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GOVERNMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO
MINISTRY OF TRADE AND INDUSTRY

CONSULTANCY SERVICE: DEVELOPMENT OF A NATIONAL MARITIME POLICY AND STRATEGY

LOAN NO.: 3575/OC-TT

FINAL DRAFT NATIONAL MARITIME POLICY AND STRATEGY



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List of Acronyms

BPTT	British Petroleum Trinidad and Tobago
CDA	Chaguaramas Development Authority
COLREGs	Convention on the International Regulations for Preventing Collisions at Sea
CRFM	Caribbean Regional Fisheries Mechanism
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMA	Environmental Management Authority
FAO	Food and Agriculture Organization of the United Nations
GHG	Greenhouse gases
GoRTT	Government of the Republic of Trinidad and Tobago
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICZM	Integrated Coastal Zone Management
ILO	International Labour Organization
IMA	Institute of Marine Affairs
IMO	International Maritime Organization
IUU	Illegal, Unreported and Unregulated Fishing
LLMC	Convention on Limitation of Liability for Maritime Claims
LNG	Liquefied Natural Gas
M&E	Monitoring and Evaluation
MaaS	Mobility as a Service
MARPOL	International Convention for the Prevention of Pollution from Ships
MOWT	Ministry of Works and Transport
MSD	Maritime Service Division of the Ministry of Works and Transport
MTI	Ministry of Trade and Industry
PATT	Port Authority of Trinidad and Tobago
PESTLE	Political, Economic, Social, Technological, Legal and Environmental analysis
PLIPDECO	Point Lisas Industrial Port Development Corporation Limited
POSINCO	Port of Spain Infrastructure Company
PPOS	Port of Port of Spain
PPP	Public-Private Partnership
RE	Renewable Energy
SATT	Shipping Association of Trinidad and Tobago
SEZ	Special Economic Zone
SEW	Single Electronic Window
SOLAS	International Convention for the Safety of Life at Sea
SOP	Standard Operating Procedures
STCW	Standards of Training, Certification, and Watchkeeping for Seafarers
SWOT	Strength Witnesses Opportunities and Threats analysis
SWWTU	Seamen and Waterfront Workers Trade Union
T&T; TTO	Trinidad and Tobago
TEU	Twenty-Foot Equivalent Unit
THiS	Tourism Health Information System
TTAL	Tobago Tourism Agency Limited
TTIT	Trinidad and Tobago Inter-Island Transportation Company
TTL	Tourism Trinidad Limited
TTPA	Trinidad and Tobago Pilots Association
UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organization
UTT	University of Trinidad and Tobago
VTMS	Vessel Traffic Management System

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WECAFC	Western Central Atlantic Fishery Commission
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EXECUTIVE SUMMARY

The Government of Trinidad and Tobago has identified the maritime sector as one of the key national economic areas, with the maritime sector encompassing marine transportation and shipping, safety, security, tourism, the marine environment, and related administration and legislation. Trinidad and Tobago ocean-based economy (blue economy) is estimated to be worth US\$22.5 billion or 81% of the country's total GDP (2015)¹.

One of the main characteristics of the maritime sector is its diversity of economic sub-sectors, from ports to the fishing sector, and their interrelation among them. In fact, these sectors can be grouped around five economic ecosystems, namely: maritime and port (including bunkering, maritime transport and transshipment, port operations and development, cold stacking, ship repair, dry docking, breaking and recycling); food (fisheries); defence; tourism (tourism, yachting and underwater cultural heritage); and the rest of the economy (enabling sectors such as spatial planning, special zones, energy sector, etc.). This requires a strategy and policy framework to coordinate and guide the actions that can be developed by the public and/or private sector. Trinidad and Tobago currently lacks a maritime policy and strategy, despite the importance of this sector in its economy.

In this context, the lack of investment in infrastructure, the excessive bureaucracy and the lack of updated regulation/ legislation in maritime sector limits the growth and development potential of this sector and the economy as a whole. It is important to note that these inefficiencies directly impact on the cost of imports and exports and in turn the cost of living. To this must be added the uncertainties created by the COVID-19 pandemic, which have affected maritime trade and the wider economy of Trinidad and Tobago.

The Ministry of Trade and Industry has commissioned a consultancy for the elaboration of the National Maritime Policy and Strategy. This consultancy is developed in several phases. First, a gap analysis was carried out. A total of 42 stakeholders were engaged through web-based meetings to gather their concerns and insight into the maritime sector and expectations or recommendations on the future policy. In a second phase (the one corresponding to this document), the first draft of the maritime policy and strategy was undertaken, in a subsequent phase validation was sought. This provided an opportunity to gain the critical buy-in of key stakeholders whose comments were included in most cases.

In the gap analysis the main issues and challenges of the sector were identified, these can be grouped around agencies and other public bodies, legislation, spatial planning, public awareness and education, research, natural resource management, innovation and development and other public policies (tax, financing, natural resource management, etc.).

The new maritime policy and strategy needs to address these gaps, but it should be consistent with the country's 2030 objectives and take into account expected trends.

The challenges ahead for Trinidad and Tobago are focused on: economic diversification (enabling value added services using increased local content within a digitally transformed Nation); environmental protection, sustainability, resilience and carbon neutrality (inaction against climate change will have serious and lasting effects in the Caribbean region); food security (new opportunities for securing food

¹ As referenced in Integrated Coastal Zone Management Policy Framework (September 2020). Original reference: CH2M Hill Halcrow, (2016). Design and Feasibility Study for a Risk Resilient Integrated Coastal Zone management Programme Component 1 (TT T1038). Economic Contribution of the Coastal Zone. Report prepared for the Inter-American Development Bank (IDB)

are needed, in line with the trend of developed countries to opt for proximity food production to curb GHG-related emissions).

Certain important trends that are taking place, some from within the port and maritime sector and others from outside (technology, new sources of energy, international treaties, etc.), can have an important impact on the business model of ports and the maritime sector in general. Since the port and maritime ecosystem is going to change considerably in the coming decades, decision-makers require a Vision of 2030 to prioritize investments and build a strategic road map. The trends can be grouped in the following categories: 1) Environmental & Energy: Changes in the environmental and energy field towards sustainability; 2) Societal & consumption patterns: Changes in people's ways of life and consumption; 3) Macroeconomics & Geopolitics: Evolution of the world's economic and political status quo; 4) Supply chain: Changes in manufacturing, logistics and value chains; and 5) Maritime & Ports: Changes in key elements of the maritime and ports business environment.

As an operational premise of the strategy, a SWOT analysis of the maritime sector has been carried out. This analytical exercise of the maritime sector, both current and future, based on the trends analysed, gives us a guideline on how to approach the definition of the maritime strategy. The analytical frame of reference that has been used can be structured around: **the instrumental tools needed to improve and promote the maritime and port sector; and the improvement by sectors, both existing and emerging.** Within the sectors, some of them are strongly interrelated with **the blue economy concept**.

The strategy has been defined based on the interaction of two aspects:

- On the one hand, the strategic dimensions, which can be grouped around economic development, environmental sustainability and social development. Figure 1 shows how the strategic dimensions are aligned with the objectives of the UN Agenda 2030.
- And, on the other hand, the reference framework (tools needed to improve and promote the maritime and port sector, as concluded from the gap analysis).

Figure 2 shows in detail how the two dimensions are combined and the Policy Directives of the maritime policy and strategy and the GoRTT 2030 Vision.

Strategic Dimensions

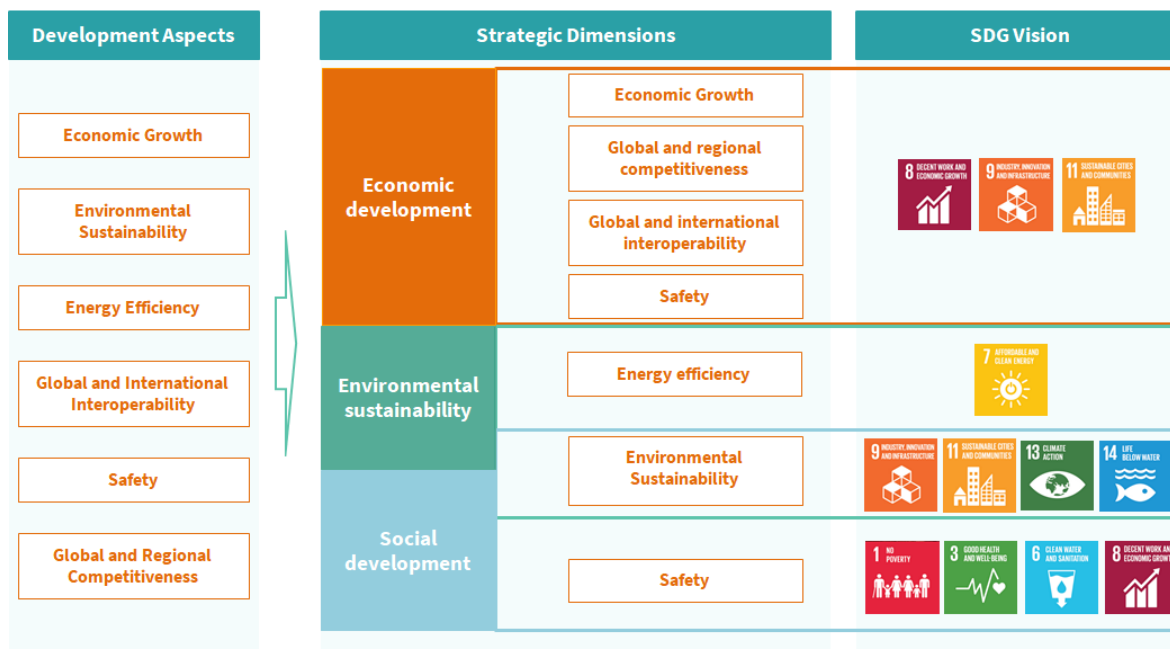


Figure 1. Strategic dimensions and alignment with the objectives of the UN 2030 Agenda.

