



MTCC CARIBBEAN
Maritime Technology Cooperation Centre

Reflections on Capacity Building for Climate Action in Maritime Shipping in the Caribbean



GMN | The Global
MTCC Network
A global network for energy-efficient shipping



THE UNIVERSITY OF TRINIDAD AND TOBAGO



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The contents of this publication are the sole responsibility of the MTCC Caribbean and can
in no way be taken to reflect the views of the European Union.

Meet the MTCC Caribbean Team



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Preface

Capacity building for climate change mitigation in the maritime industry is the core focus of MTCC Caribbean's initiatives in the Caribbean region. Through its efforts, MTCC Caribbean was able to increase awareness in 16 Caribbean countries on the need for climate action in maritime shipping by hosting a series of regional and sub-regional workshops. These workshops facilitated the transfer of invaluable information to stakeholders, as well as fostered relationships within the Caribbean maritime community that are working to champion maritime climate action in the Caribbean region.

MTCC Caribbean's "Reflections on Capacity Building for Climate Action in Maritime Shipping in the Caribbean" considers the factors impacting the ability of the region to address emissions from shipping using existing legal and institutional frameworks. Notwithstanding the recent legal and institutional progress by various Caribbean countries, a history of legislative malaise has resulted in both national and regional struggles to realise effective legislative reform and a common approach to addressing pollution from maritime shipping.

Through this publication, MTCC Caribbean aims to share with its stakeholders the experience of implementing the Global MTCC Network (GMN) in the Caribbean region, as well as the lessons learnt in the execution of the project. This will therefore provide an adequate point of reference for future projects related to climate action in the maritime domain. This reference point highlights the various challenges experienced by stakeholders and the key responses of the international and regional community in addressing these issues. MTCC Caribbean noted the calls for concerted and focused action by major stakeholders, working with a common agenda to effectively mitigate the impacts of climate change. This publication documents the use of capacity building activities to bridge the gaps in existing policy, technological and institutional capacity. It also documents an emerging approach to establishing a regional network for cooperation in climate action in maritime shipping.

This publication will also enhance the visibility of the project and its outcomes, thereby enabling greater advocacy for governmental and regional recognition of the importance of maritime climate action.

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Acronyms



CARICOM	– Caribbean Community
CCCCC	– Caribbean Community Climate Change Centre
CEP	– Caribbean Environment Programme
CMI	– Caribbean Maritime Institute
CMU	– Caribbean Maritime University
CMIS	– Caribbean Maritime Information System
CMOU	– Caribbean Memorandum of Understanding
COTED	– Council for Trade and Economic Development
EE	– Energy Efficiency
EEFP	– Energy Efficiency Focal Point
EEOI	– Energy Efficiency Operational Indicator
EU	– European Union
GCF	– Green Climate Fund
GHG	– Greenhouse Gas
GloMEEP	– Global Maritime Energy Efficiency Partnerships
GMN	– Global MTCC Network
ICAO	– International Civil Aviation Organization
IDB	– Inter-American Development Bank
IMO	– International Maritime Organization
IPCC	– Intergovernmental Panel on Climate Change
ITCP	– Integrated Technical Co-operation Programme
LDC	– Least Developed Countries
MARPOL	– International Convention for the Prevention of Pollution from Ships
MEPC	– Marine Environment Protection Committee
MTCC	– Maritime Technology Cooperation Centre
NGO	– Non-Governmental Organization
PSCO	– Port State Control Officer
RAC/REMPEITIC	– Regional Marine Pollution Emergency Information and Training Centre
RSC	– Regional Steering Committee
SDGs	– Sustainable Developmental Goals
SIDS	– Small Island Developing States

SMA – Senior Maritime Administrations

UN – United Nations

UNDP – United Nations Development Programme

UNEP – United Nations Environmental Programme

UNFCCC – United Nations Framework Convention on Climate Change

UTT – The University of Trinidad & Tobago

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Foreword



***Professor Clement A.C. Imbert
Chairman, Board of Governors
The University of Trinidad and Tobago***

The University of Trinidad and Tobago is the proud host of the Maritime Technology Cooperation Centre (MTCC) for the Caribbean. This project, which has been funded by the European Union and implemented by the International Maritime Organization, has made an indelible impact in the maritime domain. By means of this project, UTT, through the MTCC Caribbean, has created an opportunity for a cohesive approach towards climate change mitigation in the maritime shipping industry.

In undertaking this project over the past 3 years, the dedicated staff of the MTCC has created many firsts for the region with respect to data gathering and research related to the maritime sector. Through its pilot projects the MTCC was able to generate the first baselines on Greenhouse Gas (GHG) emissions; Energy Efficiency Operational Indicator (EEOI) baseline for the Caribbean; and the uptake of energy efficient technology in maritime shipping as well as the first online voluntary fuel reporting system, for the region. These firsts have now laid the foundation for future research and provide an opportunity for more informed decision making as it relates to climate action in maritime shipping.

Through its capacity building activities, MTCC Caribbean has been able to reach over 500 participants from across the Caribbean. This outreach has enabled a deepening of ties between the University, MTCC Caribbean, maritime administrators and the maritime industry. Through these activities MTCC Caribbean has advanced the conversations on the work that needs to be done to promote adaptation and resilience in the maritime sector. The national and regional priorities that would have emerged through the resulting dialogue will continue to be advanced through the work of MTCC Caribbean and the University.

It is my hope that this publication will afford maritime stakeholders a candid recollection of the results of the capacity building initiatives and provide a point of reference for further action.

A handwritten signature in blue ink, reading 'Clement A.C. Imbert'.

Professor Clément A.C. Imbert
Chairman
The University of Trinidad and Tobago



Executive Summary

The Maritime Technology Cooperation Centre Caribbean (MTCC Caribbean) is a part of the Global MTCC Network (GMN) Project, funded by the European Union and implemented by the International Maritime Organization (IMO). This “Capacity Building for Climate Mitigation in the Maritime Shipping Industry” project aims to promote technologies and operations to improve energy efficiency in the maritime sector and help navigate shipping into a low-carbon future.

The contract between the IMO and MTCC Caribbean’s Host Institute, The University of Trinidad and Tobago, was signed on December 23, 2016. The contract included the delivery of capacity building activities and two pilot projects aimed at climate mitigation in the maritime sector.

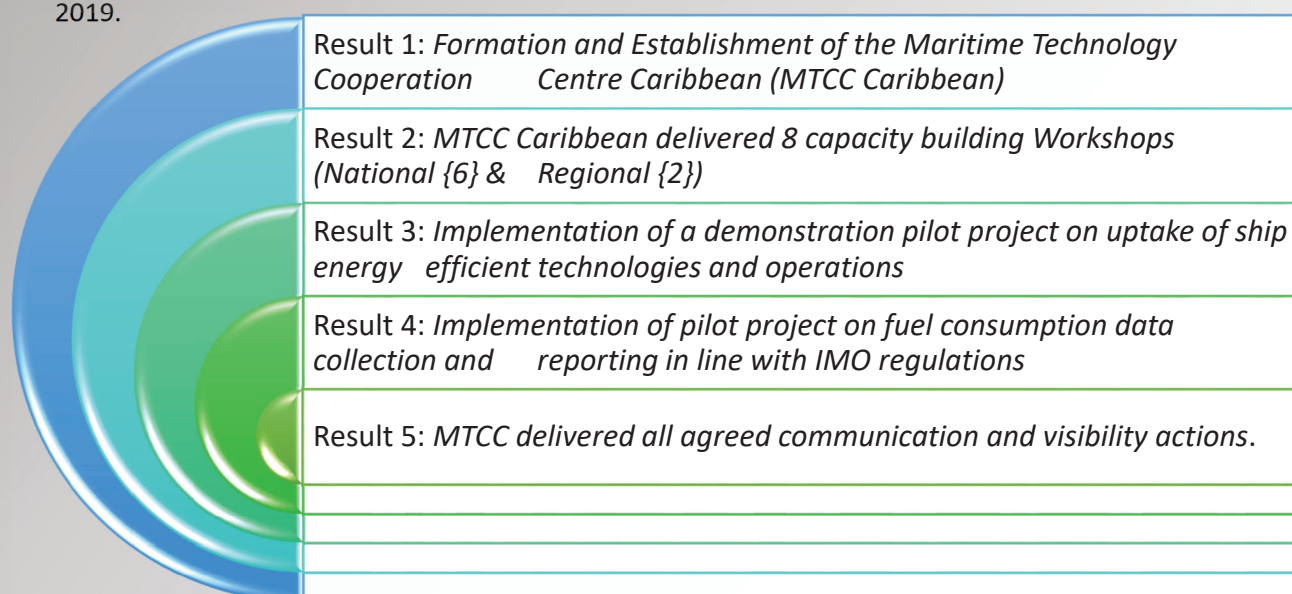
MTCC Caribbean has built long lasting institutional partnerships, committed to the decarbonisation of maritime operations. We look forward to fostering these relationships in the maritime community as we transition into the next phase of Maritime Climate Action. The GMN itself is a network that spans the globe.

To date, MTCC Caribbean has hosted two Regional Workshops, six Sub-Regional Workshops and one Targeted Training Workshop with an estimated participation of over 550 participants. Members of the MTCC Caribbean team also participated in 33 regional events, bringing invaluable information and knowledge to the project and relaying it to our stakeholders via our capacity building workshops.

Under the GMN project, each MTCC was tasked with delivering five results during the period 2017 to 2019.



Mrs. Vivian Rambarath-Parasram
Director and Head
MTCC Caribbean



In implementing its capacity building initiatives, the region was divided into three sub-regions for the purposes of implementing ‘national’ workshops. Given the size of the Caribbean countries, MTCC Caribbean determined that national workshops confined to one country would not adequately capitalize on the opportunity for capacity building that was presented to the region. This Sub-Regional approach allowed for a more carbon efficient execution of the capacity building workshops and better interaction among neighboring countries. The table I below illustrates the three sub-regions.

[Table I - MTCC Caribbean's Sub-Regions](#)

Sub-Region	Countries
Northern	The Bahamas, Belize, Cuba, Dominican Republic, Haiti and Jamaica
Eastern	Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines.
Southern	Barbados, Guyana, Suriname and Trinidad and Tobago

The nine capacity building workshops were very well received and achieved extraordinary outcomes. Reaching over 550 participants the workshops were designed to build capacity for climate action in the maritime sector. The two pilot projects also contributed to capacity building by yielding the following for the region:

- First Online Voluntary Reporting System and Database for 16 Maritime Administrations on fuel consumption from Ships and use of Energy Efficiency Technology in the region
- First Energy Efficiency Operational Indicator (EEOI) baseline for the Caribbean
- First Ships’ Greenhouse Gas (GHG) emissions baseline for the Caribbean

Feedback from the regional workshops identified many areas of common concerns across the 16 countries and these included:

- Inadequate legal and institutional capacity for the implementation of MARPOL Annex VI
- Need for enhanced national and regional representation at the IMO
- Need for greater access to maritime education training and applied research
- A range of national imperatives such as the inclusion of maritime emissions in nationally determined contributions and enhanced inter-ministerial and intra-regional cooperation on climate action.

It was a privilege to have worked with the region in implementing these projects and MTCC Caribbean looks forward to continually working with maritime stakeholders towards decarbonisation of the sector regionally and internationally. Through the continued support of UTT, IMO and the EU, MTCC Caribbean will endure for the long-term benefit of the region as it continues to leverage relationships across industry, government and academia in promoting climate action and the blue economy.

Capacity Building for Climate Change Mitigation in the Maritime Industry of the Caribbean

The background image is a composite. The top half shows a dark space with a bright sun or star and a faint rainbow. The bottom half shows a view of Earth from space, with a blue horizon and swirling white clouds over a dark ocean.

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

Weather and climate-related disasters continue to be responsible for thousands of deaths and billions of dollars in losses. The leading International Response to this threat is the Paris Agreement 2015 whereby countries agreed to *“to limit global temperature increases to well below 2°C” & “pursue efforts to limit the temperature increase to 1.5°C compared to pre-industrial levels”*. However, the aggregate commitments of countries’ Nationally Determined Contributions (NDCs) are still insufficient in closing the GHG emission reduction gap to achieve the goals of the Paris Agreement. Shipping currently accounts to 2.4% of world carbon dioxide emissions. The United Nations Framework Convention on Climate Change (UNFCCC) Kyoto Protocol called for GHG emissions from fuels used for both International Aviation and Maritime transportation (bunker fuels) to be accounted for and reduced through initiatives from the International Civil Aviation Organisation (ICAO) and the IMO respectively.

The GMN project represents an ambitious initiative by the IMO to address maritime emissions. The GMN project focuses on capacity building in the maritime shipping sector. Specifically, efforts are dedicated to the enhancement of the capabilities of maritime institutions and maritime administrations in the region.

In implementing the project, the importance of the role of non-State actors became increasingly apparent as facilitators for further and future implementation. Improving institutional quality has been at the forefront of the GMN project. Support for this approach was also recognised by the Inter-

American Development Bank (IDB) publication of 2018, which underscored the role of institutional quality in shaping patterns for prosperity (IDB, 2018). MTCC Caribbean worked with maritime administrations to develop in-house expertise in relation to the implementation of the shipping emission standards contained in Annex VI of the International Convention for the Prevention of Marine Pollution from Shipping 1973/78 as amended.

With the focus of MTCC Caribbean being dedicated to building capacity within institutions responsible for shipping and maritime governance, it is important to reflect on the factors that impact the current institutional setting.

Capacity Building

Capacity Building has many definitions but in the context of this project, capacity building focused on organizational effectiveness. Organisational effectiveness has been defined as “the ability of an organization to fulfil its mission through a blend of sound management, strong governance, and a persistent rededication to achieving results”. Capacity building is therefore defined as increasing the ability of an organisation to fulfil its mission. (Wing, 2004)



Many capacity building initiatives are predicated on legislative interventions that enable institutional reform. Legislative reform in the Caribbean has been historically slow and maritime legislation in particular has not been given the priority required across the region. Consequently, the legal and institutional framework governing the maritime sector in many of the Caribbean countries remain archaic and inadequate to respond to the contemporary demands of maritime governance. Notwithstanding these realities, the MTCC Caribbean projects engage the region to determine the best methods to facilitate implementation of MARPOL Annex VI, even in the absence of relevant enabling legislation.



Historical factors affecting Institutional Reform and Capacity Building

In undertaking this realist approach to enhancing institutional capacity, it was instructive to take into consideration some of the factors that contribute to the legislative malaise that affects maritime legislative reform in the Caribbean. Most Caribbean countries emerged from a history of colonisation, slavery and indentureship.

Source: The British Library



The governance systems that were implemented have been described as extractive systems designed to enable the flow of wealth from the colonies to their respective empires. Following Independence, many of these former British colonies retained their historical legal systems with the Queen of England remaining their Head of State. Others former British colonies such as Trinidad and Tobago and Guyana are Republics. Suriname is a Republic, with Haiti, Cuba and the Dominican Republic being independent Republics for very much longer.

