MTCC Caribbean – Regional Effort Towards Low Carbon Shipping in the Caribbean

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The Maritime Technology Cooperation Centre – Caribbean (MTCC Caribbean) is part of the Global MTCC Network (GMN) project.

The GMN project is funded by the EUROPEAN UNION and implemented by the International Maritime Organization (IMO).
The Issue: Climate Change

• “The world is facing an existential threat from climate change and if rapid action is not taken, there will be catastrophic biodiversity loss and untold human misery” – letter signed by 20,000 scientists.

• International Response: Paris Agreement 2015 “to limit global temperature increases to well below 2°C” and "pursue efforts to limit the temperature increase to 1.5°C" compared to pre-industrial levels”.

• Paris agreement assigned responsibility for climate action for maritime and aviation to the IMO and ICAO.

• Shipping currently accounts to 2.4% of world carbon dioxide emissions.

• GMN represents an ambitious initiative by the IMO to address maritime emissions.
The Global MTCC Network
A global network for energy-efficient shipping

Capacity Building for Climate Mitigation in the Maritime Shipping Industry

✓ Funded by the European Union and implemented by the International Maritime Organization, the Global MTCC Network (GMN) – formally titled “Capacity Building for Climate Mitigation in the Maritime Shipping Industry”. This initiative created and unites Maritime Technologies Cooperation Centres (MTCCs) – in targeted regions into a global network. Together, they are promoting technologies and operations to improve energy efficiency in the maritime sector and help navigate shipping into a low-carbon future.

✓ Developing countries and, in particular, Least Developed Countries and Small Islands Developing States, are expected to be the main beneficiaries of this initiative.
Timeline of the GMN

- **2015**
  - Concept paper mooted at FRS 2015
  - EU Funding and Contract signed December 2015

- **2016**
  - PCU formed, Project started and EOI Issued
  - UTT responded to call in August 2016

- **2017**
  - Launch of MTCC at UTT
  - Start of Capacity Building & Pilot Projects
  - Signing of MOU among all MTCC creating the GMN in December 2017

- **2018**
  - Launch of MTCC Latin America –Final MTCC completing the network
  - Sustainability planning

- **2019**
  - Complete pilot projects & Disseminate results
  - Implement sustainability plans
Host Institutions of Maritime Technology Cooperation Centres

The University of Trinidad & Tobago

Jomo Kenyatta University of Agriculture & Technology, Kenya

Shanghai Maritime University, China

The Pacific Community (SPC), Fiji

International Maritime University of Panama, Panama
# MTCC’s Regional Membership

<table>
<thead>
<tr>
<th>MTCC</th>
<th>Host Institution</th>
<th>No. of Member States</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTCC Caribbean</td>
<td>The University of Trinidad and Tobago</td>
<td>16 Countries</td>
</tr>
<tr>
<td>MTCC Latin America</td>
<td>International Maritime University of Panama</td>
<td>17 Countries</td>
</tr>
<tr>
<td>MTCC Africa</td>
<td>Jomo Kenyatta University of Agriculture and Technology</td>
<td>42 Countries</td>
</tr>
<tr>
<td>MTCC Asia</td>
<td>Shanghai Maritime University (Branch Offices in Bangladesh, Myanmar &amp; Cambodia)</td>
<td>32 Countries</td>
</tr>
<tr>
<td>MTCC Pacific</td>
<td>Pacific Community &amp; SPREP (Branch office in Samoa)</td>
<td>13 Island States</td>
</tr>
</tbody>
</table>
Pilot Projects of the MTCCs

➢ MTCC Africa - On shore power supply at Port of Mombasa
➢ MTCC Caribbean - Establishment of an Maritime Energy Efficiency Baseline & Voluntary Data Reporting System throughout the Caribbean
➢ MTCC Asia - Updating Trim Optimization Management System
➢ MTCC Pacific - Energy Audits of Maritime Ports
➢ MTCC Latin America - Examining the barriers and constraints faced by regional ship owners and operators when implementing the IMO regulations
Capacity building