Impact of Policy Directives on Strategic Dimensions

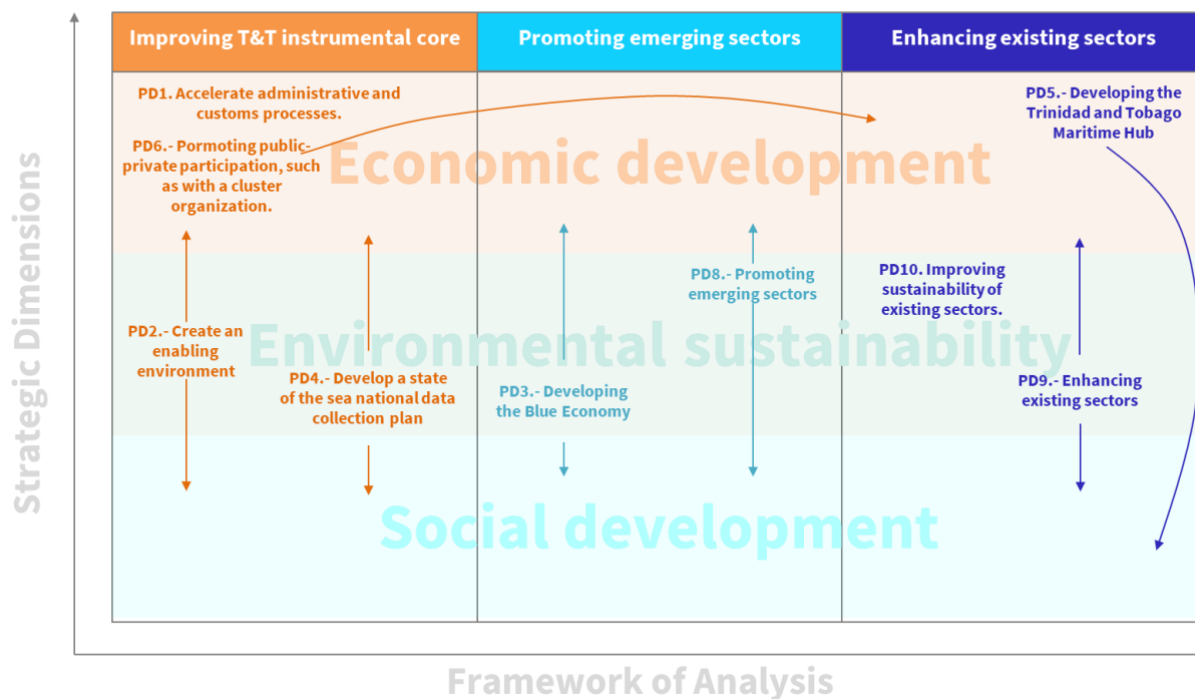


Figure 2. Policy Directives of the maritime policy and strategy according to whether it involves an improvement on the instruments or on a sector (emerging or improving an existing one).

These strategic lines have been included in an action plan detailing actions, approximate budget, stakeholders involved, risks, risk mitigations, monitoring indicators and an approximate calendar of actions.

1 Introduction

The Government of Trinidad and Tobago has identified the maritime sector, encompassing marine transportation and shipping, safety, security, tourism, the marine environment, and related administration and legislation, as one of the key national economic areas. Trinidad and Tobago's ocean-based economy (blue economy) within its EEZ is estimated to be worth US\$22.5 billion or 81% of the country's total GDP (2015)². In addition, Trinidad and Tobago dominates regional trade, yet CARICOM has the potential to engage with US trade. It is one of the strategic economic areas for the country's development.

One of the main characteristics of the maritime sector is its diversity of economic sub-sectors, from ports to the fishing sector, and the interrelation between them. This requires a strategy and policy framework to coordinate and guide the actions that can be developed by the public and/or private sector. Researchers acknowledge the depth and resources allocated to previous efforts demonstrated by a comprehensive library of studies, strategies and Bills. This served as the backbone on which a holistic maritime policy and strategy was formulated.

The Consultancy is aimed at maximizing the sustainable use of its ocean and sea resources, while enabling the growth of its maritime economy through improving competitiveness of the shipping industry and balancing safety and security interests of the sector.

Given the aforementioned situation, GoRTT considered it appropriate in 2019 to commission a consultancy project for the development of a Maritime Policy and Strategy for the country. In a first document, in March 2021, the gap analysis was delivered where the main current maritime sector issues were identified, based on an extensive number of interviews with the main stakeholders.

The objective of this document is to provide a Final Draft Maritime Policy and Strategy, on the basis of the results of the previous phases. This final document has been prepared introducing the comments that were done during the validation phase by the main stakeholders.

The work included in this document has been structured into three levels of analysis: first, a vision of the country, with a time horizon of 2030; second, a strategy; and finally, concrete actions to develop the strategy. The tasks included in each of these levels are shown in Figure 3.

The structure and organisation of the document has been based on the following split on the analysis. The first chapter introduces the main aspects of the 2030 vision of the country relevant to the development of the maritime strategy and the main trends for the next 10 years. From there, and taking into account the main results of the gap analysis, a SWOT and PESTLE analysis of the maritime sector has been carried out, both globally and by subsectors. From there, in a second chapter, the maritime strategy has been developed, which will serve as a framework for the action plan, developed in the last chapter.

² As referenced in Integrated Coastal Zone Management Policy Framework (September 2020). Original reference: CH2M Hill Halcrow, (2016). Design and Feasibility Study for a Risk Resilient Integrated Coastal Zone management Programme Component 1 (TT T1038). Economic Contribution of the Coastal Zone. Report prepared for the Inter-American Development Bank (IDB)

Development of the Policy and Strategy approach

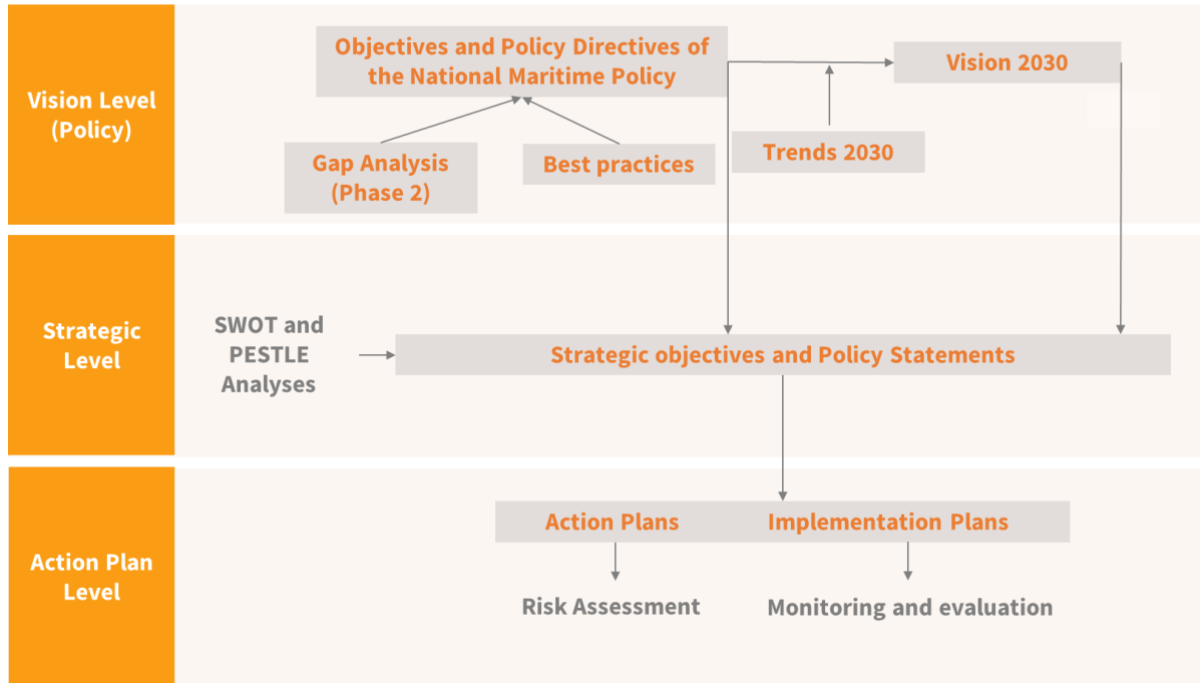


Figure 3. Structure of the works developed for the elaboration of the draft of the strategy and policy of the maritime sector.

³ Coface, 2021. Accessed <https://www.cofacecentraleurope.com/Economic-analysis/Trinidad-and-Tobago>

Compression project. Currently, BPTT is the largest hydrocarbon producer in Trinidad and Tobago⁴. The Cassia Compression project is expected to supply gas to downstream customers and Atlantic (company)⁵. Also, among other findings, the Cascadura-1ST1 findings in late 2019 are noteworthy as a new natural gas reservoir⁶.

The petrochemicals (methanol and ammonia account for 14% and 9% of exports respectively) and steel industries (iron and steel, 6%) are also likely to be affected due to their dependence on the economic situation of end markets, i.e. primarily construction and automotive.

