 | Passenger No.13 | 85942 | 8983 | 2002 | 15/05/2018 | 124.546 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | Yes | --- |
| 70 | Passenger No.14 | 110320 | 13294 | 2005 | 15/12/2016 | 91.251 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 71 | Passenger No.15 | 128048 | 13800 | 2011 | 04/03/2016 | 121.840 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 72 | Passenger No.16 | 85942 | 7089 | 2004 | 19/03/2015 | 166.402 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | Yes | --- |
| 73 | Passenger No.17 | 70390 | 6894 | 1998 | 24/03/2018 | 124.171 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | Yes | Yes |
| 74 | Passenger No.18 | 85920 | 7200 | 2001 | 08/11/2014 | 184.278 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | Yes | --- |
| 75 | Passenger No.19 | 70538 | 6870 | 1993 | 22/02/2017 | 120.697 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 76 | Passenger No.20 | 85920 | 7200 | 2001 | 06/06/2018 | 154.455 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | Yes | Yes |
| 77 | Passenger No.21 | 113323 | 11843 | 2008 | 19/03/2016 | 117.504 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 78 | Passenger No.22 | 103881 | 11142 | 1996 | 19/05/2016 | 108.382 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 79 | Passenger No.23 | 101509 | 10984 | 1999 | 02/04/2016 | --- | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 80 | Passenger No.24 | 110000 | 13294 | 2004 | 07/05/2016 | 94.992 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 81 | Passenger No.25 | 101509 | 11774 | 2000 | 20/01/2018 | 100.043 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | --- | --- |
| 82 | Passenger No.26 | 133500 | 11000 | 2016 | 2016 | 126.232 | --- | Yes | --- | --- | Yes | Yes | Yes | Yes | --- | --- | Yes | Yes | Yes |

MTCC Latin America – Pilot Project I

# Breakdown of activities

1. Literature review
2. Identification of key stakeholders
3. Selection of 6 countries to participate
4. Development of questionnaires
5. Completion of questionnaires
6. Analysis of collected data
7. Reporting on PP-1 findings
8. Dissemination of project results

## 7. Reporting on PP-1 findings

Report on the findings of the project together with description of methodologies used

MTCC Latin America – Pilot Project I

# Breakdown of activities

1. Literature review
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8. Dissemination of project results

## 8. Dissemination of project results

Preparation of material and dissemination activities of project results throughout the project's implementation to build interest and engage stakeholders.

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# Dissemination activities

01

**1st Regional Workshop**
13th - 15th March, 2018

Panama City, Panama

02

**1st National Workshop**
13th - 15th June, 2018

Panama City, Panama

03

2nd National Workshop
22nd - 24th August, 2018

Cartagena, Colombia

04

3rd National Workshop
14th - 16th Nov., 2018

Lima, Peru

05

4th National Workshop
13th - 15th March, 2019

Mexico City, Mexico

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# Dissemination activities

01

## Website

https://mtcclatinamerica.com/

Details on project development and obtained results, were shared through the dedicated MTCC Latin America website

02

## Newsletter

Details on project development and obtained results, were shared through the issued MTCC Latin America newsletters

03

## Social Media

Details on project development and obtained results, were disseminated through active presence in social media:

**-Twitter**
**-Linkedin**
**-Facebook**
**-Flickr**
**-Instagram**

04

## Other

Details on project development and obtained results, were disseminated also by the following ways:

- Emails
- Personal interactions with representatives of key stakeholders

MTCC Latin America – Pilot Project 1

# Opportunities and Strengths detected

## + Dialogue and development space

The MTCC Latin America project has become an important forum for discussion and an enabling agent for development among the agencies involved in the study, at the regional level.

Synergies have been established and strengthened resulting in higher and more effective performance among the intervening countries.

## + Detection of training needs

The training of maritime administrations and authorities in the region has been achieved through the various national and regional forums, facilitated by the Centre.

From this academic exercise has emerged the initiative to launch a postgraduate program with specialization in Energy Efficiency in the Shipping Industry.

MTCC Latin America – Pilot Project 1

# Obstacles or Limitations detected

## Plurality of maritime competences

Different authorities share maritime competences ie civil authorities share responsibilities with armed forces units, with a thin dividing line between their respective jurisdictions that sometimes overlap, making it difficult to implement international standards, as is the specific case of the MARPOL Convention.

## *Lack of effective coordination between governmental entities*

There is a perceived gap between the authorities called to tackle the climate change problem on the ground and those that must address it from the perspective of the maritime industry, without taking into account that, in the face of such a global problem, actions can not be taken on a sectorized manner.

## Plurality of maritime competences

The country-specific legal guidelines sometimes make it difficult to adopt international standards aimed at mitigating and addressing the problem of climate change.
The lack of uniformity of criteria between the executive and the legislature slows the efforts of maritime administrations that have been working on the ratification of instruments such as Annex VI to the MARPOL Convention.

From a technical point of view, everyone is aware of the need to take concrete measures to tackle the problem, however, these measures cannot be implemented without proper legal legitimacy.

MTCC LATIN AMERICA
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MTCC Latin America – Pilot Project 1

# Summary: PP-1 on a glimpse

**Participating Countries:**

**6 countries**

-Colombia
-Ecuador
-Honduras
-Mexico
-Panama
-Peru

**Stakeholders engaged:**

**43 Organizations / 64 Persons**

-Maritime Administrations
-Government Institutions
-National Policymakers
-Ship Owners / Operators
-Port Authorities / Operators
-Maritime Tr. Centers / Institutions
-Recognized Organizations
-Maritime Fuel Suppliers
-Shipyards / Dry Docks

**Ships that provided details:**

**82 ships**

of over 500 GT provided details on the energy efficient measures implemented onboard

**Energy Efficient Measures assessed:**

***a. Mature technology***

-Hull Coating
-Autopilot
-Weather Routing

***b. Semi-mature technology***

-Trim/Draft Optimization
-Speed management
-Hull Air Lubrication
-Waste Heat Recovery

***c. Non-mature technology***

-Solar Electricity
-Wind Power

# Thank you for your attention!