In reviewing the state of Institutions in the Caribbean, IDB has highlighted some significant factors that provide an effective backdrop for discussions on capacity building and institutional reform of maritime

administrations. In a 2018 IDB report titled “Nurturing Institutions for a Resilient Caribbean,” it was stated that:

“...the historical foundations of institutions in a country have much to do with the current institutional setting, and a thorough knowledge of those foundations is paramount for any alteration of the system. In other words, to be successful, institutional reform must adapt and consider the specific features of the country itself. As a result, effective institutional reform might not necessarily look the same everywhere...”
(pg 53)

The report also highlighted that the Caribbean’s legacy of plantation agriculture and ethnic divisions could manifest itself in its present-day institutions and political processes. While there are many measures that impacted the state of governmental institutions in the Caribbean, colonisation, geopolitics, diversity and legal systems are highlighted in the context of capacity building. In many respects, maritime administrations of the Caribbean are directly impacted by their legal and institutional history with some laws predating their Independence still in effect in theory, if not in practice.

Impact of Colonisation

The legacy of colonisation can be found in every aspect of contemporary Caribbean life. Demography, constitutions, educational systems, trade linkages, and even transportation have been significantly impacted by the influence of the empires and colonisers. The European influence has also continued through the implementation of

policies in the overseas territories and non-independent entities of the Caribbean region.

The English-speaking Caribbean countries have enjoyed relatively good political stability despite a history of extractive policies and institutions. While most non-English speaking countries have also experienced political stability, the complexities of foreign policies and diplomatic rows have challenged the creation of a collective approach in international conferences and forums. Diverging interests of European neighbours within the Caribbean region may be a contributing factor to the delay in charting a Caribbean identity (Girvan, 2012).



At the local level, governments are also challenged to address perceptions of corruption, and the promotion of inclusive multicultural societies emerging from a history of slavery and indentureship. In the aforementioned IDB report it was further noted that with respect to the features of “good” policymaking, the worst outcomes appear to be associated with ethnic diversity, being a non-ex-British colony, and having been colonised through extractive institutions. The best outcomes are observed for The Bahamas, a former British colony, which was not extractive, and not ethnically diverse. Similar evidence was observed for measures of government capabilities. Most Caribbean countries do particularly poorly in

policymaking (Cuthil & Fien, 2005) and this was confirmed during workshops conducted by MTCC Caribbean. However, capacity building projects such as the GMN are vehicles for promoting policy reform through its capacity building activities.

Contemporary society is also confronted with rapid change and complex issues, and there is an increasing difficulty for elected representatives to effectively manage ethnic and racial diversity amid complex social, environmental and economic interests of their local constituents (Cuthil & Fien, 2005). Consequently, despite democratic governance, many groups are marginalised based on race, ethnicity and access to adequate health care. Most Caribbean countries however, do facilitate universal primary, secondary and to a certain extent even tertiary level education, subsidised health care and strong welfare interventions.



Diversity

Source: EveryChildCanAchieve.org

The Caribbean is well known for the diverse cultures that contribute to its multi-racial and multicultural societies. In some jurisdictions, these multicultural societies are dominated by two races, those of Indian and African descent, resulting in a delicate and somewhat fragile co-existence. This fragility is even more pronounced in periods of political activism

where political party lines are perceived to be based on race. The mainstreaming of social media across the Caribbean region have now brought to the fore the importance of addressing race relations. The Black Lives Matter (BLM) movement that inadvertently, brought about millions of dollars of destruction across the United States of America (USA), echoed across various capitals and cities in the Caribbean.

The access to social media has also given an avenue for unhindered and often uncensored opinions to be placed in the public domain, reflecting underlying prejudices that are not being actively addressed. This perspective was shared in a conference hosted by the University of Chile, and was adequately summarised in the quote below:

"The foundational and intrinsic diversity of the Caribbean has been understood by many of the inhabitants and thinkers of the region from an assumed racial democracy or a "melting pot" point of view, where racist practices and ideologies are not recognized. This denial presents a difficulty in tackling racism, which is often attributed to societies such as the United States or Europe, but not to their own, which on the contrary, is considered free of this form of discrimination. Nonetheless, daily experiences, discourse, public policies, the educational system, cultural manifestations, family life, the media, among others, exert multiple forms – open or surreptitious – of inequality and segregation." (Caribbean Studies Association, 2018)



The regulation of social media is being addressed by many countries particularly in order to address their involuntary hosting of forums being used to promote racial discord, anti-Semitism, white supremacy, religious intolerance and terrorism. The content placed on social media therefore has brought

to the fore the need to address underlying racial tensions, that are often trivialised as political banter, in order to ensure that the fragile balance of successful multiracial cultures and societies are not upended by imported racial sentiments. Racial tensions cannot be allowed to escalate given the adverse impact on economic advancement and institutional reform.

Geopolitics

In addition to having neighbours influenced and bound by Eurocentric policies, the Caribbean is heavily impacted by the Americas. North American neighbours such as Canada and USA directly and often positively impact the region. Both of these countries support security operations in the Caribbean Sea and this presence is intensified in times of unrest. The USA is also geographically part of the Caribbean through the Florida panhandle, Puerto Rico and the US Virgin Islands. Consequently, marine and maritime administration in the Caribbean region is directly impacted by this super power.

The Caribbean is geographically located in the middle of the Americas and its diplomatic connection with its Northern and Southern neighbours often mirrors a 'median' approach. Foreign policy relations between the USA, Cuba and Venezuela puts the region's diplomacy to the test. Within recent years,

political and diplomatic relations between the Caribbean and USA raised concerns given that the Caribbean Community (CARICOM) endorsed need for dialogue and neutrality on the Bolivarian Republic of Venezuela. Trinidad and Tobago declared its recognition of the incumbent Nicholas Maduro as President of the Bolivarian Republic while the USA, Canada and several European countries had declared support for his opponent by stating their recognition of Juan Guaido. This has led the region into walking the proverbial tight rope in managing diplomatic relations between USA and Venezuela without triggering sanctions or trade restrictions.



Source: HuntSource

The political unrest that has plagued South American countries directly impacts neighbouring countries. Trinidad and Tobago has been receiving thousands of refugees from Venezuela as that country continues to experience economic decline and ongoing civil unrest. Illegal immigration has also exacerbated long-standing issues of human trafficking, illicit drug trade and smuggling of arms and ammunitions. Maritime borders within the region are therefore frequently porous due to inadequate naval assets and human resources to effectively survey and monitor illegal activity in the Caribbean Sea.

Given the proximity of the Caribbean to the North and South American continents, it is perhaps necessary for the Caribbean to continue to promote consensus in international relations in the Wider Caribbean Region and the Americas.

Legal Systems

Much of the English-speaking Caribbean is still reliant on British legislation, case law and commercial practice in administration of their maritime affairs. While this reliance on Commonwealth jurisprudence has filled gaps in the local framework, the suitability of this jurisprudence to the Caribbean must be questioned if we are to emerge into a region that can boast of truly independent economies forming part of a Caribbean Community united in a common goal of promoting their blue economies. Implicit in the ambition of promoting the blue economy is the decarbonisation of maritime operations.

This section is best concluded by adopting the words of Professor Belle Antoine from her book on Commonwealth Caribbean Law and Legal Systems;

"It appears that we are successful legal civilisations if we judge ourselves by how admirably we have retained and maintained the English jurisprudence that we inherited or, more accurately, was thrust upon us. However, we have exhibited failure in our inability to put our own stamp, our own face, on our justice. Ultimately, law is meant to reflect society and to engineer society. Yet our law still looks very alien and foreign to many" (Belle Antoine, 2008).

Source: Trinidad & Tobago Parliament



Government, Academia and Industry – Alignment for Effective Governance.

The convergence of Government, Industry and Academia (the Triple Helix) is often recognised as one of the mechanisms to achieve sustainable economic growth.

Government

Commonwealth Caribbean countries are all democracies with similar legal systems. In the previous sections, a review of some of the historical factors affecting legal systems of the various Caribbean countries was undertaken. While the role of Government in the development in any industry is multidimensional in nature, in the context of maritime two key roles can be distilled, that of a regulator and a developer. As a regulator the government is required to create the appropriate enabling environment through the relevant legal and institutional reforms. As a developer, the implementation of appropriate policies to drive the development of certain aspects of the maritime industry is equally important.

In general it appears that the region struggles to make maritime legislative reform a priority. Shipping legislation is often found in draft Bills failing to reach parliamentary legislative agendas for decades. One example of this is the Shipping (Marine Pollution) Bill of Trinidad and Tobago that has been in draft form since 1997. Such legislative inertia contributes to the stagnation of domestic industry standards and an avenue for promoting substandard shipping in the region. Notwithstanding archaic legal and institutional frameworks, maritime administrations, as the national regulators of the respective Caribbean countries, are key stakeholders in climate change mitigation in the maritime sector.

Academia: Maritime Education, Training and Research in the Caribbean

Research into the economic trade and facilitation is largely driven by the University of the West Indies. However, research into the specifics of maritime economics and policies remain embryonic in the region. Maritime education was not available in the Caribbean until the founding of the Caribbean Maritime Institute (CMI) in 1980 in Jamaica. The CMI transitioned into a Chartered University in 2018 as the Caribbean Maritime University (CMU). The seafaring programmes are accredited by the Maritime Authority of Jamaica which is a considerable achievement by this



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country given the rigours of obtaining white list recognition by the IMO under the International Convention for the Standards Training Certification and Watchkeeping Convention (STCW Convention) 1978 as amended.

It was 27 years until another significant maritime education centre would be opened in the Caribbean. In 2004, The University of Trinidad and Tobago began offering operational level seafarer programmes and in 2007, the Centre for Maritime Studies was officially opened as one of the

flagship campuses of this multi-campus University. The seafarer programmes of UTT are accredited by the Maritime and Coast Guard Agency of the United Kingdom and is the only UK accredited college



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***Launch of MTCC Caribbean
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operating outside of the United Kingdom. This accreditation is imperative for this campus, as unlike Jamaica, Trinidad and Tobago does not have the institutional requirements in place to be recognised for white listing by the IMO under the STCW Convention.

The maritime programmes of the University have expanded to include undergraduate programmes and postgraduate degrees focusing on marine and maritime issues so as to drive the development of the sector. In less than two decades of operation, UTT has made considerable strides in advancing

the level of maritime education available to the region. Programmes are now available online and can be largely undertaken remotely via its online learning management platforms.

In 2016, UTT also won the bid to host the Maritime Technology Centre for the Caribbean, which facilitated the building of institutional partners in maritime administrations across the Caribbean. UTT was able to spearhead capacity building initiatives for the more effective implementation of MARPOL Annex VI and undertook applied research into the uptake of energy efficient technology in maritime shipping and fuel consumption and reporting for the region.

Members of the MTCC Caribbean has had the privilege of attending two Senior Maritime Administrators (SMA) Workshops, and one High Level Symposium for the Ministers of Transport of the region. The SMA however, includes the independent Commonwealth States of the Caribbean and the Overseas Territories of the Caribbean, therefore giving access for even wider integration of the



*MTCC Caribbean Directorate & IMO Senior Representatives
Senior Maritime Administrators Meeting (SMA)*

MTCC with maritime governmental actors from the wider Caribbean region. Through its presence at the SMA, the MTCC was able to lobby and secure commitment from the Caribbean to progress the agenda on climate action in the maritime domain. Through the contributions from various representatives, the MTCC was also recognised as a centre of excellence for the region and a centre that needed to be tapped into for building maritime capacity across the region. Following on from these discussions it was further recommended that the maritime universities of the Caribbean should be invited to the SMA given the discussions on the need for maritime training and education.

Industry

The maritime industry in the local and regional context remains undefined. In some instances the maritime industry is confined to logistics and activities associated with maritime shipping. In other instances it includes the recreational sector such as yachting, marine and coastal initiatives such as artisanal fishing and marine spatial planning. Regardless of the definition employed, the importance of the maritime industry to this region, which is connected primarily by oceans, cannot be overstated. The recent impact of the pandemic highlighted the need for shipping to maintain supply chains and food security to the region. However, the nature of the region is such that there is a robust trade in merchant shipping that often falls outside the ambit of 'convention' ships. Convention ships relate to merchant vessels that trigger compliance with international standards and conventions of the IMO. Notwithstanding the ongoing presence and inter island trade by these non-convention vessels, the focus of MTCC Caribbean research and data collection has been on vessels that need to comply with MARPOL Annex VI. In this respect the focus of this project has been primarily on vessels above 400GRT and their ports of call.

Although the focus of the project was on convention vessels, stakeholders including small vessel owners participated in workshops and benefitted from training facilitated by the MTCC. The local and regional maritime industry has also actively embraced the MTCC and this is reflected through their active participation in the Regional Steering Committee (RSC) which was formed in 2018. The current RSC includes ports from The Bahamas, a major cruise line, sub regional representatives, regulators and nonparty stakeholders such as Non-Governmental Organizations (NGOs) as well as local and regional industry observers. The aims of the RSC is essentially to support the work of the MTCC through advocacy, and promoting visibility for the project. As the RSC continues its mandate it is also expected to lay the foundational work for industry support in sustaining the operations of the MTCC.

Status of **Climate**
Action in the Maritime
Domain - Caribbean

Status of Climate Action in the Maritime Domain – Caribbean Region

While the implementation of all the Sustainable Developmental Goals (SDGs) is important to the Caribbean, SDG 13 (Climate Action) is of paramount importance because of the vulnerability of the region to the impacts of climate change. Through its support for various international and regional legal instruments, the Caribbean has demonstrated its commitment to the implementation of climate action. Recognising that every sector has to implement initiatives to meet the targets of SDG 13, the IMO has also implemented several measures aimed at reducing harmful GHG emissions from shipping.

Table II - Status of Ratification in the Caribbean: Kyoto, Paris & MARPOL Annex VI

Sub Region	Country	KYOTO	PARIS	MARPOL VI	MTCC Data Collection
Northern	Jamaica	28 Jun 1999	10 April 2017	29 Aug 2008	
	Haiti	6 Jul 2005	31 July 2017		
	The Bahamas	9 Apr 1999	22 Aug 2016	19 May 2005	Yes
	Dominican Republic	12 Feb 2002	21 Sept 2017		
	Belize	26 Sep 2003	22 April 2016	14 Sep 2007	Yes
	Cuba	30 Apr 2002	28 Dec 2016		
Eastern	Antigua & Barbuda	3 Nov 1998	21 Sept 2016	10 Oct 2007	
	Dominica	12 Feb 2002	21 Sept 2016		
	St Lucia	8 Apr 2008	22 April 2016	26 Aug 2016	
	Grenada	6 Aug 2002	22 April 2016		
	St Vincent & The Grenadines	31 Dec 2004	29 June 2016	26 Aug 2009	Yes
	St Kitts & Nevis	8 Apr 2008	22 April 2016	02 Feb 2005	
Southern	Barbados	7 Aug 2000	22 April 2016	19 May 2005	
	Guyana	5 Aug 2003	20 May 2016	29 May 2019	Yes
	Trinidad and Tobago	28 Jan 1999		07 Sep 2012	Yes
	Suriname	25 Sep 2006	22 Feb 2018		Yes

The principal international convention addressing GHG emissions from ships is the International Convention for the Prevention of Pollution from Ships Annex VI (MARPOL Annex VI).

Whilst Caribbean States have largely recognised the importance of MARPOL, effective implementation remains elusive. While over 80% of the region has ratified MARPOL 73/78, less than 30% report effective implementation. In the Eastern Sub-Region, one country has legislation that directly implements MARPOL and Annex VI in particular. The Legal frameworks of the territories have remained substantially the same but the creation of Energy Efficiency Focal Points (EEFPs) and the RSC representatives represent institutional progress for the region.