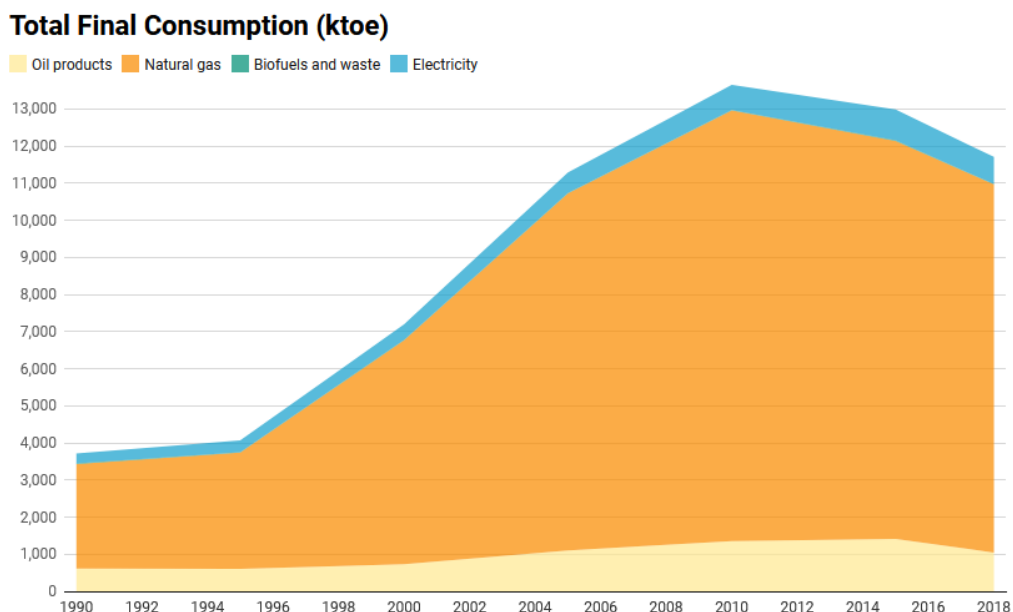


Figure 6. Total Final Energy Consumption in Trinidad and Tobago by energy source⁷. Biofuels and waste indicate biofuel and waste (industrial or municipal) combustion.

On February 1st 2021, the then Honourable Minister of Energy Franklin Khan in referring to the exploitation of the large EEZ of Trinidad and Tobago (74,199 square kilometres, fifteen times the country's land mass, see Figure 7) stated:

"Our EEZ has been largely un-utilized with the exception of our deep-water oil and gas exploration which in itself is a recent and successful undertaking. We now have an opportunity to harness the energy potential stored in our marine environment from sources."

Comprehensive spatial planning is therefore required. Use conflicts arise between Oil and Gas industry and fisheries, coastal development, tourism and the protection of underwater biodiversity. In that regard, the Integrated Coastal Management Zone is a stepping stone to a comprehensive look at spatial planning upon where to build a maritime spatial planning strategy. Rural coastal communities' involvement is required for the sustainable development of the T&T blue economy. In that regard, T&T is one of several

⁴ <https://oxfordbusinessgroup.com/overview/firing-new-oil-and-gas-discoveries-and-increased-investment-support-recovery-hydrocarbons-industry>

⁵ <https://www.nsenegybusiness.com/projects/cassia-compression-project/>

⁶ <https://energynow.tt/blog/touchstone-cascadura-1st1-is-a-larger-pool-than-originally-expected>

⁷ Data source: International Energy Agency. Available at: <https://www.iea.org/countries/trinidad-and-tobago>

countries engaging in addressing Marine Spatial Planning under UNESCO and the Intergovernmental Oceanographic Commission (IOC).

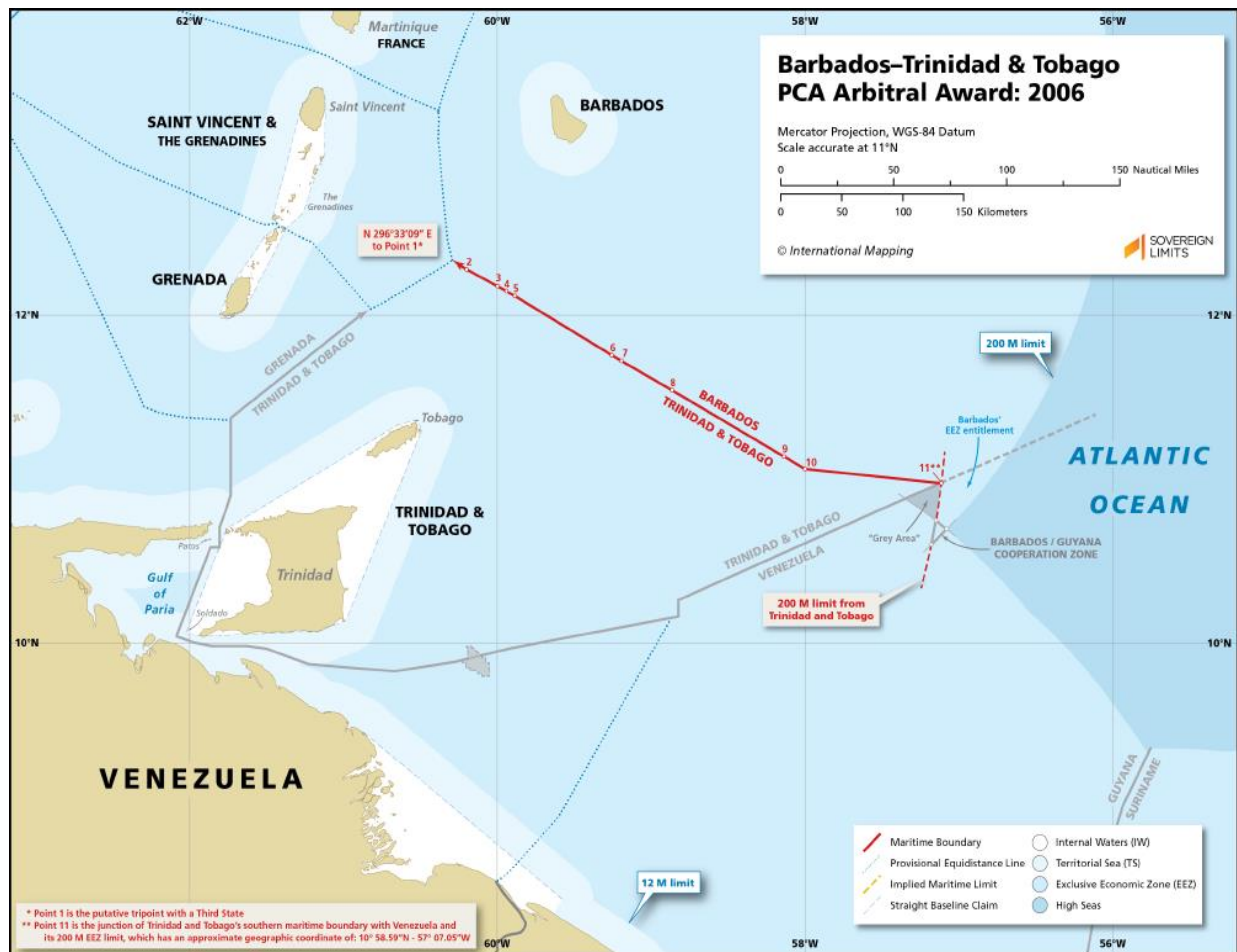


Figure 7. Seaward Boundary of Coastal Zone for Trinidad and Tobago.

2.1.1 Marine and Port Traffic

Trinidad and Tobago is located along major trade routes (see Figure 8). Vessels can transit through the Panama Canal to head to South America or Western Africa. Larger vessels exceeding the Panama Canal capacity (tankers, bulk carriers) passing by Trinidad and Tobago are probably those transiting between the Gulf of Mexico and Asia via the Cap of Good Hope.

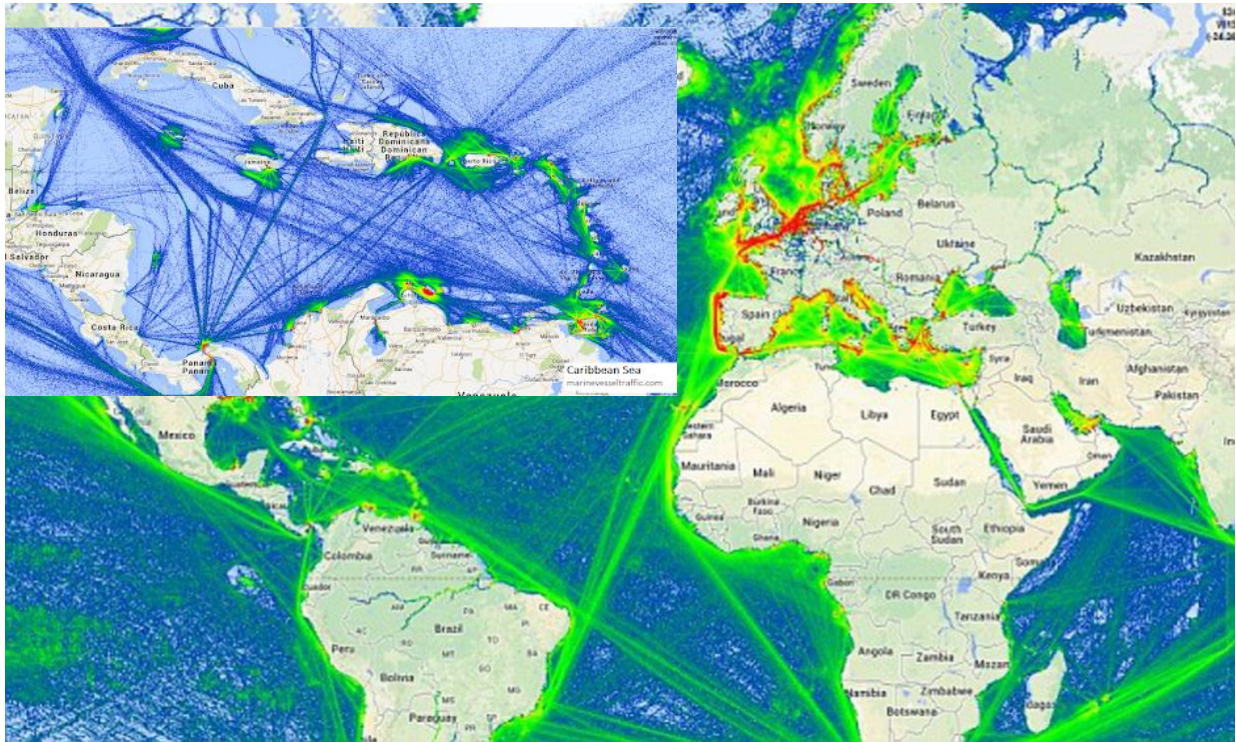


Figure 8. Vessel trade routes.