Training Activities Delivered: 24 with 14 more activities planned for 2018/19

Progress charts

GMN:
- Caribbean: 56%
- Asia: 53%
- Pacific: 50%
- Latin America: 44%
- Africa: 44%

Individual MTCCs:
- MTCC Caribbean: 49%
- MTCC Africa: 49%
- MTCC Latin America: 44%
- MTCC Asia: 44%
- MTCC Pacific: 50%

MTCC Caribbean
MTCC Africa
MTCC Latin America
MTCC Asia
MTCC Pacific
GMN
Aims of MTCC Caribbean

MTCC Caribbean aims to:

- Provide a platform for partnerships in enhancing energy efficient methods at global and local level, specifically in the Caribbean region.
- Identify environmentally friendly and sustainable technologies available to the region.
- Enhance awareness and uptake of environmentally sound technologies and expertise within the Caribbean region.
- Provide advisory and market development services for technology adopters and suppliers.
- Monitor regional energy efficiency needs and align training programmes to meet these needs.
MTCC Caribbean – 5 Results

Result 1: Formation and Establishment of the Maritime Technology Cooperation Centre Caribbean (MTCC Caribbean)

Result 2: MTCC Caribbean delivered capacity building Workshops (National & Regional)

Result 3: Implementation of a demonstration pilot project on uptake of ship energy efficient technologies and operations

Result 4: Implementation of pilot project on fuel consumption data collection and reporting in line with IMO regulations

Result 5: MTCC delivered all agreed communication and visibility actions.
Implementation Update:

• The Legal frameworks of the territories have remained substantially the same but the creation of Energy Efficiency Focal Points and the RSC represent institutional progress.

• Whilst Caribbean States have largely recognised the importance of MARPOL, effective implementation remains elusive.

• The IMO’s Regional Maritime Advisor for the Caribbean has indicated that while over 70% of the region has ratified MARPOL 73/78, less than 30% report effective implementation.

• Notwithstanding the above, there are existing mechanisms that we can leverage.
Legal Framework for Implementation of MARPOL Annex VI

**International Conventions**
- UNFCC
- UNCLOS
- Kyoto Protocol
- IMO MARPOL 73/78
- Paris Agreement

**Regional Convention/Instruments**
- Cartagena Convention
  - Oil spills
  - LBS
  - SPAW
- CMOU

**International Initiatives**
- GloMEEP
- GMN

**Implementing Organizations**
- Flag States
- MTCC Caribbean
- CMOU Port State Control

The Project is Funded by the European Union and implemented by the International Maritime Organization
Imperatives for Implementation: Leveraging Flag, Port and Coastal State Jurisdiction

• The CMOU represents an effective regime to support enforcement of the requirements of MARPOL in the region. States that are not party to the CMOU should explore joining the CMOU as an avenue for harmonized implementation.

• Port State Control supports Flag State implementation and the NMFT allows for implementation and enforcement. Absence of Flag State legislation maybe problematic if challenged.

• Commercial risk of PSC therefore creates an incentive for compliance for vessel flagged in “non convention” countries.

• Framework arrangements exist but we need to tap into the existing implementation agencies at the local, regional and international levels. Closer collaboration with Planning Ministries, and governmental agencies responsible for environmental management.

• Maritime targets must be adequately represented in national carbon reduction policies and strategies.
Imperatives for Implementation

• In the absence of a legislative framework for Monitoring of GHGs from Ships trading in the Caribbean:
  • Implementation of the Voluntary System of Reporting using the MTCC data collection system;
  • Such Reporting will enable the first baseline of GHGs from Shipping in the Caribbean;
  • Data will assist in informing interventions for the climate action in the Maritime sector at local, regional and international levels.
MTCC Caribbean’s Pilot Projects

• MTCC Caribbean objectives include promoting technological and operational measures to improve energy efficiency in the maritime sector and help navigate into a future with reduced GHG emissions from international shipping.