The Intergovernmental Panel on Climate Change (IPCC) has asserted that adaptation options which reduce the vulnerability of human and natural systems have many synergies with sustainable development, if well managed, such as ensuring food and water security, reducing disaster risks, improving health conditions, maintaining ecosystem services, reducing poverty and inequality and promoting clean energy. Increasing investment in physical and social infrastructure is a key enabling condition to enhance the resilience and the adaptive capacities of societies. These benefits can occur in most regions with adaptation to 1.5°C of global warming. (IPCC V. Masson-Delmotte et al, 2018)

Key IMO Initiatives

In response to its mandate to tackle emissions from maritime shipping the IMO has implemented several initiatives specifically targeting capacity building and technology transfer in the developing world. The major initiatives are briefly highlighted below.

GloMEEP (2015)

The GloMEEP project is a GEF-UNDP-IMO project principally aimed at supporting the uptake and implementation of energy efficiency measures in shipping. The project was executed by a project coordination unit within the IMO. The GloMEEP project was implemented in 10 lead pilot countries and assistance was channeled through:

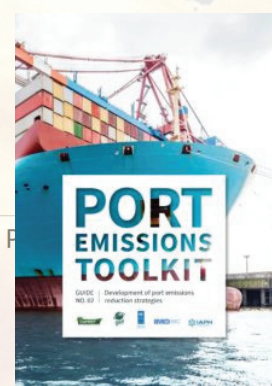
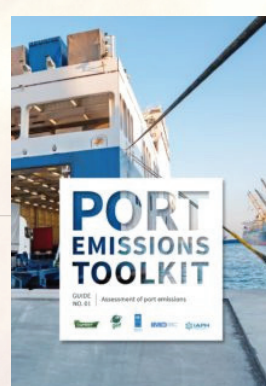
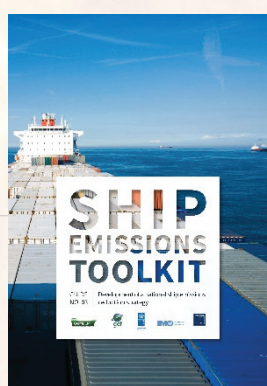
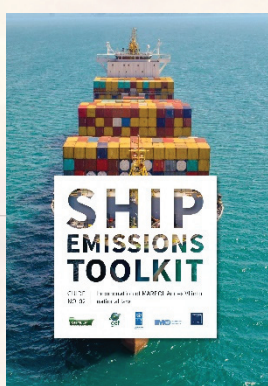
- Legal, policy and institutional reforms
- Awareness raising and capacity building activities and
- Establishment of public private partnerships to support low carbon shipping

The GloMEEP project also facilitated the development of Ship and Port Emissions toolkits. These toolkits are expected to provide valuable insight into the implementation of MARPOL Annex VI and emissions reductions in the maritime sector. The Shipping Emissions toolkits are as follows:

- Guide No. 1: Rapid Assessment of Ship Emissions in National Context
- Guide No. 2: Incorporation of MARPOL Annex VI into National Law
- Guide No. 3: Development of a National Ship Emissions Reduction Strategy

The Port Emissions Toolkits are:

- Guide No. 1: Assessment of Port Emissions
- Guide No. 2: Development of Port Emissions Reduction Strategies



Global MTCC Network (2016)

The Global MTCC Project was launched in 2016 and facilitated the establishment of five Maritime Technology Cooperation Centres within Host Institutions across the globe. The map below provides the host institutions and the Host Institution of each MTCC.

Being based primarily in Universities within the developing world, each MTCC was tasked to deliver the five results including the delivery of two pilot projects aimed at the uptake of ship energy efficient technologies and operations, and fuel consumption and data collection and reporting in line with IMO regulations. These pilots were also concluded amid a series of workshops and capacity building activities that spanned over 90 countries and trained thousands of maritime personnel across the globe.



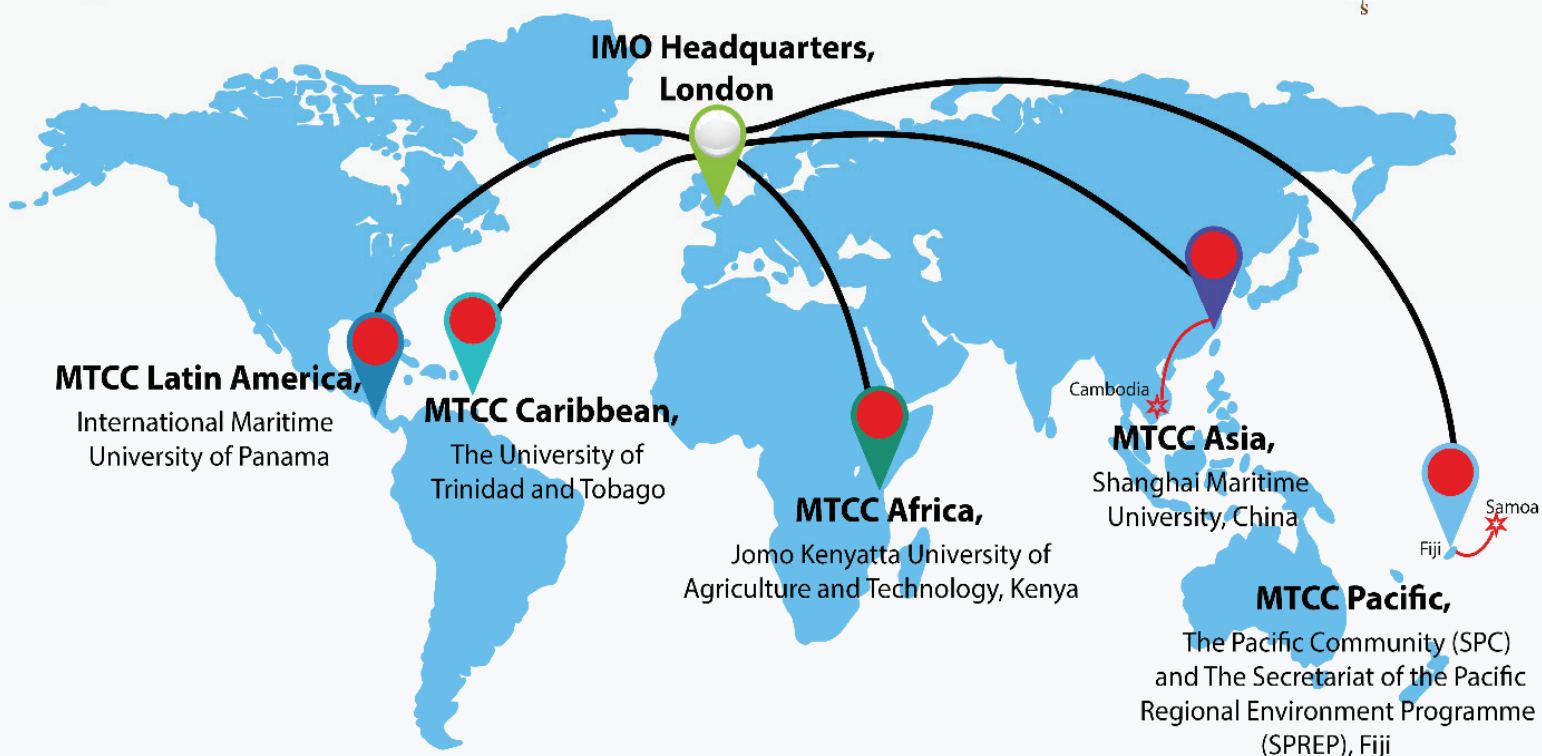
MoU Signing Ceremony for the official Launch of the Global MTCCs Network (December 4, 2017), IMO Headquarters, London.

From (L to R): Mr. Thierry Nervale, Director MTCC Pacific; Mr. Eladio Peñaloza, Head, MTCC Latin America; Mrs. Vivian Rambarath-Parasram, Director & Head, MTCC Caribbean; Mr. Kitack Lim, Secretary-General, IMO; Ms. Magda Kopczynska, Director, Directorate-General for Mobility and Transport, European Commission; Prof. Jin Yongxing, Director, MTCC Asia; and Dr. Robert Kiplimo, Director, MTCC Africa.

In 2019, the Host Institution of MTCC Latin America decided to discontinue their contract with the IMO under the GMN project leaving four MTCCs. The IMO is expected to continue the work of the GMN in the absence of a MTCC.

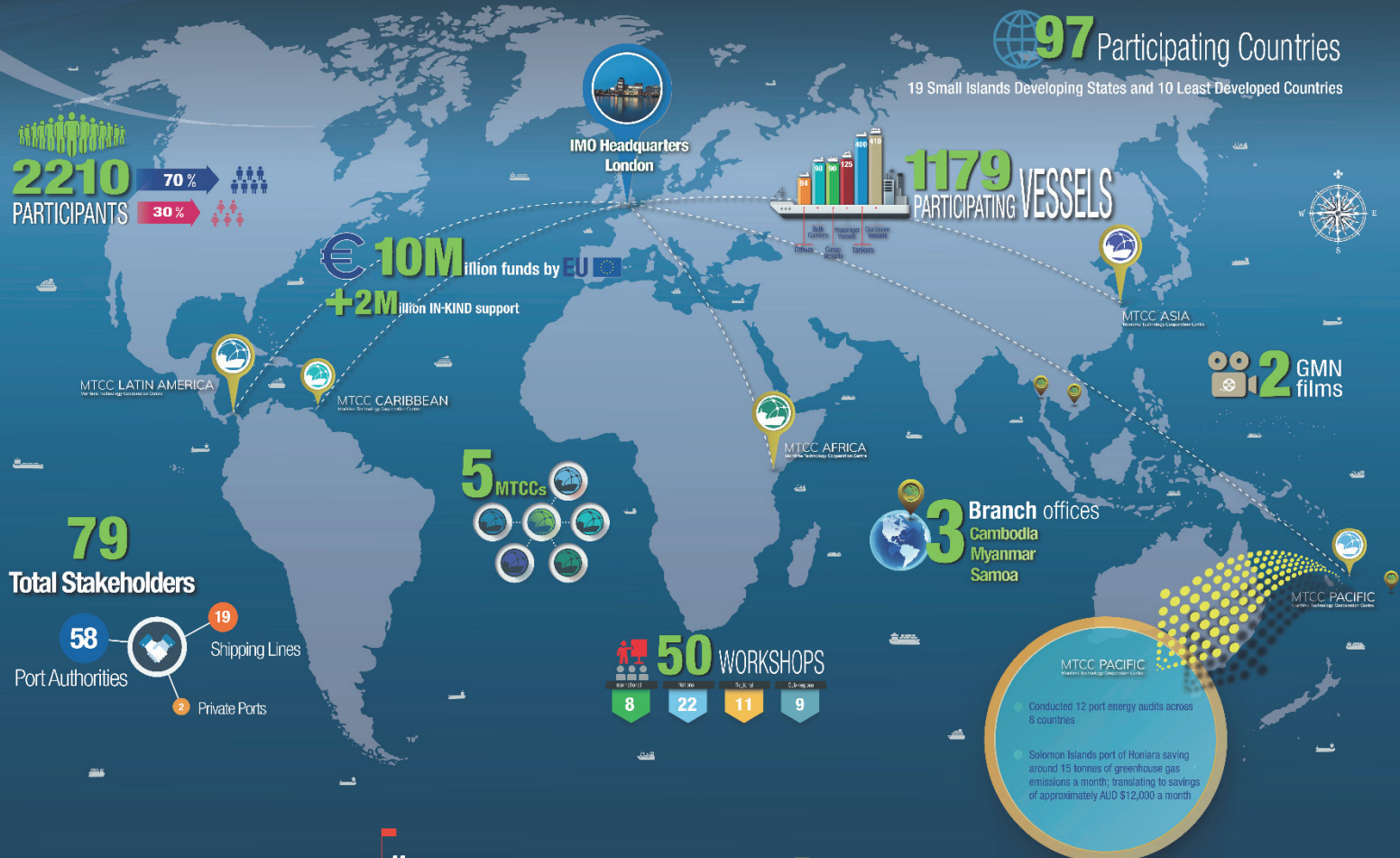


GMN | The Global
MTCC Network
A global network for energy-efficient shipping





A GLOBAL NETWORK TO SUPPORT IMO's INITIAL GHG STRATEGY THROUGH CAPACITY BUILDING AND TECHNOLOGY TRANSFER



December

Completed international tender

August

PCU established



March

Final Regional Workshop and official launch event implemented

- Implement Pilot Project Activities
- Deliver National and Sub-regional Workshops



December

Mid-term Evaluation of MTCCs



“

IMO is requested to assess periodically the provision of financial and technological resources and capacity-building to implement the Strategy through initiatives such as the MTCC network



Global shipping to 'historic' climate deal
The shipping industry is finally going to hit deal.
Carbon dioxide from ships at sea to be regulated for first time

For the first time, Maritime Shipping Has A Climate

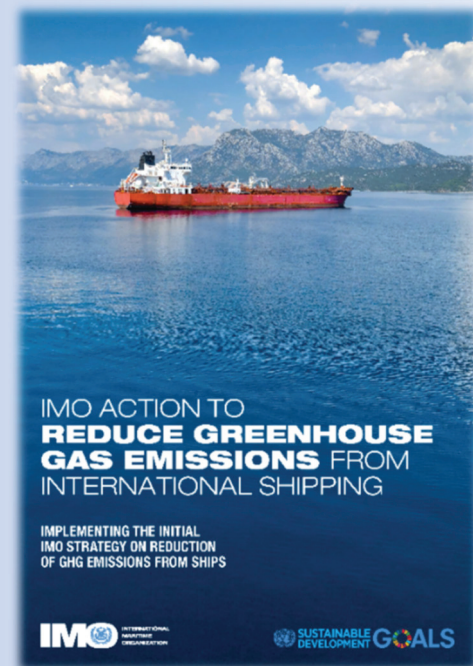
Nations Strike Historic Deal to Curb Shipping Emissions

The shipping world is finally seen heading in the right direction towards climate change

IMO Initial GHG Strategy (2018)

The IMO Initial GHG Strategy represented a significant milestone in setting targets for reducing GHG emissions from ships. The ambition represented by this strategy brought about unprecedented changes to the operations of ships. The strategy requires *inter alia*:

- “...a reduction in total GHG emissions from international shipping which, should peak as soon as possible and to reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008...”
- “... a framework for further action, setting out the future vision for international shipping, the levels of ambition to reduce GHG emissions and guiding principles; and includes candidate short-, mid- and long-term further measures with possible timelines and their impacts on States...”
- to provide mechanisms for facilitating information sharing, technology transfer, capacity-building and technical cooperation, taking into account resolution MEPC.229(65) on Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships



Green Voyage 2050

The Green Voyage is another major international project aimed at supporting the IMO's initial strategy for reducing greenhouse gas emissions from shipping. The project will initiate and promote global efforts to demonstrate and test technical solutions for reducing such emissions, as well as enhancing knowledge and information sharing to support the IMO GHG reduction strategy.

IMO states that the GreenVoyage-2050 is a collaboration between IMO and the Government of Norway and will run for an initial two-year period. More than 50 countries in 14 sub-regions across the globe are expected to participate, including developed countries and strategic partners from the private sector, who will contribute expertise and experience.

Like the GMN and GloMEEP projects, this project will also focus on building capacity in developing countries, including Small Island Developing States (SIDS) and Least Developed Countries (LDCs), to fulfil their commitments to meet climate-change and energy-efficiency goals for international shipping.