Trinidad and Tobago has two main ports that provide a container trade: The Port of Port of Spain and the Port of Point Lisas. Both ports offer domestic and transshipment trade, with Point Lisas dominating domestic trade. This differentiation has resulted in specialization at the port of Point Lisas for this type of trade, primarily serving shipping lines connecting with the United States. Meanwhile, the Port of Port of Spain serves larger carriers for both domestic trades and regional transshipment.

A first overview of maritime traffic is shown in Figure 9, where the number of port calls in the Caribbean region in 2019 is indicated by country and type of traffic. As it can be observed, the second most traffic is concentrated in Trinidad and Tobago.

The majority is made up of passengers (including cruise ships, ferries and yachts), this fact makes Trinidad and Tobago very sensitive to changes in tourism, followed by liquid bulk carriers, both representing more than 50%. In third place would be container ships, followed by dry breakbulk carriers.

Development of a National Maritime Policy and Strategy

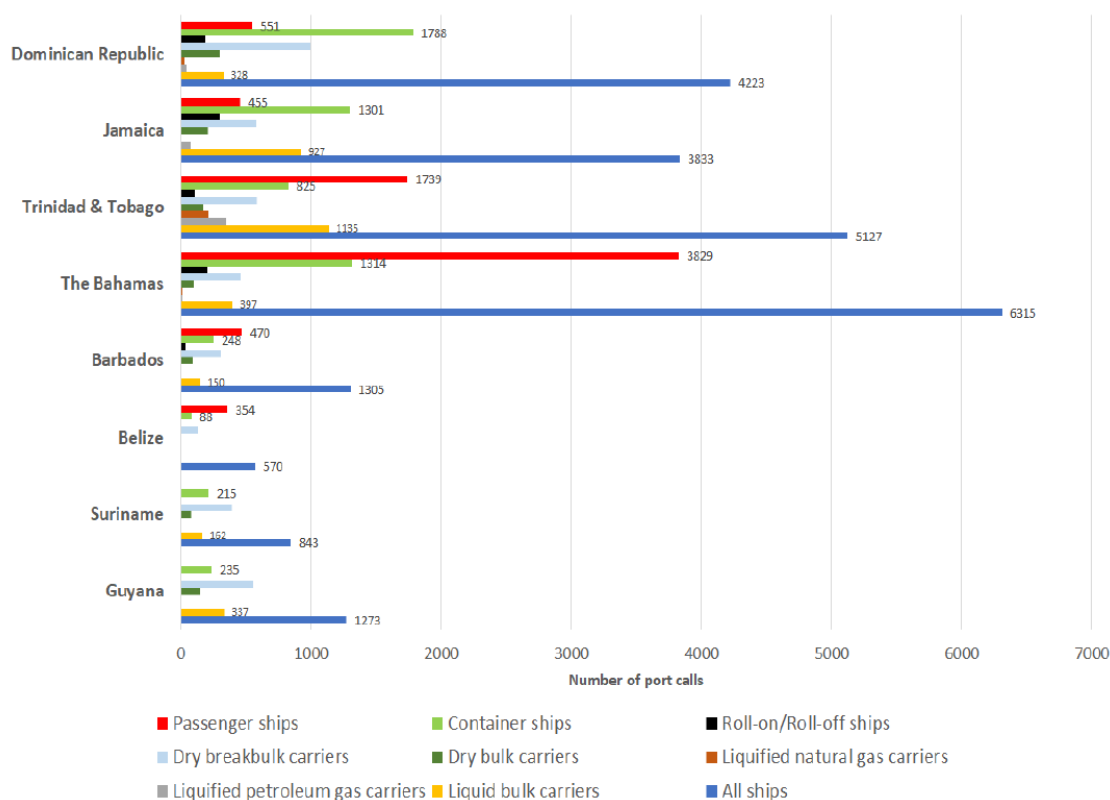


Figure 9. Maritime traffic (in number of port calls) in the Caribbean area per country and type of cargo. Source: Prepared by the authors based on UNCTAD intranet

As indicated above, container traffic is the second most important in Trinidad and Tobago, with 26% of the market share. Depending on the port infrastructure, the location of the ports, the shipping routes and the strategies of the shipping companies, this traffic is usually concentrated in a few specific ports, following a hub & spoke structure.

Figure 10 shows the container throughput (TEU) of Trinidad and Tobago and other states in the region.

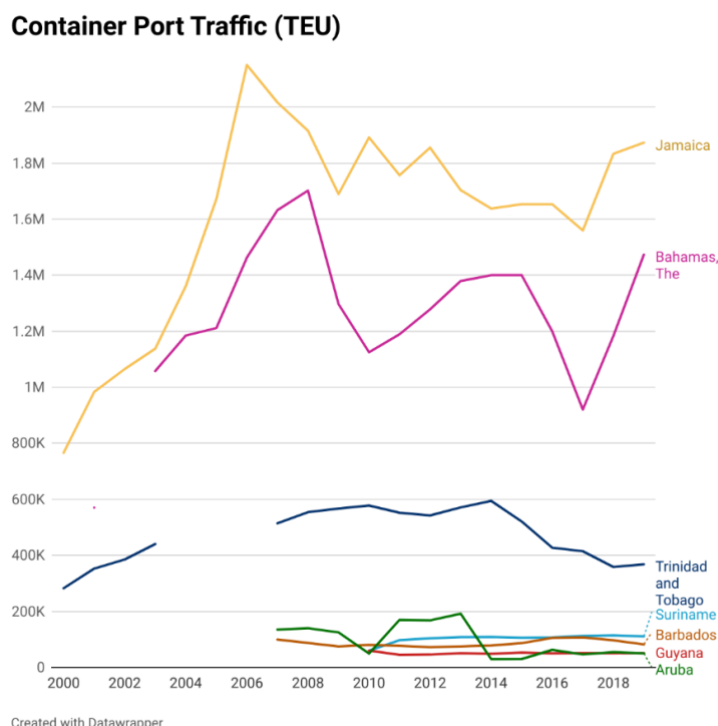


Figure 10. Trinidad and Tobago and other region states TEU throughput.

The Caribbean region is host to the main container hubs where intense transshipment activity occurs to serve all trade in the Americas and the Caribbean, as well as trade to some locations in Asia. Traffic along the region has also increased in recent years due to the recent expansion of the Panama Canal, especially because of the new access for larger ships implemented in the canal that allows the entrance of post-Panamax vessels. On the other hand, Trinidad and Tobago is located further south of the major container trade routes. Geographically speaking, Puerto Rico, Jamaica and the Bahamas have better locations to attract container related activities such as transshipment (see Figure 11).

As stated in Protocol Six of the Revised Treaty of Chaguaramas for CARICOM a Transport Policy outlined includes shipping. In this regard there have been a number of initiatives to increase the awareness of the need for intra-regional shipping service. It is presently on the agenda for discussion at CARICOM level. Studies are in process to assess the key issues for the design and development of intra-regional transport and associated infrastructure.

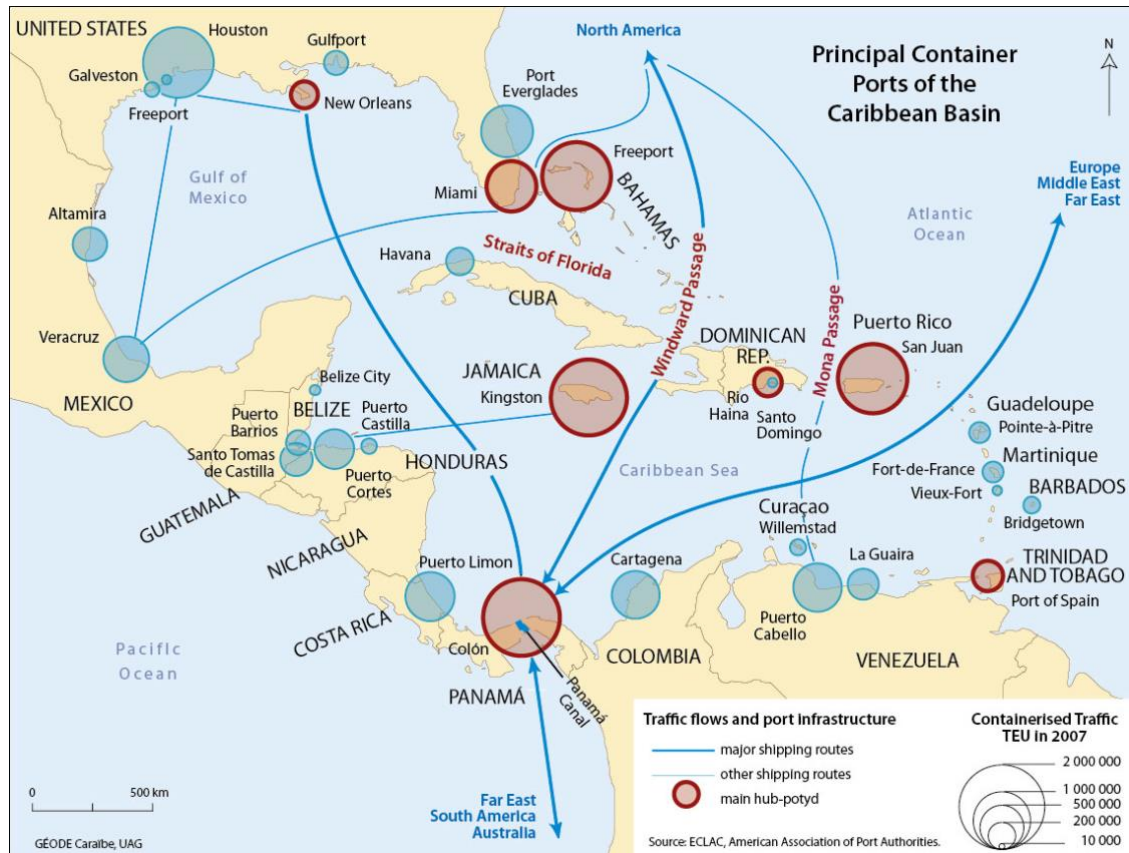


Figure 11. Container trade routes and major hub ports in the Caribbean sea. Source: <https://atlas-caraibe.certic.unicaen.fr/en/page-118.html>

Nonetheless, in the case of Trinidad and Tobago, the number of visits made by international vessels has decreased in recent years, as can be seen in Figure 12 resulting in a drop of total throughput (for example, Port of Spain experienced a 23% drop).