• MTCC Caribbean has implemented two pilot projects to promote the capacity building and technical cooperation within the Caribbean region.

   ▪ Pilot Project 1- **To Promote the Uptake of Ships Energy Efficiency Measures**

   ▪ Pilot Project 2- **To establish a system for data collection and reporting on ships fuel consumption**
MTCC Caribbean’s Pilot Projects and Capacity Building Initiatives

- Pilot Project 1: To Promote the Uptake of Ships’ Energy Efficiency Measures
- Pilot Project 2: To establish a system for data collection and reporting on ships’ fuel consumption

Capacity Building Initiatives:
- 8 Workshops
- 1st Regional
- 2nd Regional
- 1st Northern Sub-Regional
- 2nd Northern Sub-Regional
- 1st Eastern Sub-Regional
- 2nd Eastern Sub-Regional
- 1st Southern Sub-Regional
- 2nd Southern Sub-Regional

Data for both pilot projects is collected through a single form.

- Build capacity within territories to promote the uptake of Energy Efficient Technology
- The use of fuel consumption reporting regulations and
- Enable compliance with MARPOL Annex VI
• To fulfil the objectives of the two pilot projects data must be collected from the vessels trading in the region.

• This is the rationale behind the development of MTCC Caribbean’s data collection process which is currently being implemented in Trinidad and Tobago, The Bahamas; Belize; St. Vincent and the Grenadines; Suriname.

• We must gather as much accurate data from the 16 territories as possible to fulfill the objectives of the pilot projects.
MTCC Caribbean’s Data Collection Process - Understanding the form

- Forms are sent in an (electronic) excel format to the vessel

| VESSEL GENERAL INFORMATION |
|-----------------------------|-----------------------------|
| Vessel Name:                | Year Built: 2007            |
| IMO Number:                 |                             |
| Ship Type:                  | Container ship              |
| Hull Number:                | JJS02C-05                   |
| Shipowner/Company:          | MS "SONDERBORG" Schifffahrtsgesellschaft UG |
| Shipping Agency:            | VSH-SHIPPING                |

<table>
<thead>
<tr>
<th>VESSEL PARTICULARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length Overall (m): 147.9</td>
</tr>
<tr>
<td>Length Between Perpendiculars (m): 140.3</td>
</tr>
<tr>
<td>Breadth Moulded (m): 23.25</td>
</tr>
<tr>
<td>Deadweight at Summer Load Line Draught: 13760</td>
</tr>
<tr>
<td>Depth Moulded (m): 11.5</td>
</tr>
<tr>
<td>Summer Load Line Draft (m): 8.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VESSEL SPEED &amp; FUEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{ws}$ - ship speed in deep water at summer load line draught @75% MCR (knots): 17</td>
</tr>
<tr>
<td>Dual-fuel Engines:</td>
</tr>
<tr>
<td>Type(s) of fuel used:</td>
</tr>
</tbody>
</table>

These forms have a “Save for Upload” function which converts the completed form into an xlxs file

- Both excel or xlxs format are acceptable for data analysis by MTCC Caribbean

<table>
<thead>
<tr>
<th>Submission Date</th>
<th>Vessel Name</th>
<th>Year Built</th>
<th>IMO Number</th>
<th>Ship Builder</th>
<th>Ship Type</th>
<th>Hull Number</th>
<th>Shipowner/Company</th>
<th>Shipping Agency</th>
<th>Length Overall (m)</th>
<th>Breadth Moulded (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018-10-02 05:48:47</td>
<td>0 JIANGSU EASTERN SHIPYARD, CHINA</td>
<td>Container ship</td>
<td>JJS02C-05</td>
<td>MS &quot;SONDERBORG&quot; Schifffahrtsgesellschaft UG</td>
<td>VSH-SHIPPING</td>
<td>147.9</td>
<td>23.25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Private, Public and Academic/Research partnerships with MTCC Caribbean’s Pilot Projects