Eight countries, from five high-priority regions (Asia, Africa, Caribbean, Latin America and Pacific), will assume pilot roles, to pursue and undertake actions at the national level. These pilot countries will then become "champions" and exemplars, stimulating momentum for the implementation of the GHG strategy by supporting other countries in their respective regions.



CARICOM Initiatives

Moody's Analytics in its Economics of Natural Disasters, published in 2018 states that "among the 20 most vulnerable countries in the world, more than half represent small island states across the Caribbean and Pacific Regions" (Sweet K., 2018). Recalling the 2017 Atlantic Hurricane Season and the ravages of Hurricane Dorian's impact on The Bahamas in 2019, the Caribbean's vulnerabilities cannot be underscored enough. In 2017, 18 countries in the Caribbean were severely battered with an estimated damage and loss of \$130 billion US dollars. The impact of these natural disasters along with the global pandemic has severely impacted tourism, one of the mainstays of Caribbean economies. The region has been acutely aware of the need for concerted and concrete action at the global level for mitigating climate change.



Aerial view of Marsh Harbour after Hurricane Dorian on September 5, 2019 in Great Abaco Island, Bahamas. (Photo by Jose Jimenez)

In recognition of these vulnerabilities the CARICOM Declaration (2015) for climate action called for:

- Recognition of the specific needs and special circumstances of SIDS;
- Enhanced provisions for supporting the adaptation needs of vulnerable developing countries, including provision of adequate, predictable, new and additional finance, technology and capacity building support, and strengthening of the institutional arrangements;
- Loss and damage as a central and distinct element of the agreement, that should be treated separately from adaptation;

- Commitment by developed country parties to take the lead in scaling-up the provision of adequate, predictable, new and additional financial resources, and opportunities for other Parties willing to do so, to also contribute to scaling up climate finance;
- *Call on* the international community to act with utmost urgency to rapidly shift financial flows to facilitate and effect pathways consistent with limiting warming to 1.5 °C;
- *Urge* developed countries to demonstrate progress towards the mobilisation of USD 100 billion per annum by 2020 and to further demonstrate their commitment to efforts to increase that climate finance goal through to 2025;
- *Stress* the importance of achieving a balance in the provision of resources for mitigation and adaptation actions, in particular targeting the needs of SIDS for public and grant-based resources for adaptation and for addressing loss and damage from the dangerous impacts of climate change;
- *Welcome* the launch of the first formal replenishment process of the Green Climate Fund (GCF) and look forward to the timely conclusion of an inclusive process and the development of a comprehensive resource mobilisation strategy informed by the latest science, while taking into account the urgent needs of SIDS;
- *Call* upon Parties to ensure that market mechanisms under the Paris Agreement now go beyond offsetting to deliver an overall mitigation of global GHG emissions (CARICOM'S Response to IPCC Special Report on the Impacts of Global Warming of 1.5 °C Above Pre-Industrial Levels (1.5 °C Special Report) 2018, 2015)

As the region recovers from the onslaught of natural disasters, the SARS COV 2 virus has also now introduced new and significant economic challenges. With many Caribbean countries reliant on tourism, the impact of the pandemic has resulted in limited revenue streams and access to foreign exchange. The cruise ship industry is more or less in a state of suspension, resulting in even further losses for countries reliant on visits from these floating cities. The economic recovery of the region must therefore embrace concepts of sustainability, and fully capitalise on the opportunities of the blue and green economies.

Given the limited access to resources available to the region, it is imperative that we leverage available legal and institutional frameworks. There are several institutions within the Caribbean that are either directly or indirectly involved in climate action and these include the:

- Caribbean Environmental Programme (CEP)
- Caribbean Community Climate Change Centre (CCCCC)
- The Regional Marine Pollution Emergency, Information and Training Centre (REMPEITC)
- Regional Maritime organisations such as the Caribbean MOU on Port state Control and Council for Trade and Economic Development (COTED)
- Non Party Stakeholders such as NGOs, CBOs and Civil Society

Caribbean Environment Programme

The CEP was established by UN Environment in 1981 as one of the Regional Seas Programme. Countries of the region were then facilitated in the adoption of a regional action plan which eventually led to the adoption of The Convention for the Protection and Development for the Marine Environment in the Wider Caribbean Region. (Cartagena Convention).

The Cartagena Convention is further supported by three technical protocols:

- The Protocol Concerning Cooperation in Combatting Oil Spills in the Wider Caribbean Region 1983
- Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region 1990
- Protocol Concerning Pollution from Land Based Sources and Activities 1999

The Cartagena Convention therefore provides a broad regional framework for facilitating many environmentally focused initiatives including those ancillary to climate action.

RAC-REMPEITC

The Regional Marine Pollution Emergency, Information and Training Centre (REMPEITC) – Caribe is one of four regional activity centres of the Caribbean Environment Programme (CEP). The Centre is hosted by the government of Curacao and contributes to the sustainability of the marine environment in the wider Caribbean region by assisting countries to implement international conventions created to reduce pollution from ships.

The IMO, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) are major contributors in funding activities conducted by RAC/REMPEITC. These activities include:

- Developing and assessing national and multilateral contingency plans;
- Training and workshops;
- Technical support and consultancy; and
- Information and public awareness.

Caribbean Community Climate Change Centre

The Caribbean Community Climate Change Centre (CCCCC) came into existence in February 2002 with significant support from the Government of Italy. The CCCCC was the only regional institution with a specific mandate to address the impacts of climate change in the region. With the creation of MTCC Caribbean, the CCCCC's efforts were complemented by MTCC's focus on climate change mitigation in the maritime shipping industry. The CCCCC offers a myriad of services that include climate modelling, environmental scans, LiDAR survey and project development and support. The centre is accredited by the Regional Implementing Entity (RIE) to the UNFCCC Green Climate Fund (GCF). As an RIE, the centre can receive financial transfers from the Fund in order to carry out adaptation and mitigation projects which can range from US\$10 million to a maximum of US\$50 million.

The CCCCC is therefore the most significant regional institution leading climate action within the Caribbean.



Caribbean MOU on Port State Control

The Caribbean Memorandum of Understanding (CMOU) on Port State Control (PSC) is one of nine regional agreements established in different regions of the world. Signed on February, 9th 1996, the CMOU currently hosts 20 member States, 1 associate member and 3 observer States (CMOU, 2019).

The focus of the CMOU is on securing compliance regarding safety of life at sea, security, prevention of maritime pollution, working and living conditions on vessels and seafarer certification and qualifications.

Under section 1.2 of the CMOU, each member State is required to conduct inspections of foreign ships in their respective ports and ensure compliance with the conventions and regulations of the IMO and ILO. The following are the relevant instruments that the CMOU abides by to conduct their PSC inspections;

- The International Convention on Load Lines, 1966 (LOAD LINES 66) and its Protocol of 1988 relating to the International Convention on load lines, 1966 (LL PROT 88);
- The International Convention for the Safety of Life at Sea, 1974 (SOLAS 74) and its Protocol of 1978 (SOLAS PROT 78);
- The Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 (SOLAS PROT 88);
- The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 relating thereto (MARPOL 73/78);
- The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 78);
- The Convention on the International regulations for Preventing Collisions at Sea, 1972 (COLREG72);
- The International Convention on Tonnage Measurement of Ships, 1969 (TONNAGE 69);
- The Merchant Shipping (Minimum Standards) Convention, 1976 (ILO Convention No. 147) and its Protocol of 1996 (ILO 147 PROT 96);
- International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001 (AFS 2001)

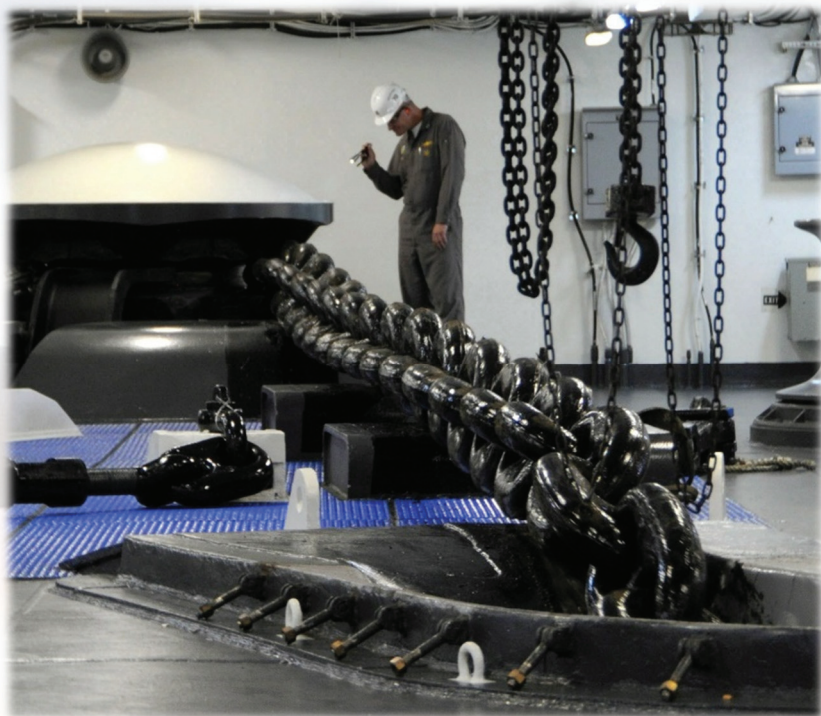


- International Convention on Civil Liability for Oil Pollution Damage, 1969 (CLC 1969) and its Protocol of 1992 to amend the International CLC for Bunker Oil Pollution Damage, 2001 (Bunker 2001);
- The Caribbean Cargo Ship Safety Code (CCSS Code);
- The Small Commercial Vessel Code (SCV Code);
- Maritime Labour Convention, 2006 (MLC 2006); and
- The Nairobi International Convention on the Removal of Wrecks, 2007.

Having established their grounds for the conduct of port state inspections in accordance with the applicable conventions, member States appoint their Port State Control Officers (PSCOs) in accordance with the requirements by the CMOU and IMO. These PSCOs then carry out inspections based on the criteria set out in the Memorandum.

Following the inspection, PSCOs complete a report of the inspection in which indicates deficiencies (if any), action to be taken to correct deficiencies and the time allotted in which to do so. The following constitutes the actions recommended by the IMO:

- Immediate rectification of deficiency;
- Rectification of deficiency within 14 days;
- Rectification of deficiency at next port;
- Rectification of deficiency prior to departure;
- Temporary substitution of equipment;
- Issue of a letter of warranty;
- Detention;
- Ship be allowed to sail after detention;
- Next port be ordered to re-detain.



The next step is the sharing of information from these inspections not only to member States of the CMOU but to all PSC regimes worldwide. In the event of a detention, the secretariat of the CMOU must inform the flag state of the vessel, the nearest diplomatic representative or maritime authority at the earliest opportunity.

Computerised data information is provided to the Caribbean Maritime Information Centre (CMIC) via the Caribbean Maritime Information System (CMIS). This allows for direct computerised exchange of messages between individual administrations in an informed manner. This system provides a database for the storage of information relating to PSC in the region and allows member states the ease of accessing this information when conducting PSC.

IMO Regional Maritime Adviser - Caribbean

This office is a significant institution in the implementation of the international conventions falling under the purview of the IMO. Operating out of the office of the Integrated Technical Cooperation Programme of the IMO, the IMO Regional Maritime Adviser (RMA) for the Caribbean has been instrumental in facilitating enhanced implementation of maritime conventions. Given the difficulty developing countries have experienced in giving effect to IMO's instruments, the IMO established an Integrated Technical Co-operation Programme (ITCP), with the sole purpose of assisting countries in building their human and institutional capacities for uniform and effective compliance with the Organization's regulatory framework. IMO's technical assistance activities include assessment/advisory missions, national/regional seminars/workshops, fellowships and training courses, which are delivered primarily through the Secretariat and the Regional Presence Scheme.

The IMO Regional Presence Scheme was established to provide a modest presence in selected developing regions, thereby facilitating IMO's input into national and regional development policies and providing active field-level participation in the development, execution and coordination of the delivery of IMO's ITCP.

To achieve this objective in the Caribbean, the office of the Regional Maritime Adviser, Caribbean was established in 1985 under CARICOM and became fully integrated within the auspices of the IMO's Technical Cooperation Division from the year 2000. Hosted by the Government of the Republic of Trinidad and Tobago from inception, the office covers fourteen (14) independent States and sixteen (16) territories/regions in the Wider Caribbean Region.



Mr. Colin Young
Regional Maritime Adviser – Caribbean
International Maritime Organization

Non-Party Stakeholders

Non-party Stakeholders can play a significant role in the implementation of climate action. They are not necessarily bound by the bureaucracy of governmental organisation which makes them an agile actor in taking the lead in advocating for appropriate legislative and policy interventions. At a 2018 conference assessing the global climate action, some key action points were recommended for non-party stakeholders and these included:

- Collaboration with national and subnational governments and with other non-party stakeholders to help develop policies to enable action;
- Pursuit of collective action with other stakeholders to amplify the results of that action and bring greater ambition; and
- Take on ambitious commitments and encourage other non-Party stakeholders to follow their lead. (Galvanizing the Groundswell of Climate Actions (2018). Assessing global climate action after the California summit: Key messages for COP24., 2018)

Climate Finance in the Caribbean Region

There are several international organisations involved in supporting climate change initiatives in the Caribbean region. With over €476 million being made available for climate action projects, the European Union is one of the largest donors to the Caribbean region. These projects have targeted climate adaptation, reconstruction, climate mitigation and disaster risk management. Working with academia, local authorities, private sector, civil society, communities and development agencies, the European Union has allocated funding to 11 countries for climate change in the Caribbean (Bogdan, 2020).

As illustrated below, 56% of this funding was allocated through National channels and 44% through Regional channels. Approximately 50% of this funding has been allocated to Climate Adaptation initiatives in the Caribbean Region. Table III highlights some of the key climate action initiatives within the Caribbean Region to date.