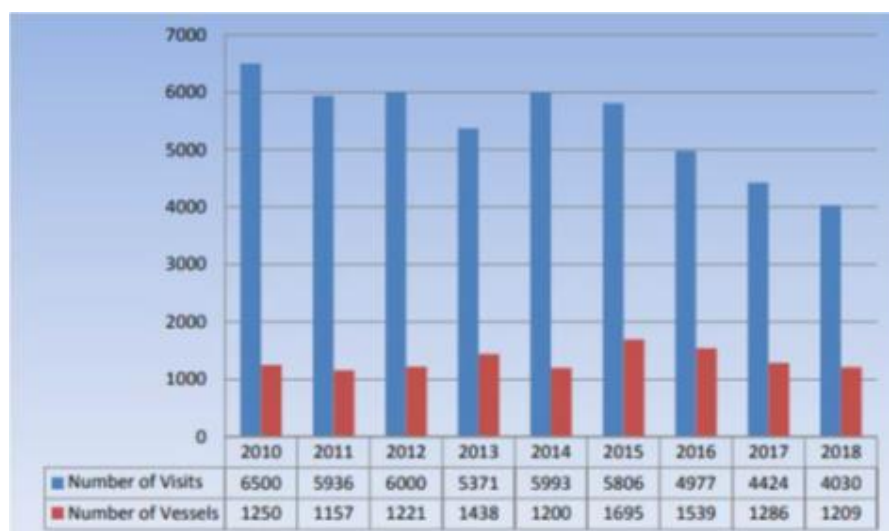


Figure 12. Number of visits and number of vessels visiting T&T 2010 - 2018.

The decline can be attributed to a number of factors including: loss of export market share to the port of Point Lisas; decline in transshipment volume due to one of PPOS's main clients relocating part of this activity; not being geographically close enough to the Panama Canal to attract new customers and trade with larger vessels; or potentially lack of infrastructure.

An essential aspect that influences the attractiveness of a port for container ships is the efficiency and productivity of port operations, seven main indicators can be distinguished (Caribbean Development Bank, 2016) to measure the level of efficiency of operations:

- Berth productivity (20%)
- Labour productivity (TEU by employee) (15%)
- Quality of infrastructure (15%)
- Nautical accessibility (maximum vessel draught) (15%)
- Type of equipment for stevedoring operations (15%)
- Type of IT systems used in port operations (10%)
- Level of autonomy of the port operator (10%)

Based on these indicators, the Caribbean Development Bank's report defined an efficiency indicator by using a multi criteria analysis considering the indicators with the percentages previously stated. By using these indicators for the different Caribbean ports, results show that Bahamas, Trinidad and Tobago and Suriname are the countries with higher efficiency in their ports from an absolute point of view (see Figure 13).

Development of a National Maritime Policy and Strategy

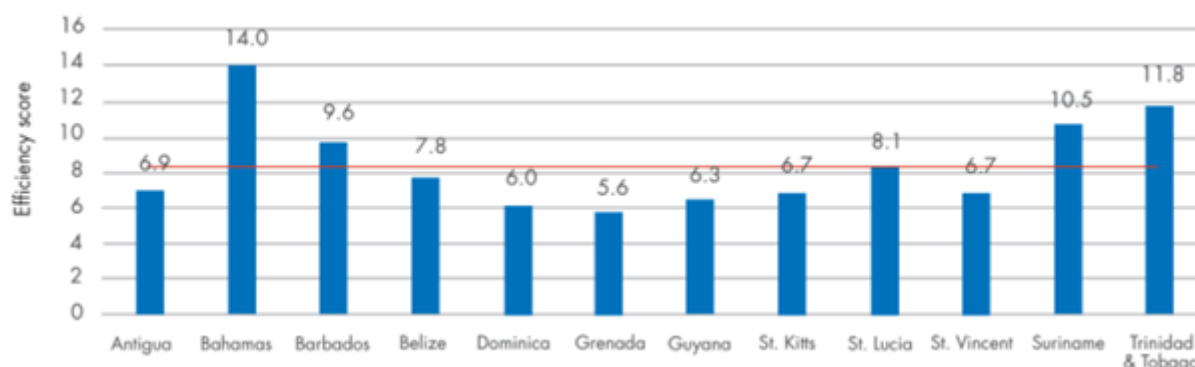


Figure 13. Efficiency score for some of the Caribbean Ports. Source: Caribbean Development Bank, 2016.

Despite the fact that Trinidad & Tobago is in second place in this ranking, the values of the indicators are low. If we look at the length of stay of the ships in ports (it is another of the indicators that are usually used to measure efficiency), in Figure 14 it can be seen that Trinidad & Tobago is the country with greater weighted average port hours (72.1 hours per average vessel) in 2019.

Economy	Weighted average port hours	Average vessel size
Oman	12.5	9 002
United Arab Emirates	13.8	7 619
China	15.1	8 483
Poland	16.6	6 357
Saudi Arabia	16.8	8 351
Singapore	17.0	6 183
Republic of Korea	17.4	7 425
Qatar	17.7	7 081
India	17.8	7 463
Sri Lanka	18.5	5 749
Top 10	15.9	7 769
Canary Islands	61.7	984
Mozambique	62.6	2 533
Norway	62.9	1 259
Cameroon	63.7	2 541
Bulgaria	64.1	1 162
El Salvador	64.2	2 203
Nigeria	65.0	4 379
Gabon	65.9	1 559
Namibia	71.8	3 561
Trinidad and Tobago	72.1	1 490
Bottom 10	65.1	2 530

Figure 14. Weighted average port call hours for top and bottom 10 countries. Source: UNCTAD, 2020.

The main reasons for these low efficiencies are diverse, according to the aforementioned Caribbean Development Bank report. But in the case of Trinidad and Tobago the report highlights three main reasons:

- Trinidad and Tobago has institutional issues because port authorities do not fulfil their responsibilities agreed with the port operators.
- There is the case that ports such as in Trinidad and Tobago use outdated handling equipment, which increases vessel call times

- Lastly, Trinidad and Tobago ports still have a lack of Integrated Technology (IT) systems to provide port workers with valuable information such as the real time position of the vessels or containers to optimize the port operations.

Some Caribbean countries are major global ship registration administrations, Panama being the first for a number of years (see Figure 15). Large scale ship registration activities require a particular legislation structure allowing non-nationals to flag vessels under this administration. It also allows non-nationals to work on these vessels (mostly involved in trade other than National coastal water) and a convenient Maritime Administration emitting equivalent certificate of competency. Nations are more aware of one of the most important disadvantages, the risks associated with low fiscal regimes or tax havens.

Rank	Country	Registered tonnage (‘000)
1	Panama	328 950
8	Bahamas	77 869
33	Antigua and Barbuda	6 657
35	Cayman Islands	6 636

Figure 15. Major Vessel Registration Caribbean Countries in 2019. (Source: UNCTAD)

In February 2021, the European Commission identified twelve non-cooperative countries in terms of fiscal policy and Panama is one of them. Almost half the listed countries are located in the Caribbean and it includes Trinidad and Tobago. The other countries are mainly small islands in the Pacific.

Trinidad and Tobago ship registration services are mainly oriented towards local vessels. The Ministry of Works and Transport mentioned that there are around 365 vessels registered in T&T and the ferries to Tobago are amongst the largest ones. In many maritime administrations, local labour is mandatory on board National vessels. Exceptions can be allowed to hire foreign seamen if there are no qualified marine personnel available. It has been reported through consultations that Trinidad and Tobago do not force shipowners to hire local crews and some seamen would struggle to find work. In terms of marine labour, Trinidad and Tobago has marine programs in line with STCW requirements. In 2019, the International Transport Workers’ Federation forecasted scenarios suggested that, despite technologies having the potential to reduce labour requirements, expanding international trade will counterbalance this reduction. The impact of technology and automation on the global maritime workforce will shift the level of skills required towards higher end labour. Low and middle skilled jobs shall be reduced and replaced by high-skill high wage jobs. To face this, countries have to adopt strategies to support individuals seeking to acquire more technical knowledge.

The Trinidad and Tobago Inter- Island Transportation Company Limited, a strategic business unit of the Port Authority of Trinidad and Tobago, operates the ferry service providing transport of passengers, vehicles and cargo inter-island. TTIT serves as a vital link for business, leisure and tourism (see Figure 16 for passenger statistics). The inter-island ferry service is provided by four (4) passenger ferries – the A.P.T. James, Buccoo Reef, T&T Spirit & the Galleons Passage and one (1) cargo vessel – the Cabo Star. The fast

ferry is the popular choice for vacationers and persons traveling daily between the islands of Trinidad and Tobago as it completes the 20-mile journey in approximately 3 hours.

Type	2015	2016	2017	2018	2019
Inter-Island Sea Transport	847.561	505.254	358.520	537.963	441.165
Trinidad	417.562	249.428	175.531	264.518	219.274
Tobago	429.999	255.826	182.989	273.445	221.891

Figure 16. Inter-island service passengers.

2.1.2 Tourism

As Global tourism engages a restart of the world's dominant economic sector, countries take steps to implement the COVID-19 policy tracker with measures on health and safety protocols to restore confidence. According to the World Tourism Organisation (WTO) 32% of travel destinations require the presentation of negative PCR (polymerase chain reaction test) or antigen tests in combination with quarantine. Some are still advising against non-essential travel abroad.

Caribbean Public Health Agency (CARPHA) developed THiS (Tourism Health Information System), which is a real-time web application to monitor for illnesses and to facilitate a rapid response for potential outbreaks in visitor accommodations (Hotels, Guest Houses, etc.). It is intended to strengthen regional and national health systems and to enhance the health safety of service providers, residents and visitors and the quality, reputation and sustainability of Caribbean tourism. THiS also assists other tourism entities such as tour operators/guides, tourism transportation and food and beverage.