Private Sector

- Forward relevant documents (Shipping Notice & Data Collection Form) to the vessel
- Captain of the vessel fills Data Collection Form and forwards to Shipping Agent

Public Sector

- Extraction of relevant data by MTCC
- Data Collection Form
  - Captain of the vessel fills Data Collection Form and forwards to Shipping Agent
- Shipping Agent uploads answers to online regulatory compliance and trade facilitation portals
- Sumbit data via Online Regulatory Compliance portals

Academic/Research

- Analysis of Data to determine EEDI, EEOI, fuel consumption & existing energy efficient technologies
- MTCC Reporting
  - Extraction of relevant data by MTCC

Government of Trinidad and Tobago

Shipping Agent

MTCC Caribbean

Maritime Services Division

TTBIZ Link

The Project is Funded by the European Union and implemented by the International Maritime Organization
## Data Analysis - Ship type / EE Measures

### EE Measures

<table>
<thead>
<tr>
<th>EE Measure</th>
<th>Bulk Carriers</th>
<th>Container Vessels</th>
<th>Tankers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Heat Recovery</td>
<td>75.00%</td>
<td>32.18%</td>
<td>45.07%</td>
</tr>
<tr>
<td>Propeller Boss Fins</td>
<td>93.33%</td>
<td>93.14%</td>
<td>66.15%</td>
</tr>
<tr>
<td>Low Energy Lighting System</td>
<td>77.78%</td>
<td>59.41%</td>
<td>44.74%</td>
</tr>
<tr>
<td>Air Cavity Lubrication</td>
<td>14.29%</td>
<td>14.29%</td>
<td>12.00%</td>
</tr>
<tr>
<td>Solar Panels</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Rudder Fins</td>
<td>86.67%</td>
<td>90.38%</td>
<td>65.08%</td>
</tr>
<tr>
<td>Trim Optimization</td>
<td>85.71%</td>
<td>97.83%</td>
<td>82.61%</td>
</tr>
<tr>
<td>Contra Rotating Propeller</td>
<td>11.11%</td>
<td>13.86%</td>
<td>13.33%</td>
</tr>
<tr>
<td>Hull Coating</td>
<td>83.33%</td>
<td>100.00%</td>
<td>85.33%</td>
</tr>
<tr>
<td>Kite</td>
<td>0.00%</td>
<td>0.00%</td>
<td>1.33%</td>
</tr>
<tr>
<td>Weather Routing</td>
<td>57.14%</td>
<td>89.25%</td>
<td>82.67%</td>
</tr>
<tr>
<td>Voyage Execution</td>
<td>57.14%</td>
<td>100.00%</td>
<td>64.79%</td>
</tr>
</tbody>
</table>
Partnerships in Data Collection

The Project is Funded by the European Union and implemented by the International Maritime Organization
Climate Action in the Maritime Sector

• Partner with us for climate action - Ensure that concerns of SIDS and vulnerable States of the Caribbean are heard and documented in International Fora.

• China has proposed the creation of a GMN Voluntary Multi-Donor Trust Fund to support the MTCCs at the Marine Environmental Protection Committee (MEPC) under Agenda item 7 for the “Reduction of GHG Emissions from Ships to sustain the work of the MTCC post 2019” - Support from the Region for this is very important. The proposal has been accepted by MEPC and is subject to further discussions.

• Lobby for the inclusion of maritime actions in the National Climate Agendas and the National Determined Contributions.

• Promote the uptake of energy efficient technologies and operations within the maritime sector.

• Help navigate shipping into a low-carbon future.
Vision of MTCC Caribbean

- Mitigate Emissions in the Maritime Sector
- Caribbean as an Emission Controlled Area
- Facilitate the uptake of available energy efficient technology throughout the Caribbean Region
- Harmonized approach to data gathering and information sharing
- Enduring commitment to promoting sustainable shipping in the region
Thank You!