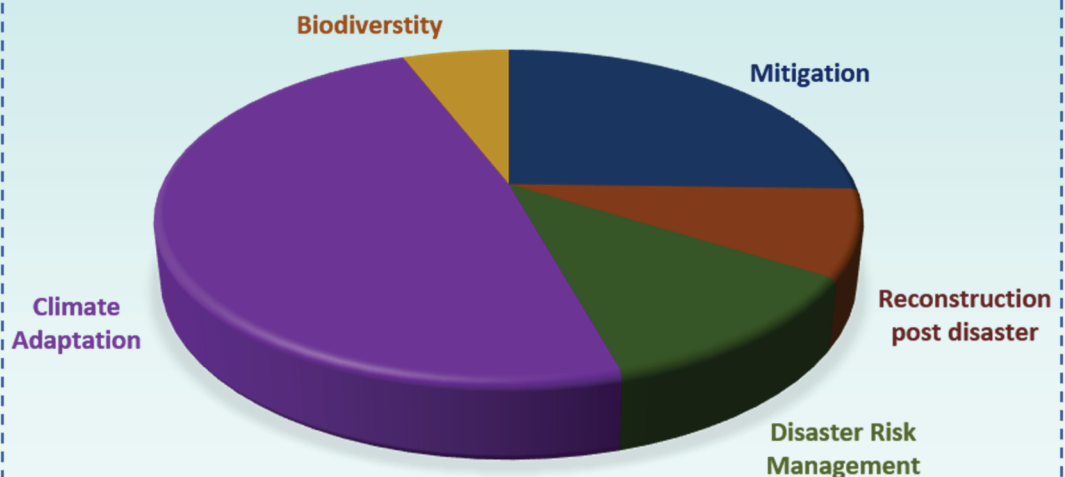
National/Regional Allocation



Source: Adapted from: (Bogdan, 2020)



Climate Action Allocation



European Union Funding in Caribbean Countries

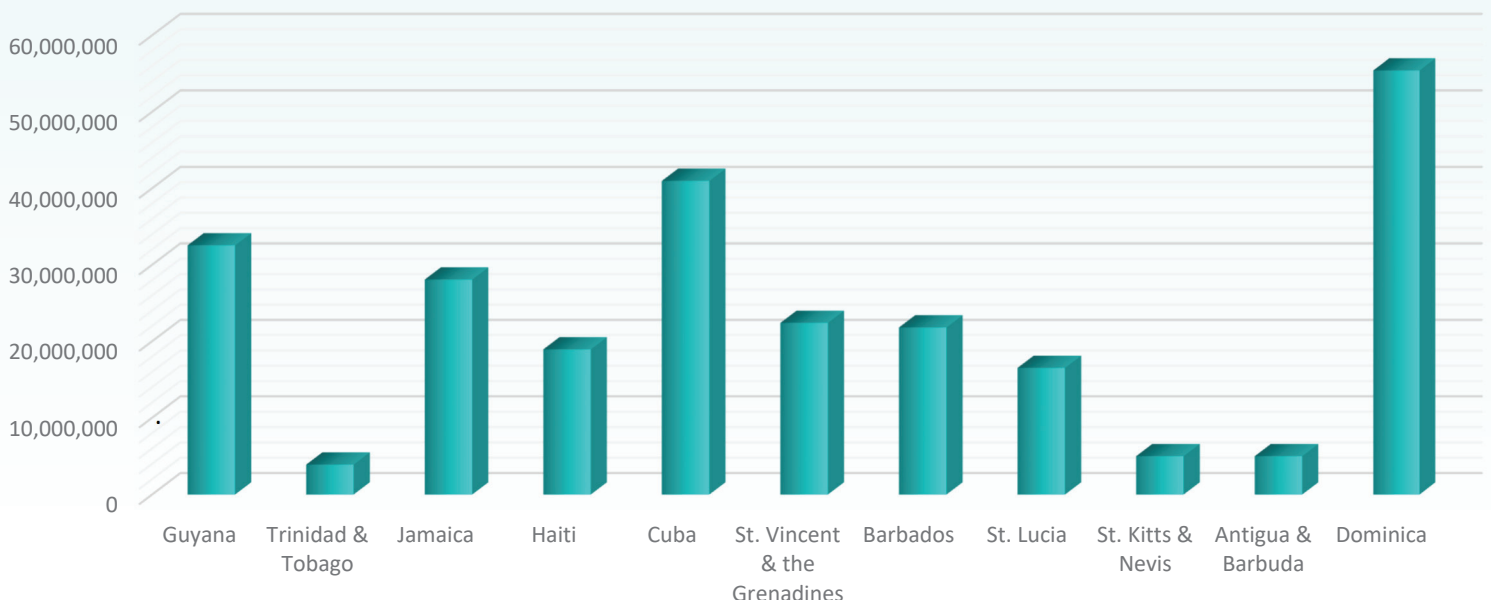


Table III - Climate Change Initiatives in the Caribbean Region

Climate Change Initiative	Year/Status	Lead Organisations
Caribbean Regional Resilience Building Facility	Commenced 2019 (Ongoing)	European Union Implemented by the World Bank and the Caribbean Catastrophe Risk Insurance Facility (CCRIF)
Natural Disaster Facility Sub-regional Programme for the Caribbean	2009-2011	European Union African Caribbean Pacific Caribbean Disaster Emergency Management Agency
PPCR: Caribbean Regional Strategic Program for Climate Resilience (CSPCR)	Commenced 2012 (Ongoing)	European Union Climate Investment Funds (CIF)
Programme for Building Regional Climate Capacity in the Caribbean	Commenced 2014 (Ongoing)	European Union CDEMA, WMO CIMH, USAID
Regional Framework for Achieving Development Resilient to Climate Change	Commenced 2009 (Ongoing)	European Union CCCCC Commonwealth Fund for Technical Cooperation
Sustainable Energy Technical Assistance (SETA) for a Competitive OECS Region	Commenced 2011 (Ongoing)	Caribbean Development Bank European Union
Global Climate Change Alliance Project (GCCA)	Commenced 2007 (Ongoing)	European Union OECS Secretary Cyprus
Establishment of Regional Capacity and Expertise for Addressing Impacts on Future Climate Change on Energy Demand in CARICOM Countries	Ongoing	European Union CARICOM Secretariat Government of Japan
Global Local Caribbean Climate Change Adaptation and Mitigation Scenarios (GoLoCarSce)	Ongoing	European Commission The University of the West Indies
Installation of Solar Park in Trinidad & Tobago	Commenced 2019 (Ongoing)	European Union Government of Trinidad & Tobago

Climate Change Initiative	Year/Status	Lead Organisations
Caribbean Challenge Initiative - Caribbean Biodiversity Fund	Commenced 2008 (Ongoing)	European Union GIZ CARICOM
Support of institutional structures for the promotion of Renewable Energies and Energy Efficiency in the Caribbean (REETA)	2012 - 2016	European Union GIZ CARICOM
Development of MSc in Sustainable Development for Small Islands	Ongoing	European Union University Consortium of Small Island States University of the West Indies
Sustainable Energy for the Eastern Caribbean (SEEC) Programme	Ongoing	European Union Caribbean Development Bank
SMART FUND II	Ongoing Contracting	European Union IDB
Regional Resilience Building Facility		European Union World Bank CARICOM
Development of a Caribbean Environmental Policy and Action Plan-Private Sector	Ongoing	European Union Government of Japan CARICOM
Development of a Caribbean Environmental Policy and Action Plan-Government	Ongoing	European Union Government of Japan CARICOM
Arundo Donax- Renewable Bio-mass Fuel for Belize	Commenced 2018 (Ongoing)	Project Preparation Facility of the Green Climate Fund Caribbean Community Climate Change Centre (CCCCC)
Water Sector Resilience Nexus for Sustainability in Barbados	Commenced 2018 (Ongoing)	Green Climate Fund CCCCC
Japan Caribbean Climate Change Project (JCCCP)	Commenced 2016 (Ongoing)	Government of Japan UNDP

Climate Change Initiative	Year/Status	Lead Organisations
Climate Change Adaptation Program	2016 (Ongoing)	United States Agency for International Development (USAID) CCCCC
Arundo Donax- Renewable Bio-mass Fuel for Belize	Commenced 2018 (Ongoing)	Project Preparation Facility of the Green Climate Fund Caribbean Community Climate Change Centre (CCCCC)
Scaling smart, solar, energy access microgrids in Haiti	2020	Green Climate Fund
Resilient Rural Belize (Be-Resilient)	2019 (Ongoing)	Green Climate Fund Ministry of Economic Development, Petroleum, Investment, Trade and Commerce
The Regional Climate Champion Project	2019 (Ongoing)	Climate Works Foundation Climate Analytics gGmbH CARICOM, OECS, CCCCC
Climate Change Adaptation in the Eastern Caribbean Fisheries Sector (CC4Fish)	Commenced 2017 (Ongoing)	GEF through the Food & Agriculture Organization (FAO) Partners: UWI, The Nature Conservancy, CANARI and the Caribbean Network of Fisherfolk Organizations (CNFO)
Various Projects Climate Action Projects with funding from the Italian Government	Ongoing	Government of Italy CARICOM CCCCC
SIDS DOCK	2012 - 2016	UNDP, The World Bank, AOSIS and the Government of Denmark CCCCC
Regional Planning for Climate Compatible Development in the Region	2009 (Ongoing)	CARICOM CCCCC
Enhancing Caribbean Civil Society's Access and Readiness for Climate Finance	2020	Green Climate Fund CARICOM Climate Change Division, Jamaica
The Caribbean Climate Smart Accelerator	2018 (Ongoing)	IDB, Virgin Group, World Bank CARICOM Regional Governments
ILO Caribbean Resilience Project	2019 (Ongoing)	International Labour Organization (ILO)
ILO Caribbean Resilience Project	2019 (Ongoing)	International Labour Organization (ILO)

Climate Change Initiative	Year/Status	Lead Organisations
Integrating Water, Land, Resources and Ecosystems Management in Caribbean Small Island Developing States	2014-2018 (Completed)	Implemented by the UNDP & UNEP Executed through CAROHA & UNEP CAR/RCU
Climate-Resilient Renewable Energy Projects (CREF)	2019 (Existing agreements ongoing)	United Arab Emirates (UAE) – CREF Abu Dhabi Fund for Development (ADFD) 2020 (New Agreements to commence)
GCCA: Climate Change Adaptation and Sustainable Land Management in the Eastern Caribbean	2013-2018 (Completed)	The Global Climate Change Adaptation (GCCA) Organization of Eastern Caribbean States (OECS)
Sustainable Energy Facility for the Eastern Caribbean	Commenced 2016 (Ongoing)	Green Climate Fund (GCF) Inter-American Development Bank (IDB)
Systemic resource management in the Caribbean	2017 (Ongoing)	German Federal Ministry for Economic Cooperation and Development (BMZ) GIZ & CARPHA
Catalysing private sector investment for renewable energy and energy efficiency projects across the developing world.	Commenced 2017 (Ongoing)	Funded by the Green Climate Fund through the Global Energy Efficiency & Renewable Energy Fund (GEEREF) European Investment Bank
Integrated physical adaptation and community resilience.	Commenced 2018 (Ongoing)	Green Climate Fund Implemented by the Department of Environment, Antigua
Climate Resilient Water Sector in Grenada	Commenced 2018 (Ongoing)	Green Climate Fund Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Improving the monitoring system for climate change impacts on the agricultural sector in Trinidad and Tobago	2020	Green Climate Fund Food and Agriculture Organisation Ministry of Planning & Ministry of Agriculture, Land and Fisheries
Climate Change Adaptation in the Caribbean: The EbA-Facility	2020	KfW Entwicklungsbank International Climate Initiative (IKI) Caribbean Biodiversity Fund
GreenVoyage-2050	2019 (Ongoing)	Government of Norway International Maritime Organization (IMO) Maritime administrations of selected countries

Climate Action - An Imperative for the Caribbean

Climate change mitigation has never been more important for the Caribbean. The dramatic changes in hurricanes and erratic weather patterns have wrought unprecedented devastation to many of the Caribbean islands. Adaptation and resilience needed to be at the core of environmental strategies and sustainable development initiatives across all sectors. The impacts of climate change are already being experienced in the Caribbean and these impacts represent a significant threat to our way of life, wellbeing and long-term sustainability.



The Caribbean is one of the regions that is deeply affected by a lack of access to data to adequately inform policy interventions. The importance of data-driven decision-making cannot be underscored enough. In this regard, the initial aim of MTCC Caribbean was to:

- Provide a platform for partnerships in enhancing energy efficient methods in the Maritime domain at a global level and specifically in the Caribbean region;
- Identify environmentally friendly and sustainable technologies available to 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; and
- Monitor regional energy efficiency needs and align training programmes to meet these needs

The work of this MTCC therefore represents a significant start to addressing the data paucity that affects the development of the maritime sector of the region. As Small Island Developing States, the Caribbean must leverage our regional status to ensure that our concerns are actively and urgently addressed. Concerted action is required across all sectors if we are to ensure that we are leveraging all available opportunities and mechanisms to mitigate the harmful impacts of climate change. We have much to lose and therefore urgent action is necessary to promote resilience in our economies and infrastructure with human health and wellbeing remaining central to our deliberations.

A photograph of a large cargo ship at night, docked at a pier. In the foreground, two thick, dark mooring ropes are visible, extending from the ship towards the viewer. The ship's hull is dark, and the word "PRESS" is partially visible in yellow letters. The ship's superstructure, including a crane and various platforms, is illuminated by warm lights. The water in the background is dark, reflecting some of the lights from the ship and the pier. The overall scene is industrial and maritime.

Highlights of MTCC Caribbean's Capacity Building for Climate Mitigation in the Maritime Shipping Industry Activities

1

Built Capacity and sensitised all 16 Maritime Administrations to the need for urgency in Maritime Climate Action.



MTCC Caribbean hosted 2 Regional, 6 Sub-Regional and a Targeted Training Workshop with an estimated participation of over 550.

2



3

Promoted work of the European Union, IMO and GMN in Climate Action through social media and online platforms.

Maritime Technology Cooperation Centre for the Caribbean MTCC Caribbean's efforts in Maritime Climate Action

The Global Maritime Technology Cooperation Centre (MTCC) Network (GMN) is financed by the European Union and Implemented by the International Maritime Organization (IMO).

MTCC Caribbean is hosted by the University of Trinidad and Tobago (UTT)

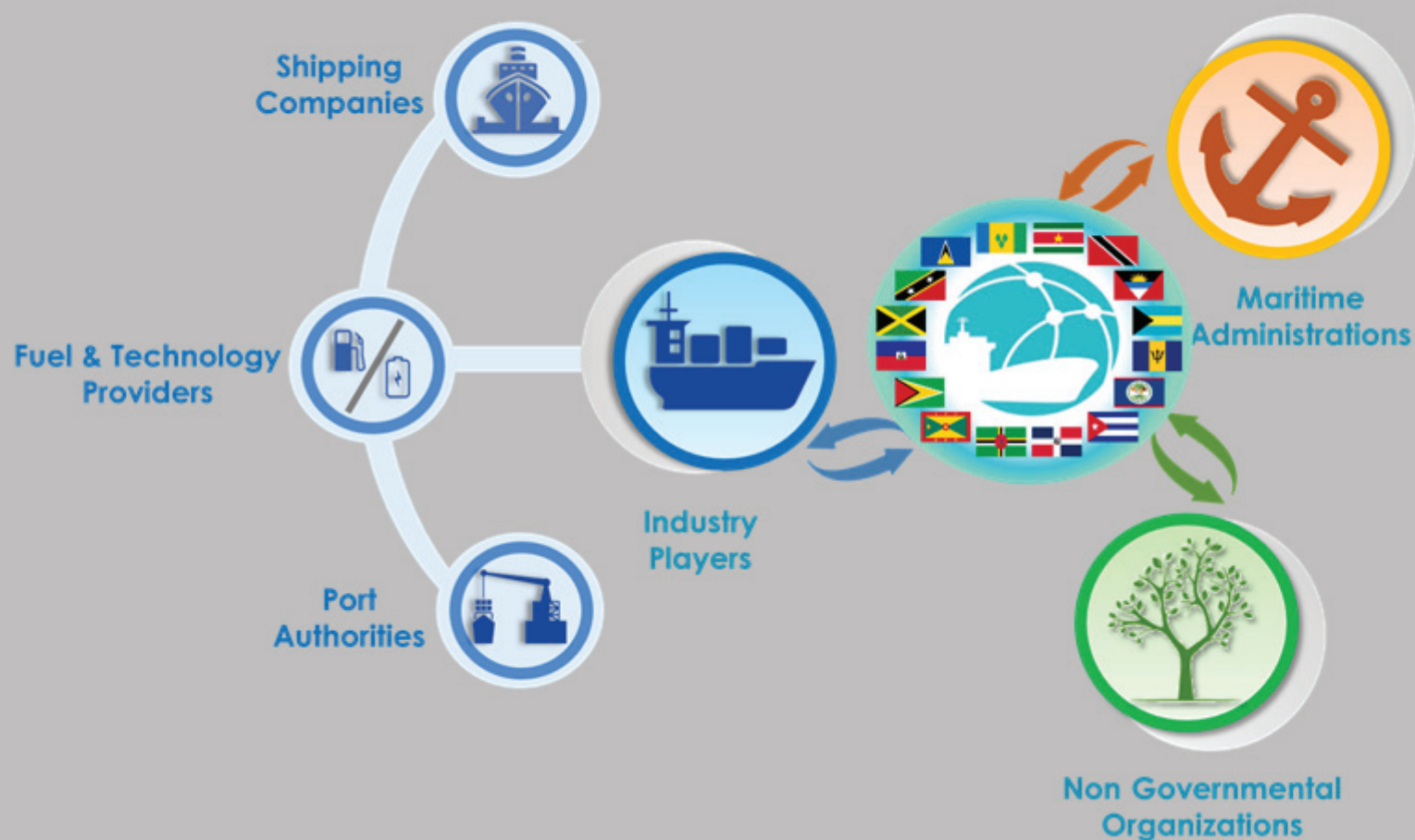
#GMN #EuropeanUnion #IMO #UTT #ClimateAction #Maritime #Shipping #SharingShipTechnology See Less



Enabled a platform for Technology/Service Providers to promote their work towards reducing Shipping Emissions and to engage with the relevant enablers for Maritime Climate Action.