Statistically, tourism and related activities may only account for an overall 7.8% of GDP. However, employment generation was estimated to be 17,500 jobs, even more than the energy sector according to the review of the economy 2019. These livelihoods continue to be at risk, hence the reason behind resourcing schemes aimed at supporting the survival of tourism jobs and sustaining businesses.

Trinidad and Tobago must now reposition itself through promotional campaigns to boost international and domestic tourism. As T&T reassesses its re-entry into the Tourism market it will look to maximize results with the limited budget spend. Targeting niche market segments and 'low hanging fruit' options will prove beneficial over the short term given the unpredictability of the market post COVID-19. For example, tourism clusters in local communities could bring together stakeholders to improve the product offering.

Cruise demand is quite fluctuating. The following figure (17) reflects the number of visitors and cruises and yachts' calls in the islands of Trinidad and Tobago. According to the Review of the Economy 2020⁷, the significant decline recorded in 2019 was due to the high number of vessels calls in the 2018 base year, as the previously active hurricane season in 2017 precipitated a bumper 2018 cruise season as cruise lines chose to redeploy ships to Trinidad and Tobago ports that year, hence pinpointing the irregularity of demand.

A captured market is cruise tourism which has already placed T&T on their destination map for 2022. According to cruise forecasts bookings and pricing trends are very positive driven by strong pent-up

demand. The overall cumulative booked position for the first half of 2022 outpaced that of 2019's record levels with pricing higher when excluding the impact of COVID-19. Cruise operators have remarked that local sightseeing generates more competitive revenues as the destination offers the most outstanding unique eco-tourism products.

TYPE	2015	2016	2017	2018	2019	Jan - May 2019	Jan - May 2020
TOTAL VISITOR ARRIVALS	519,330	491,232	464,744	501,088	479,967	232,639	137,466
Trinidad	432,338	418,368	408,018	413,416	422,315	192,615	108,953
Tobago	86,992	72,864	56,726	87,672	57,652	40,024	28,513
International Air Arrivals (No. of persons)	439,749	408,782	394,650	375,485	388,576	166,179	91,886
Trinidad	417,314	389,404	375,202	356,044	367,119	154,527	84,746
Tobago	22,435	19,378	19,448	19,441	21,457	11,652	7,140
Cruise Passengers (No. of persons)	79,581	82,450	70,094	125,603	91,391	66,460	45,580
Trinidad	15,024	28,964	32,816	57,372	55,196	38,088	24,207
Tobago	64,557	53,486	37,278	68,231	36,195	28,372	21,373
Cruise Ships (No. of ships)	70	62	60	75	52	36	28
Trinidad	18	21	22	27	25	16	10
Tobago	52	41	38	48	27	20	18
Yachts (No. of ships)	1,151	989	1,037	1,061	945	498	247
Trinidad	917	826	742	785	681	365	162
Tobago	234	163	295	276	264	133	85

Figure 17. Air Arrivals, Cruise Vessel and Passenger Arrivals. Retrieved from Review of the Economy 2020⁸.

2.1.3 Fisheries

The fisheries sector is a relevant sector for the people of Trinidad and Tobago, its added value to the country is high since many rural coastal communities depend on the fishing sector. The social significance of the sector is emphasized by the fact that most Trinidadian landings come from small-scale fisheries.

Marine capture fisheries support about 50,000 persons directly and indirectly⁹. According to the review of the economy 2020, there were 102 registered non-artisanal large-scale vessels and 2525 small-scale vessels. Moreover, as a Small Island Developing State (SIDS), coastal communities depend on the aquatic environment for their livelihoods. The sector accounts for about 15% of agricultural GDP (which accounts for 3% national GDP), with an estimated annual value of landings from Trinidad of TT\$190 million¹⁰.

According to the OEC¹¹ fish represent 0.28% of all T&T exports of which tuna represents 49.5% of export value. Spanish mackerel, sharks, croakers, tuna, and shrimp are the main commercial species exploited in Trinidad and Tobago.

The balance of fish and fish products trade has shown a negative inflow since 2002¹¹. In 2015, whilst the estimated exports amounted to US\$20.8 million, imports were US\$50.0 million. However, while imports were stable, export values have increased quite impressively in recent years. Imports are large quantities of lower-value fish to compensate for the decrease in local supplies. China and the United States of

⁸ Review of the Economy 2020 Available at: <https://www.finance.gov.tt/wp-content/uploads/2020/10/Review-of-the-Economy-2020.pdf>

⁹ <http://www.fao.org/fishery/facp/TTO/en>

¹⁰ Mohammed, E. (2017) Current Initiatives for Fisheries Management in Trinidad and Tobago. (Powerpoint Presentation) Enhancing Ocean Governance in the Caribbean, UTT –Maritime Studies Unit, Chaguaramas.

¹¹ <https://oec.world/en/profile/country/tto?depthSelector1=HS2Depth>

America, together with Vietnam are the main suppliers of the market. China is mainly exporting salted groundfish, replacing Norway and Canada as supplier of this traditional product in the market¹².

Fish exports consist mainly of high-value species such as shrimp, tuna, snapper, kingfish, dolphinfish and flying fish in fresh and frozen forms. Tuna is exported to the United States of America in chilled form. Finally, fish plays a significant role in food security, being one of the few food products produced in the country and not coming from imports. The share of fish in total animal protein supply is about 17%.

2.2 Gap Analysis

The gap analysis was the previous phase of this consultancy, with the objective to lay the grounds from which the maritime strategy will build on. The gap analysis aimed to obtain insight from stakeholders on the state of the maritime sector and the future policy. A total of 42 stakeholders were engaged through web-based meetings to gather their concerns and insight into the maritime sector and expectations or recommendations on the future policy. A list of the consulted stakeholders has been appended to this report. This section summarizes the conclusions drawn from the gap analysis.

A table can be found in Annex 2 that summarizes the main issues and challenges obtained by the different stakeholders or agencies involved in the maritime sector. The input for this analysis is the meetings described in the previous section. The purpose of this table is to help identify the current tools and maturity state for each stakeholder sector, and the potential resources that could be promoted in the eventual maritime policy.

From the analysis on the different sectors and resources/tools to articulate the various measures and activities of the maritime sector, a number of conclusions can be drawn.

As for the analysis by sector, it can be concluded that:

1. The sectors can be grouped around 5 economic ecosystems, namely: maritime and port (including bunkering, maritime transport and transshipment, port operations and development, cold stacking, ship building, repair, dry docking, breaking and recycling); food (fisheries); defence; tourism (cruises, yachting and underwater cultural heritage); and the rest of the economy (enabling sectors such as spatial planning, special economic, energy sector...).
2. For each of these ecosystems, several measures and sub-sectors can be identified that either already exist and need to be strengthened or are emerging.
3. Broadly speaking, the sectors and measures with potential revolve around:
 - Ship energy sector, bunkering and LNG.
 - Offshore energy sector
 - Development of T&T as a regional port hub.

¹² <http://www.fao.org/fishery/facp/TTO/en>

- Development of value-added logistics activities linked to port traffic.
- The naval repair, construction and maintenance industry.
- Tourism sector including yachting, cruises and underwater cultural heritage sites (wrecks) in promoting T&T historical heritage.

Figure 18 shows a synthesis of these sectors, ecosystems and their relationship with them.

On the other hand, in Figure 19 one can appreciate the detail of the different barriers and issues, most of which are also contained in Table A1, for each of the sectors and how they relate to them. There are a wide variety of barriers and other issues to be resolved ranging from training, legislation to regulation and investment.