4





Developed a Regional Network for Cooperation in Maritime Climate Action across 16 Caribbean Countries through the EEFPP & RSC.



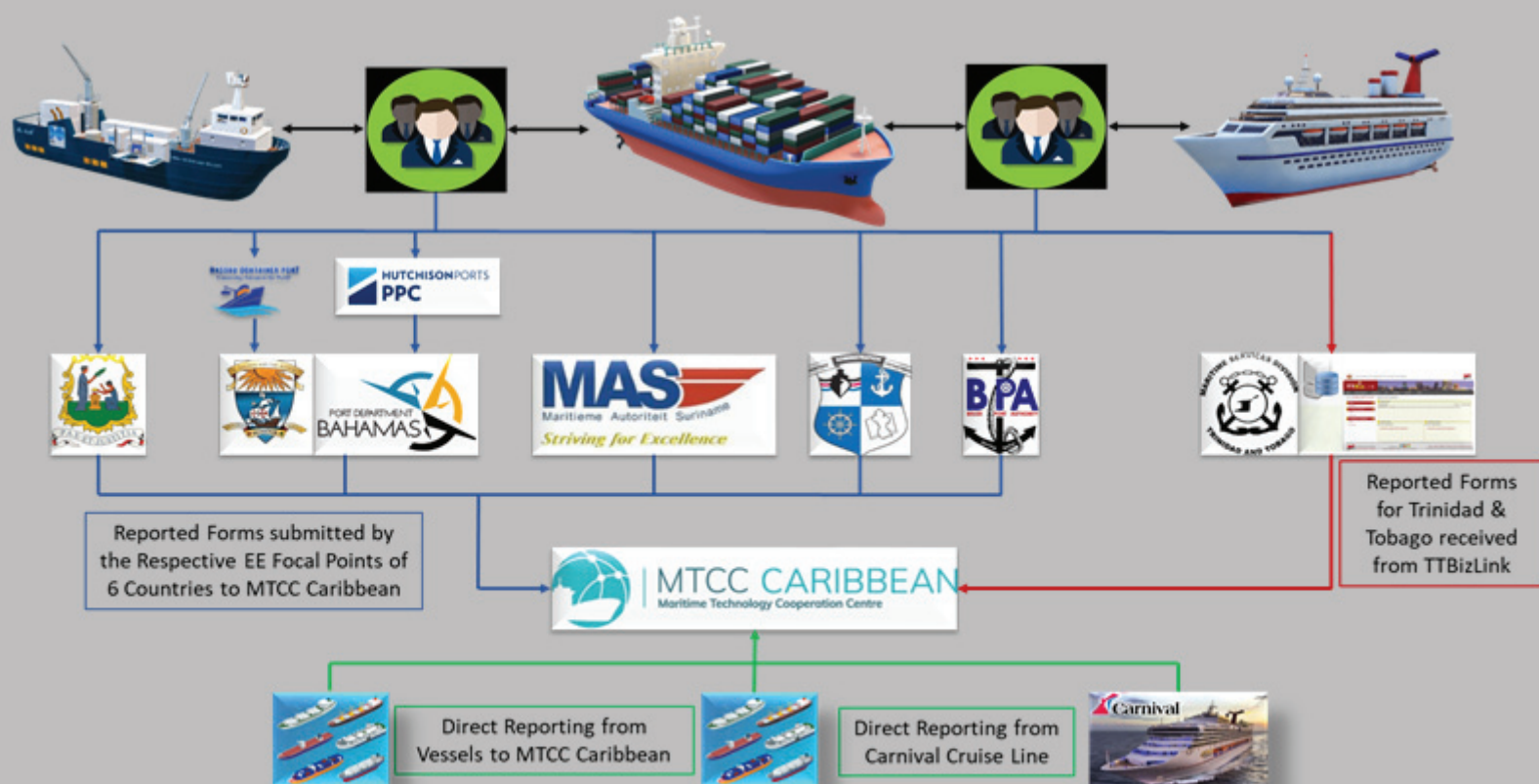
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MTCC Caribbean Team participated in over 30 Regional events, bringing invaluable information and knowledge to the project & relaying it to our stakeholders via our workshops & reports.



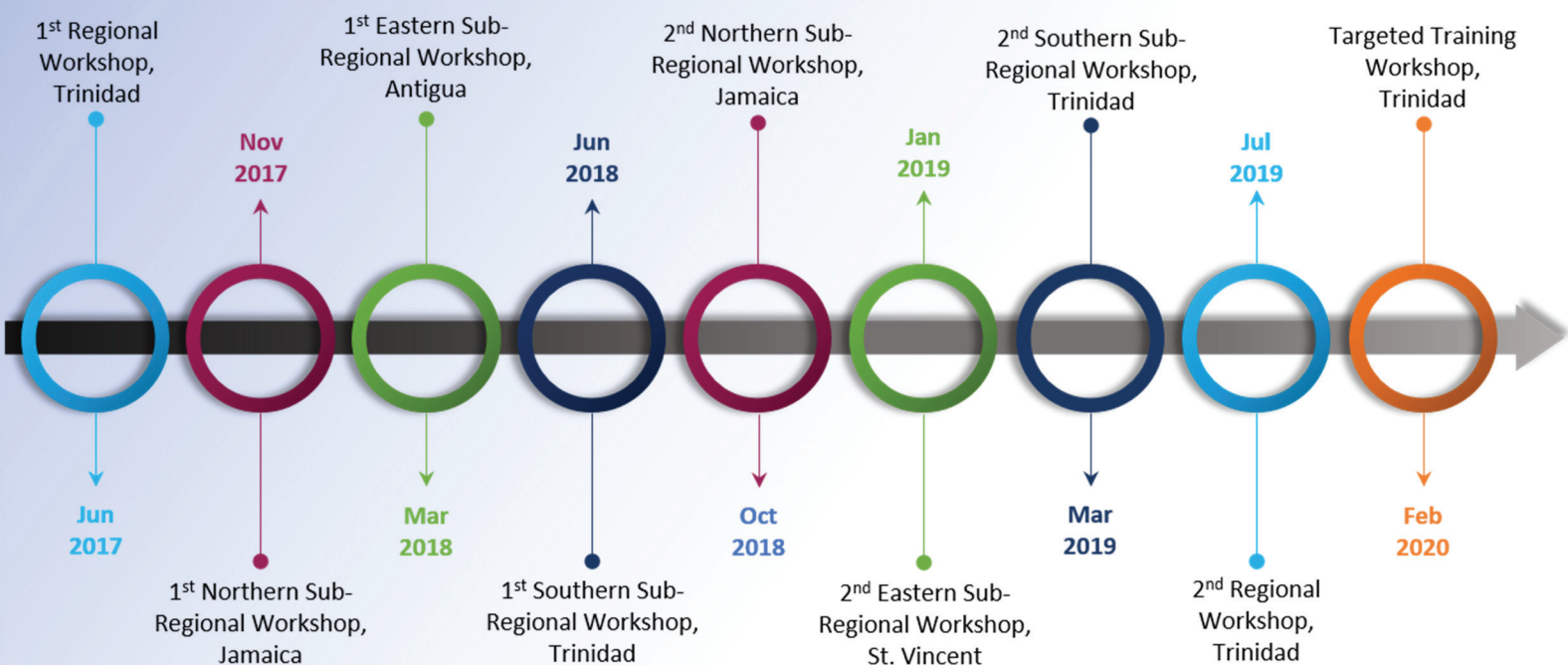
Created the First Online Voluntary Reporting System & Data base for 16 Maritime Administrations on Fuel Consumption from Ships & use of EE Technology in the region; first Energy EEOI baseline for the Caribbean; and first Ships' GHG emissions baseline for the Caribbean.

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MTCC Caribbean's Capacity Building Workshops

To date, MTCC Caribbean has hosted two Regional workshops, six Sub-Regional workshops across the three sub-regions and one Targeted Training workshop on IMO's Sulphur Cap 2020. Collectively these workshops yielded subscription of over 550 participants from various professions within the maritime sector. These activities provided a platform for the building of long-lasting institutional partnerships, committed to the decarbonisation of maritime operations.

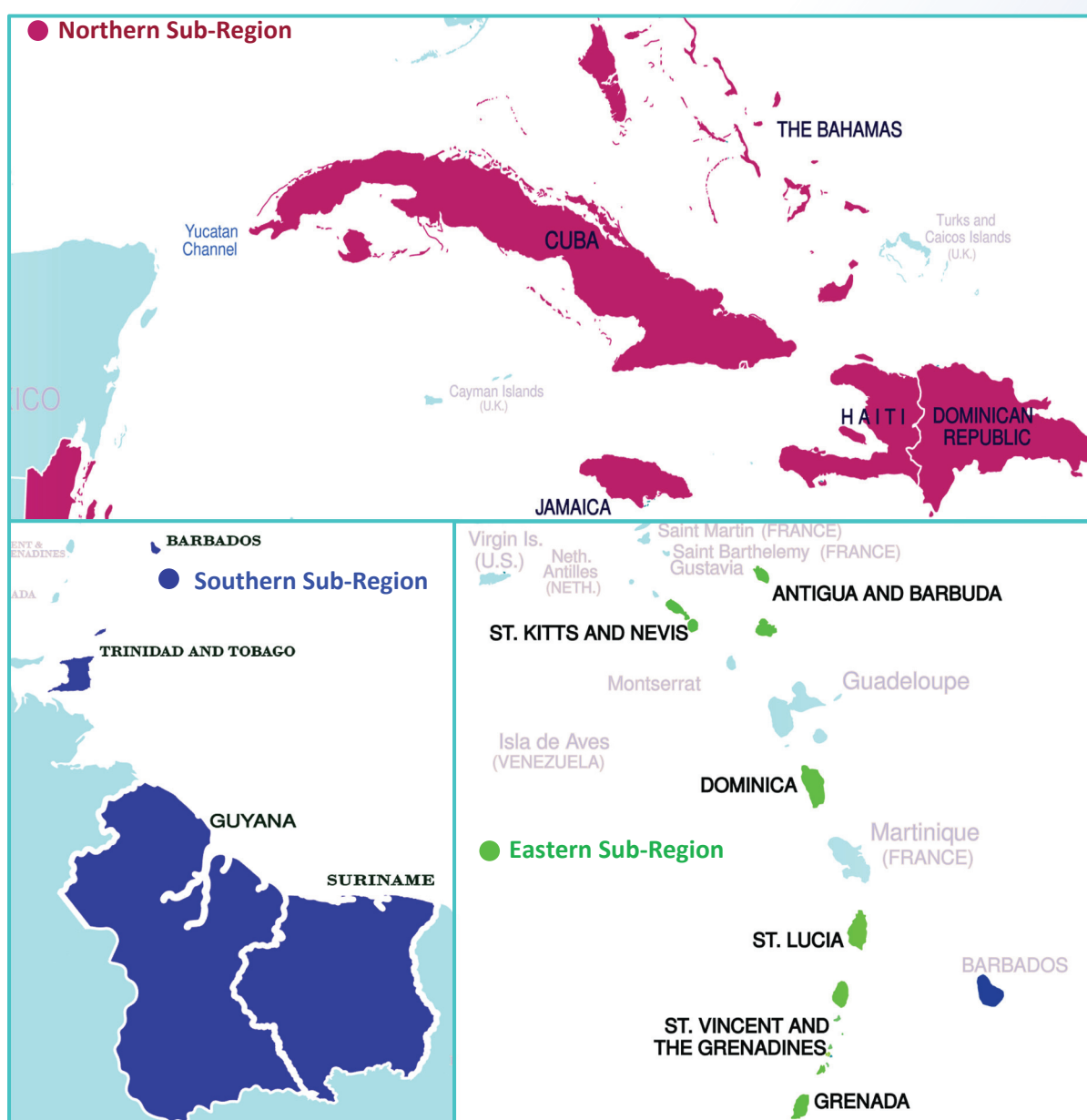


MTCC Caribbean enhanced its outreach by participating in over 30 regional events with one of the more prominent examples being presence of the Directorate at two consecutive High Level Symposium and Senior Maritime Administrator (SMA) Meetings. The representation at SMAs allowed MTCC Caribbean to lobby maritime administrations for the:

- Support of the establishment of the voluntary multi-donor trust fund for the reduction of GHG emissions from ships at MEPC 74;
- Pursuance of the inclusion of Maritime emissions reduction strategies in the National Climate Change Policies;
- Implementation of MTCC Caribbean's Data collection;
- Recognition for the invaluable support that has been provided to the Caribbean region by the IMO through MTCC Caribbean; and
- Support of individual and collective efforts of States to sustain MTCC Caribbean for the long-term benefit of the Region