Development of a National Maritime Policy and Strategy

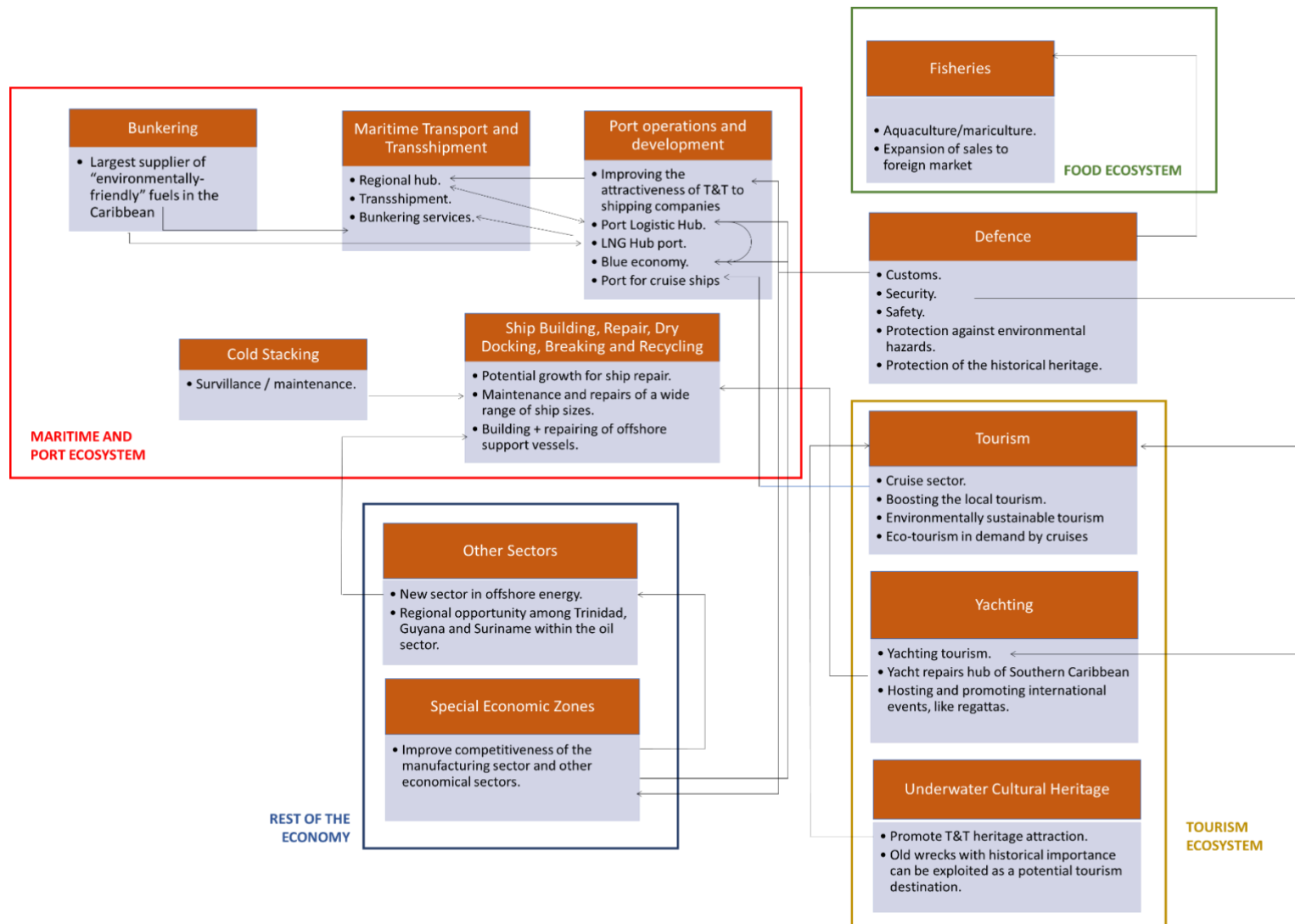


Figure 18. Sub-sectors are grouped into economic ecosystems. Potential and emerging activities for growth are identified. The relationships between the activities are indicated with a line.

Development of a National Maritime Policy and Strategy

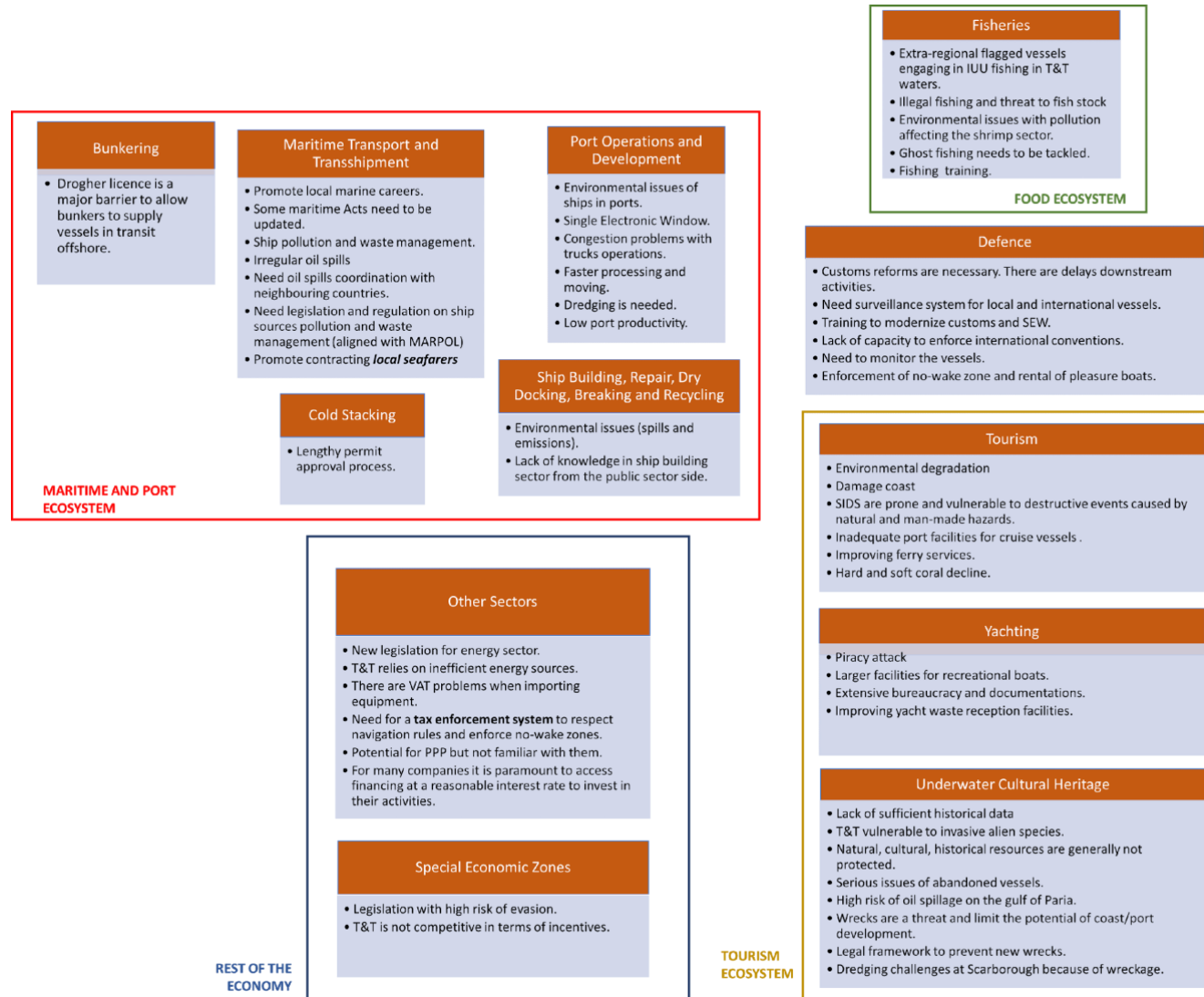


Figure 19. Main barriers and issues for each of the sub-sectors, some of which have already been indicated in Table A1.

2.3 Trends: vision 2030

Certain important trends that are taking place, some from within the port and maritime sector and others from outside (technology, new sources of energy, etc.), can have an important impact on the business model of ports and the maritime sector in general. Since the port and maritime ecosystem is going to change considerably in the coming decades, decision-makers require a Vision of 2030 to prioritize investments and build a strategic road map.

In this analysis, a total of 27 future trends grouped into 5 specific categories have been considered. The analysis of these trends has allowed us to understand and contemplate the possible evolution of the current situation of the maritime and port sectors in the medium term (10 years). As a result of the analysis, the potential impact that trends will have on Trinidad and Tobago has been evaluated.

We have grouped the trends in the following 5 categories:

1. Environmental & Energy: Changes in the environmental and energy field towards sustainability
2. Societal & consumption patterns: Changes in people's ways of life and consumption
3. Macroeconomics & Geopolitics: Evolution of the world's economic and political status quo
4. Supply chain: Changes in manufacturing, logistics and value chains
5. Maritime & Ports: Changes in key elements of the maritime and ports business environment

Energy and the Environment

The set of trends identified in the Environment and Energy will lead to a deep transformation of some of the main economic sectors of maritime cargo generation. The evolution towards a sustainable economy with renewable energy sources and the gradual decline of the oil-linked industry will be accompanied by a transformation of the energy mix in which energy production and storage sources (solar, wind, batteries, hydrogen, methane, LNG, ammonia, etc.) will multiply. At the port traffic level, this set of environmental and energy trends will have a negative impact on the transport of liquid and solid bulk (with some exceptions). However, an increase of trade in alternative and sustainable fuels for ships is expected in the near future (LNG, Ammonia, Methanol, Hydrogen).

The circular economy based on recycling and reuse of products can lead to a reduction in the external needs and dependence on certain raw materials that will see their demand for international transport reduced.

In addition, climate change will have a notable impact on port infrastructure due to rising sea levels, as well as the disruptive and more frequent adverse effects (hurricanes, storms, waves, etc.). Table 2 describes each of the trends.

Table 2. Energy and the Environment main trends.

Trends	Description	Expected situation in 2030	General impacts in TTO
1. More sustainable energy mix	According to the International Energy Agency, the use of renewable energy will experience huge growth in the coming years (3% per year), positioning itself by 2050 as the most used energy source	50% share of renewables in CARICOM ¹³ , up from around <1% in 2020 Oil/Natural Gas Based Economy: 2019: (40% GDP, 80% Exports , 5% Employment) 2030: (30% GDP, 60% Exports , 3% Employment)	Decrease fossil fuel Increase in LNG trade 29% share of RE in TTO
2. Increase of share of electric vehicles	Electric mobility is expanding at a rapid pace. In 2018, the global electric car production exceeded 5.1 million. The sale of electric cars has increased by 68% in 2018	30% reduction in GHG emissions by 2030 in the public transportation sector in TTO ¹⁴ Some companies will only sell hybrid or fully electric cars (Toyota, Volvo, PSA Groupe) General Motors will only sell zero emission trucks by 2035	Decrease crude oil exports Increase of electric cars, buses and trucks Increase of electric MPV: e-bikes, e-scooters and electric motorcycles
3. Growing share of chemicals produced with renewables.	The transition to a bio-based economy is powered by several drivers including the need to develop an environmentally, economically and socially sustainable global economy; an over-dependency of many countries on fossil fuel imports;	Share of renewable material as feedstock for America's chemical industry increases to 20% up from current 10%	Decrease fossil chemicals trade Increase exports of bio-chemicals and waste
4. Climate change	The oceans have warmed, ice sheets are shrinking, and the global sea level rose about 10 cm between 1993 and 2019. The sea level rise has accelerated in the last decades.	The Caribbean region experienced an average sea level rise of about 10 cm over the twentieth century due to the warming; but this rise is not uniform throughout the region. Sea level rises 0.1-0.2 m expected	Port infrastructure needs to be addressed Floods in coastal areas to be addressed More frequent adverse climate effects (hurricanes, waves, etc) Changes in ocean characteristics (temperature, pH, oxygen content...) Coral reef degradation Coastal communities' at risk of losing assets
5. Alternative sustainable mix of ship fuels (LNG, Ammonia, CH4, H2)	The world ship fleet is beginning to use sustainable fuels, especially LNG. For 2030-2040 it is expected to have ships running with Ammonia and Methanol.	Since 2010 the number of vessels fuelled by LNG has grown consistently by between 20% - 40% per annum. In 2020 there are 175 LNG-fuelled ships in operation, excluding the 600 strong LNG carrier fleet, the majority of which are LNG-fuelled ¹⁵	Increase in demand of LNG in the shipping sector
6. Renewable Energy in ports and offshore	Renewable energy wind farms have the potential to replace the current T&T energy mix (>90% oil and natural gas).	Having 40 GW installed offshore wind farms by 2030 could create around 90 thousand new jobs. Ports are the decisive nodes on the logistics chain for construction, maintenance and	Decrease oil dependency. Reduction in air and water emissions, especially in Port-City regions. Green Port Financial Incentives and subsidies.