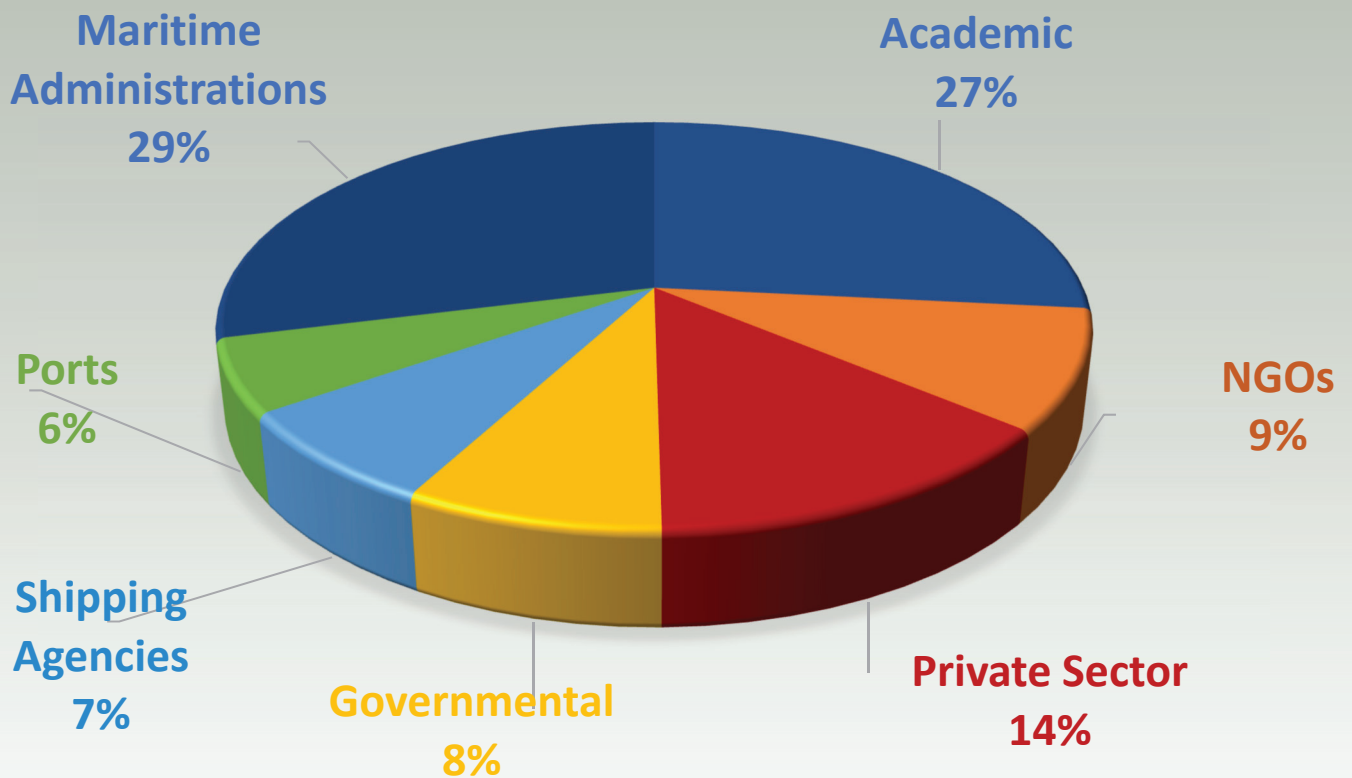
Capacity Building in the Northern, Eastern and Southern Sub-Regions

In implementing its capacity building initiatives, the region was divided into three sub-regions for the purposes of implementing “national” workshops. Although the terms of reference for the GMN project called for “national” workshops, given the geography, population, cultural commonality and island setting of the region, MTCC Caribbean decided that the best way to maximise the benefit of these “national” capacity building workshops would be to target several Caribbean countries, delivering bespoke workshops for each of the sub-regions. As previously mentioned, this sub-regional approach allowed for a more carbon efficient execution of the capacity building workshops and better interaction among neighboring countries. For the purpose of delivering these capacity building workshops, MTCC Caribbean divided the 16 countries into three sub-regions as illustrated below. Countries within the respective sub-regions, benefited from two sub-regional workshops and two regional workshops collectively, during the initial contract period of January 2017-December 2019.



Overview of the workshop participants

MTCC Caribbean's capacity building workshops were all well subscribed by representative of maritime administrations, academia and the industry as illustrated below.



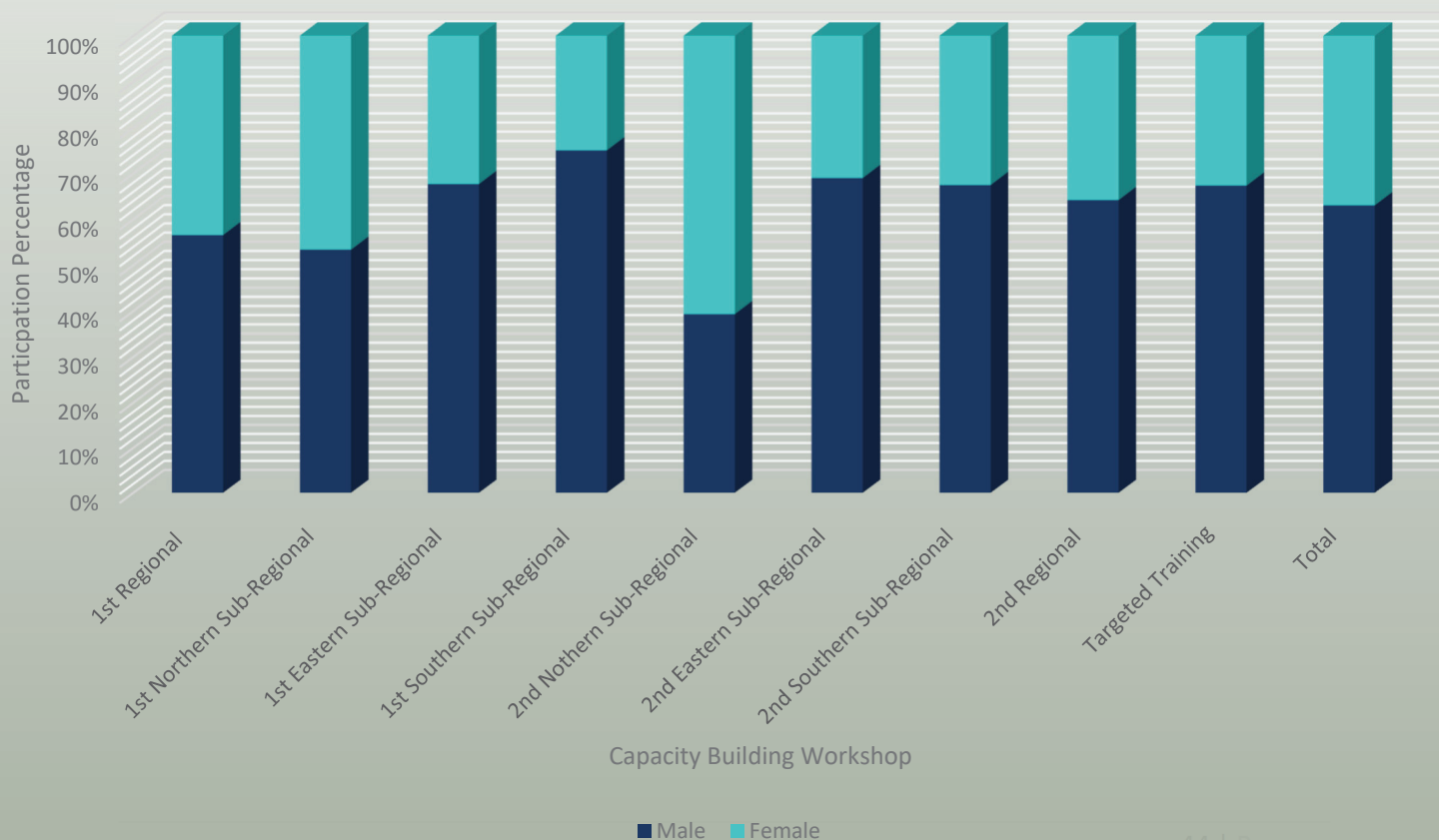


Gender Equality

In the context of gender parity, there was consistently over 30% female representation across the various workshops, illustrated below. While this may be considered good representation, the MTCC is committed to enhancing female participation in maritime sector.

Figure XX: Demographic of the various workshops

Demographic of Capacity Building Workshop Participants



Overall Review on the state of Implementation MARPOL Annex VI in the Caribbean Region



According to the IMO, there are currently 96 contracting states to MARPOL Annex VI (Protocol of 1997) which entered into force on 19, May 2005. These 96 States represent a combined merchant fleet of which constitute approximately 96.72% of the gross tonnage of the world's merchant fleet.



To date, ten of the sixteen territories under the purview of MTCC Caribbean have acceded to MARPOL Annex VI (Table II). During MTCC Caribbean's capacity building activities, the EEPs expressed their governments' intent to submit their signature or deposit the necessary instrument and align themselves with the region's response to shipping emissions. In February 2019, Guyana acceded to the Annex VI, illustrating the progress made by the MTCC Caribbean in lobbying for the region to harmonise in its approach towards effective implementation.

However, the region's response to the implementation of MARPOL Annex VI has been relatively slow due to incapacity in the legal and institutional frameworks of many Caribbean countries. States, such as Antigua & Barbuda and The Bahamas have national legislation, which give effect to, the objectives and purposes of International conventions, policies and regulations such as MARPOL Annex VI. However, the majority of the legal frameworks within the region require legislative reform to give effect to the provision of MARPOL Annex VI.

Through the GMN project, MTCC Caribbean has developed a regional network for cooperation in Maritime Climate Action across 16 Caribbean countries by establishing the EEFPs and its RSC. To date MTCC Caribbean was able to build and sensitise all 16 Maritime Administrations on the need for urgency in maritime climate action through the effective implementation of MARPOL Annex VI.



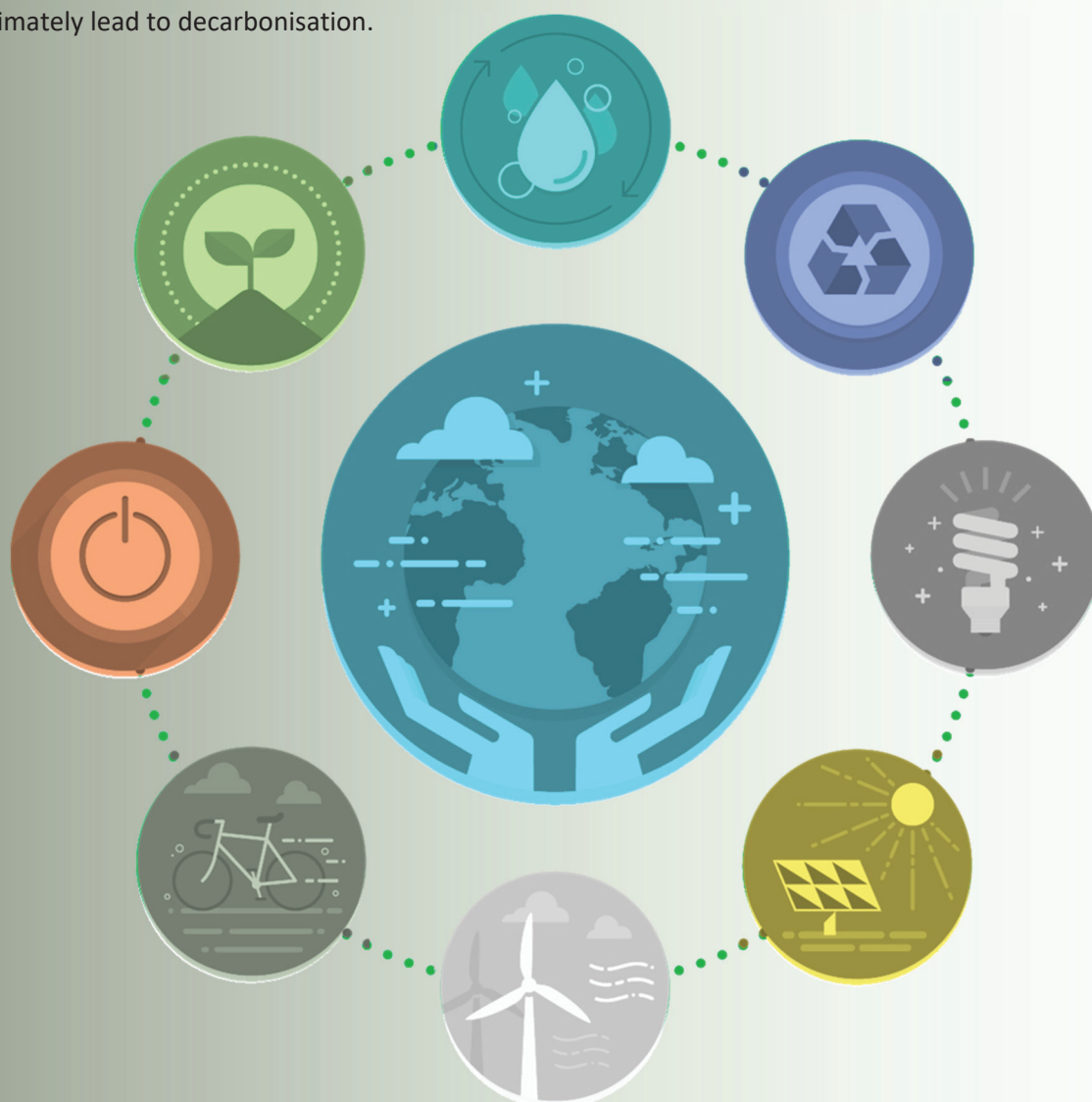
Feedback from the EEFPs at MTCC Caribbean's capacity building events identified the key challenges to implementation as follows:

- Inadequate Resources (Human, Financial and Technological);
- Lack of training and maritime education on the requirements associated with the implementation of MARPOL Annex VI;
- Delay in drafting and/or implementing national legislation on MARPOL Annex VI due to:
 - The lack of trained maritime legislative drafters to effectively incorporate the requirements of international maritime rules and regulations into domestic law;
 - Lengthy/prolonged process for incorporation of MARPOL Annex VI;
 - Insufficient political priorities for maritime matters;
 - Disparity among the various institutions mandated to regulate and control maritime related activities and affairs;
 - The lack of interest in the maritime sector by the main decision makers.
 - Constraints on vessel inspections and monitoring due to lack of resources;
 - Limited equipment and no centralised reporting system for emission monitoring;
 - Lack of incentives to promote technology uptake; and
 - State has not acceded to MARPOL Annex VI in the case of Cuba, Dominica, Dominican Republic, Grenada, Haiti and Suriname.

Overcoming the challenges of legal and institutional reform has been extensively discussed at the various capacity building workshops. In this regard, one of the significant recommendations was to enhance advocacy for governmental and regional recognition of the importance of the sector to the region.

The Way Forward - Investing in Capacity

As the region responds to the impact of the SARS COV-2 virus, there is need for agility in developing progressive regional agendas, aligned with domestic priorities to enable long-term sustainability. While the global pandemic has brought new challenges to the world of work, governmental departments and private sector institutions alike, it is only those countries that could effectively transform to maintain services and sustain the supply of goods and services that will be able to thrive in the new normal. The educational landscape is likely to be changed forever with the aggressive implementation of remote and distance learning being embraced across all economies. Each of these digital and technological transformations present opportunities for more efficient operations that can ultimately lead to decarbonisation.



There is no doubt that the pandemic has also accelerated the need for digitalised economies. Many public services can and will be transformed to meet the needs and demands of digitalisation. Such a priority for technological transformation is unprecedented in many countries of the Caribbean and this may promote investments in greener mechanisms in the provision of goods and services. How effective the region is, in embracing greener and more efficient ways in governance, will ultimately depend on the priority given to doing things in a manner that puts the environment and human wellbeing at the centre of planning and development.

Furthering Climate Action in the Maritime Sector

As we reflect on what has been achieved through the investment in climate action in maritime shipping in the Caribbean, it is important to recall some of the salient recommendations that came out of the various sub-regional workshops. These can be summarised in the following thematic areas:



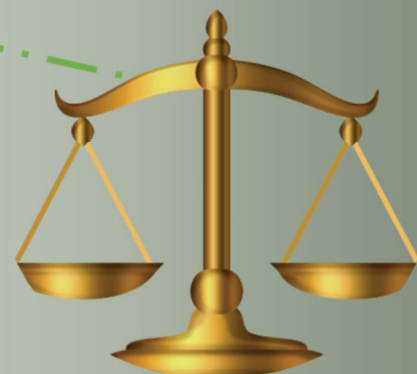
Regional Maritime Cooperation

Caribbean Representation at International fora including at the IMO



Training and Technology Transfer

National Imperatives for Legal & Institutional Reform



Regional Maritime Cooperation

Feedback from the region indicates the need to raise the profile of maritime issues at regional forums including that of CARICOM. Notwithstanding the existence of an annual meeting of SMA in the region, the members of the SMA advocated for the creation of a regional maritime cooperation

centre within the Caribbean to champion agreed maritime agendas. A recommendation was also made to have MTCC Caribbean present at the High-Level Symposium for Ministers of Transport and the

SMA meeting, to sensitise policy makers of the need for urgent intervention for maritime climate action. The core strategy behind this request was to apprise High-level governmental representatives of existing legal and institutional instruments that can be leveraged to facilitate compliance with MARPOL Annex VI and determine approaches to reducing GHG emissions from ships specific to the region.

One of the most significant impediments to the implementation of maritime law in the region has been the lack of experts in maritime legal drafting. Recommendations were also made for the formation of a team of legal drafters specialised in maritime law, with a view to having this team assist the region in developing draft maritime legislation in the tradition of legal drafting styles of the individual states. The formation of a regional maritime cooperation centre may also assist in the creation of this hub of maritime expertise.

In subsequent SMA meetings the MTCC was able to garner support for progressing climate action as well as the need to include maritime universities from the region at the SMA. Given the data paucity of the region, engagement

strategies to enhance data collection across the Caribbean were also deemed necessary.

During discussions with the regional participants the need to keep the Global Integrated Shipping Information System (GISIS) updated by the respective countries was underscored with the inclusion of information on fuel providers.

With a regional maritime cooperation centre championing the regional agenda, there is hope for significant improvement in the prioritisation of the maritime sector and maritime transport in particular.

Caribbean Representation in International fora including at the IMO

The Caribbean region remains underrepresented at the IMO and therefore recommendations were made for the enhanced use of technology and specifically video conferencing to allow countries that are unable to be physically present, to participate virtually.

This would allow for more effective and meaningful participation of IMO member states at IMO meetings. It is expected that given the current uncertainties of the pandemic that many international organisations, including the IMO will be moving to virtual conferences in the near future. Such an adoption in the use of technology by international organisations will make a significant contribution to the reduction of carbon emissions resulting from international travel typically associated with international conferences and meetings.

This virtual participation is likely to enhance participation by member States and therefore facilitate discussions on a more realistic implementation of maritime conventions by the IMO and state actors.



Training & Technology Transfer

The need for enhanced technology transfer and training echoes across the region. At the last SMA in February 2020, there was general agreement on the need to recognise and utilise the two major maritime training institutions in the Caribbean as facilitators for technology transfer and training.

Moreover, the MTCC was also recognised as a centre of excellence for capacity building by many of those present. Having regard for the repeated requests for training by members of the SMA, the MTCC recommended that the two maritime education and training centres be invited to the SMA annually and this recommendation was accepted and reflected in the resolutions coming out of the SMA 2020. The MTCC also committed to providing training and webinars to support maritime administrations.



During the course of the capacity building initiatives some of the more specific recommendations in relation to training and technology transfer included:

- Training of identified stakeholders of maritime administrations by MTCC Caribbean;
- Sensitising participants to existing technology options for emissions reduction/monitoring;
- Assisting Maritime Administrations within the Caribbean in determining access and availability of Low Sulphur fuels in the region; and
- Identifying avenues for Maritime Administrations of the region to access fuel testing kits.

National Imperatives for Legal and Institutional Reform

One of the possible impacts of the global pandemic is the enhanced awareness of the importance of maritime shipping. With the disruption in supply chains and the threats to food security, many governments became acutely aware of the need to ensure access to their seaports for cargo and container vessels. This increased visibility therefore offers a modicum of hope that the improved visibility of the sector may lead to the sorely needed legislative interventions to improve the quality and calibre of shipping within the region. Consequently, the ambition in the context of climate action is the need for effective integration of the Maritime sector into the Climate agenda of all MTCC Caribbean countries.



On the national level, there is also widespread recognition of the need to connect and promote more effective communication between intra-governmental interests for concerted climate action. Ministries such as agriculture, tourism, environment and energy need to ensure that actions are aligned and coordinated to reduce duplication of resources. Concerted action is also needed for maritime concerns to be highlighted at various levels within governments and ideally be included in their respective NDCs.

In related discussions, the use of other environmental legislation to facilitate enforcement also needs to be explored in the absence of direct enabling legislation. On a more practical note the region also discussed the need for MTCC Caribbean's EEFPs to be appointed designated time to support Maritime Climate Action in their respective countries.

Value added benefits of MTCC Caribbean's Capacity Building Initiatives

The GMN project required that MTCCs undertake a number of capacity building initiatives along with two demonstration pilot projects. While MTCC Caribbean undertook these deliverables, the focus was also to ensure that benefits to the region were maximised. Consequently, some value added outcomes arising from the project include the following.



Launch of MTCC Caribbean's Online Voluntary Reporting System & Data Base for the 16 Maritime Administrations on Fuel Consumption from ships and use of Energy Efficiency Technology in the Caribbean Region.

Creation of a platform for partnership specific to implementing MARPOL Annex VI and Climate Action in the Maritime domain.



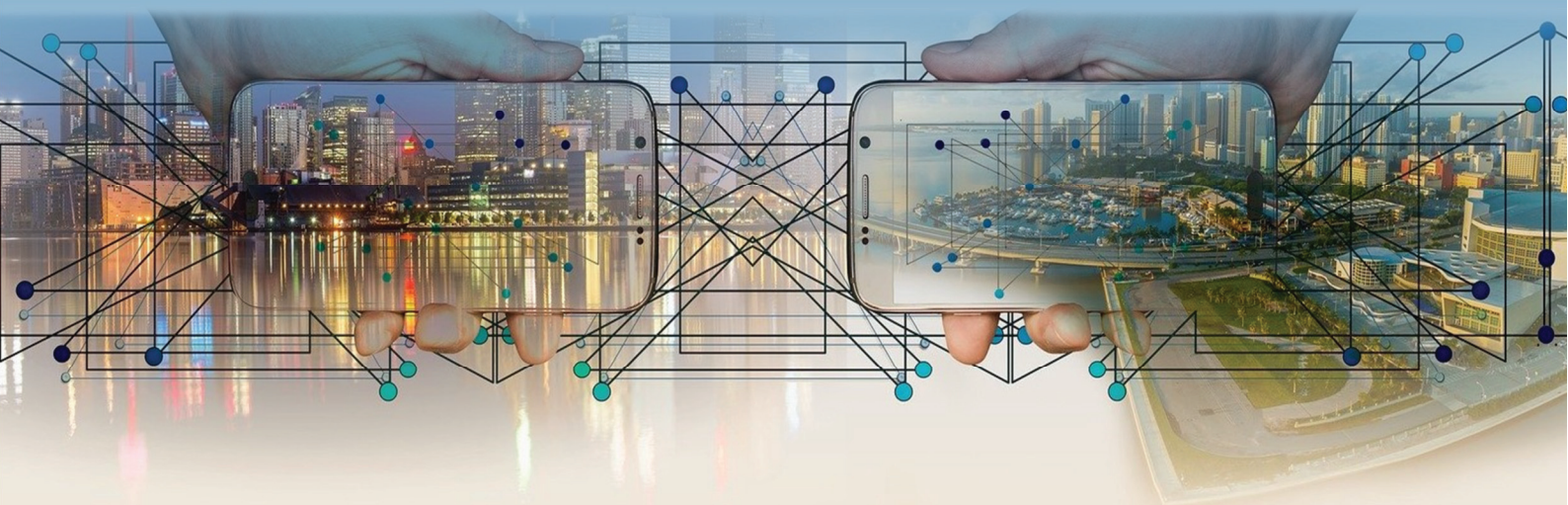
MTCC established itself as a facilitator and collaborator in Government, Industry, Civil Society and Academia.

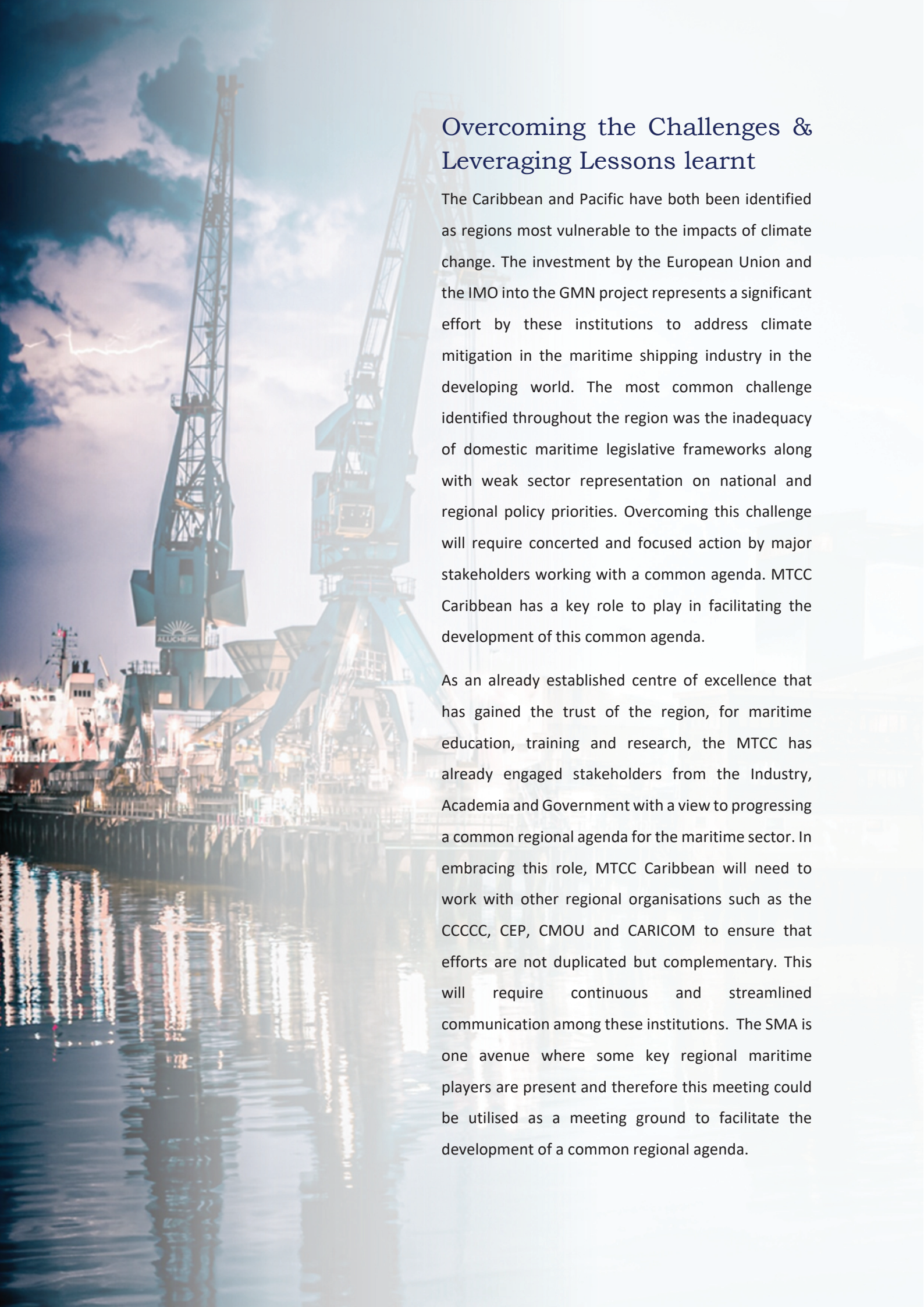
Creation of a Working Group consisting of key players to drive the Maritime Agenda at the Caribbean Community (CARICOM);



Creation of a MTCC Caribbean Regional Steering Committee to champion the work of the MTCC and further the buy-in from other organization to join.

One other significant benefit was the increased awareness of the need for further research and data acquisition for climate action in general and in the maritime sector. The success of MTCC Caribbean in meeting and exceeding expectations on its deliverables has demonstrated the presence of expertise in the region that could be leveraged for securing and executing future projects. The challenge for the MTCC going forward would be to sustain and maintain these outcomes for the long-term benefit of the region. It is anticipated that with the support of its host institution and access to further climate funding the MTCC will be able to continue this outreach.





Overcoming the Challenges & Leveraging Lessons learnt

The Caribbean and Pacific have both been identified as regions most vulnerable to the impacts of climate change. The investment by the European Union and the IMO into the GMN project represents a significant effort by these institutions to address climate mitigation in the maritime shipping industry in the developing world. The most common challenge identified throughout the region was the inadequacy of domestic maritime legislative frameworks along with weak sector representation on national and regional policy priorities. Overcoming this challenge will require concerted and focused action by major stakeholders working with a common agenda. MTCC Caribbean has a key role to play in facilitating the development of this common agenda.

As an already established centre of excellence that has gained the trust of the region, for maritime education, training and research, the MTCC has already engaged stakeholders from the Industry, Academia and Government with a view to progressing a common regional agenda for the maritime sector. In embracing this role, MTCC Caribbean will need to work with other regional organisations such as the CCCCC, CEP, CMOU and CARICOM to ensure that efforts are not duplicated but complementary. This will require continuous and streamlined communication among these institutions. The SMA is one avenue where some key regional maritime players are present and therefore this meeting could be utilised as a meeting ground to facilitate the development of a common regional agenda.

Many regional institutions are often locked into deliverables mandated by donors and funding providers. However, it is important that these regional players also allocate time to achieving long term strategic goals for sustaining operations. In the absence of this, many of these regional institutions may have to close their doors resulting in a reduction in regional capacity, despite having been adequately seeded through preliminary funding. It is therefore very important that these regional players dedicate time to supporting each other for the benefit of the region. As discussed above, an institution dedicated to progressing the regional maritime agenda may provide the focus and capacity to adequately represent and advocate for recognition and action on issues affecting the maritime sector.

Enforcement of existing national and international standards was also flagged as a problem affecting the region. In the seminal work on overcoming the challenges of maritime energy efficiency in the Caribbean, the need for improved cooperation among flag, port and coastal state agencies was considered an imperative. (Rambarath-Parasram, Singh, & Aiken, 2018). All State actors involved in these areas of enforcement are also constrained by limited human resources and physical assets. Therefore existing regional cooperation mechanisms for sharing of resources and surveillance capability must be further developed.

As we close the first phase of the project under MTCC Caribbean, we look forward to deepening the ties that have been fostered through the GMN project. This global network of MTCCs has allowed for discussions on areas of common concern across the developing world. Recognising that much has been achieved by the GMN through the various MTCCs, the onus now lies on the respective host institutions of these MTCCs to assist in sustaining the MTCCs for the benefit of the respective regions. With the support of the host institutions and international donors, the work of the GMN and the individual MTCCs can continue as they are well poised to answer to the research needs and demands of the maritime sector in their respective regions.

MTCC Caribbean and its host institution, UTT, are pleased to be of service to the region in playing its part in addressing climate mitigation in the maritime sector. The current challenges of the global pandemic have only underscored the need for charting a future where resilience and adaptation are inherent in development strategies. Through the continued support of UTT, IMO and the EU, MTCC Caribbean will endure for the long-term benefit of the region as it continues to leverage relationships across industry, government and academia in promoting climate action and the blue economy.

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