¹³ Worldwatch/REEEP, Renewable Revolution: Low-Carbon Energy by 2030

¹⁴ Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) Baseline Report and Assessment

¹⁵ <https://sea-Ing.org/why/global-fleet/>

repair services.¹⁶

Social and consumption patterns

These trends would suggest a lower future demand for goods as a result of the "servitization" of consumption (buying and enjoying virtual goods instead of physical goods). On the other hand, the awareness of the impact that our activity has on the planet will reduce foreign trade and the exchange of goods.

Once the initial temporary impact caused by COVID-19 has been surpassed, the new work-leisure models will promote new forms of tourism and its growth, as well as nautical activities and cruise traffic. For example, tourists could increase their length of stay if they combine holidays with remote working during their trip to Trinidad and Tobago. The rapid and high penetration of remote working due to COVID-19 will contribute to changing people's daily mobility, reducing the use of transport and consumption of hydrocarbons, and modifying certain consumption models associated with work at home instead of the office.

On the other hand, in order to be prepared for the actual and future disruptive pandemics, Trinidad and Tobago will have to design contingency plans and health protocols for the tourism sector and other sea transportation operations.

E-commerce for the purchase of physical goods will grow in all sectors, which will marginally boost international trade and tighten logistics chains. However, the increasing awareness of the negative side-effects of global value chains could lead to an increasing demand for local products. This trend is the strongest for food products, where local products are more sustainable and potentially also of a higher quality. This could lead to a reduction in agrifood exports from TTO. Table 3 describes each of the trends.

¹⁶ <https://www.oecd.org/cfe/regionaldevelopment/Competitiveness-of-Global-Port-Cities-Synthesis-Report.pdf>

Table 3. Social and Consumption Patterns trends.

Trends	Description	Expected situation in 2030	General impacts in TTO
1. Servitization of the economy	Servitization is the trend by which manufacturing companies add services to their physical products, or even replace products for services. Increase of demand of MaaS	55% of GDP of TTO based on services compared to 40% in 2019 1,5 veh/capita compared to 2,5 in 2019	Less demand of physical products Miniaturization of products and decrease of volume trades Reduction of the auto per capita ownership (due to increase of Mobility as a Service)
2. Increase in consumption of local (food) products	The increasing awareness of the negative side-effects of global value chains leads to an increasing demand for local products. This trend is the strongest for food products, where local products are more sustainable and potentially also of a higher quality	25% of local food over total food consumption up from current 2-5% ¹⁷	Decrease in global food trade Decrease in food imports and exports
3. Development of a sea-based economy (Blue Economy)	Blue economy is a term in economics relating to the exploitation and preservation of the marine environment.	Market size for recreational boating and yachting in Caribbean will grow at a 5% CAGR over 2019-2030.	Development of new port infrastructures (yachting and marinas) Increase of Ecotourism Increase of aquaculture and mariculture Development and management of fisheries
4. Growth of tourism and new tourism models	The trend of growth of tourism, is intrinsically related to the trends of economic growth, shortening of the working week and increased leisure time and reduced passenger transport costs	40% of global share in cruisers in Caribbean, up from 32% attained in 2019.	Increase in cruise passengers and ships, especially in the Caribbean region which today is the one of the fastest-growing markets worldwide. Increase of small luxury cruises Need to preserve and promote tourism for historical wrecks as cultural heritage

Macroeconomics and geopolitics

In the coming years, a stagnation of the developed economies is expected as a result of de-industrialisation, the ageing of its population, and the difficulty of leading the transition towards a sustainable economy¹⁸. The COVID-19 crisis will accelerate this stagnation in developed economies. For example, the EU economy will experience very moderate growth, generating a slowdown in the port traffic of goods, reducing TTO exports to this region. However, in emerging economies a huge increase in population and urbanisation is expected (India, Africa, etc.)

¹⁷ https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/agrifood-trinidad-and-tobago_en.pdf
<https://sustainabledevelopment.un.org/content/documents/Sustainable-Transportation-Development-TrevorTownsend.pdf>

¹⁸ Bongaarts, J. (2009). Human population growth and the demographic transition. *Philosophical Transactions*, Vol. 364, 2985–2990.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2781829/pdf/rstb20090137.pdf>

The need to evolve towards a sustainable economy will lead to the emergence of new social conflicts linked to the restructuring of some industries and social models.

International Blue Economy investments are expected to be deployed over the next 10 years in Caribbean countries as it is one of the solutions to promote the economy in an environmentally friendly way, tackling climate change effects. Table 4 describes each of the trends.

Table 4. Macroeconomics and Geopolitics trends.

Trends	Description	Expected situation in 2030	General impacts in TTO
1. Slow economic growth in advanced economies (EU, US, etc.)	Stagnation of the advanced economies (especially EU)	GDP growth in EU: 1.1% CAGR 2018-2040 down from historic 1.7% during 1999-2018	Lower demand in US and EU (for goods, oil, etc.) that will reduce exports Decrease of manufacturing products
2. Strong economic growth in emerging markets (Africa, India)	In contrast to advanced economies, there is a trend of solid economic growth in emerging markets	GDP growth in emerging markets: 3.8% CAGR 2018-2040, down from historic 5.7% (1999-2018) GDP growth in Latin America and the Caribbean: 2.1% CAGR 2018-2040, down from historic 3.3% (1999-2018)	Increase in imports of goods from China, Africa (vehicles, containers, roro)
3. Green and Blue economy emerging investments	The concept of the Blue Economy ¹⁹ rests on these main themes: 1. Sustainable and inclusive growth and development 2. Reducing the risk of over exploitation and risky methods of extraction/usage of the ocean's resources; 3. Enhancing the welfare of coastline communities in terms of economic opportunities and social protection; 4. Ensuring resilience of countries to natural disasters and the impact of climate change.	Consolidation of TTO Blue Economy strategy: activities such as offshore fishing, offshore oil and gas, maritime transport, and tourism, including cruise tourism, aquaculture, mariculture, marine renewable energy, bioprospecting, seabed mining, and carbon sequestration. These activities are seen as avenues of great potential ²⁰	TTO ocean-based economy to be worth US\$22.5 billion or 81% of the country's total 2015 GDP. Risk of further fisheries degradation without proper conservation management. Currently only fishing for offshore large, highly migratory pelagic species is considered an avenue for further development. Most of the coastal fisheries resources that have been assessed were found to be either fully exploited or near full exploitation. This situation can only be reversed with proper conservation and management.

¹⁹ Hassanali K. (2021) CARICOM and the blue economy -Multiple understandings and their implications for global engagement

²⁰ <https://documents1.worldbank.org/curated/en/482391554225185720/pdf/Marine-Pollution-in-the-Caribbean-Not-a-Minute-to-Waste.pdf>

4. Population increase and urbanization

The growth of the urban population, both present and future, is a reality. Population growth has important consequences for infrastructure, construction, (energy) consumption and the size of the labour force. This population growth is accompanied by various changes, including an increase in energy consumption

TTO population will increase from 1,4M to 1,5M in 2030. Urbanization rises to 20% compared to 13% in 2019.

Increase of demand for imports in the country
Growth of Port city activities

Logistics and supply chains

New technologies and platforms (e-commerce, blockchain, and internet of things) promote the growth of international trade as a whole and promote the exchange of goods. New technologies will continue to substantially reduce logistics costs compared to the current level. They will improve the "logistics" response to market needs thanks to the digitization of the supply chain and the reduction of inefficient intermediaries, offering increasingly efficient transit times.

However, the emergence of new production models from 3D printing or robotization could cause a reduction in the international trade of finished products, and at the same time can promote the relocation of some productive sectors.

Ports will have to take on a new role in the logistics chain if they do not want to be eclipsed by digital transformation. This new role should allow ports to be leaders in the development of the hinterland logistics, proactively participating in private technology platforms, managing access and promoting new forms of transport (autonomous, electric, etc.) between the port, the city and its surrounding logistics areas.

In this context, as a result of the growing planetary interconnection, we will have to live with frequent disruptive events (pandemics, cyberattacks, natural disasters) that disrupt the production and logistical processes of supplies significantly. The logistics ecosystem must be transformed and adopt strategies that allow a flexible and resilient response to these events.

In recent decades there has been a process of market concentration, both horizontal (between shipping companies, terminalists and logistics operators) and vertical (for example, at the maritime level shipping companies exercising, at the same time, a stevedore company and logistics operator) that will maintain and grow in the future and that will distort the sectoral balance of forces. It is necessary to see if new actors from outside the traditional logistics system (e-commerce companies, for example Amazon) will be able to penetrate this ecosystem and diversify the supply of logistics operators. Table 5 describes each of the trends.

Table 5. Logistics and Supply Chains trends.

Trends	Description	Expected situation in 2030	General impacts in TTO
1. Digitalization of value chains	It is expected that the amount of data processed to improve planning, control and operations will increase through investments in new technology, enabling real-time exchange of vast amounts of data ²¹	20% cost reduction of 'generalized supply chain costs' in international supply chains compared to 2018	Need to deploy a digital infrastructure for ports and maritime services in TTO
2. Growth of e-commerce	Internationally, online sales are expected to increase by 15% to 20% annually, driven by new developments such as the automatic replenishment of household products, business models that encourage frequent online shopping, and advances in distribution networks that allow faster delivery ²²²³	30% of consumer products are purchased online, up from 5% in 2020	Increase in goods consumption requiring higher responsiveness Impact on operations and infrastructure (fulfilment centers, warehouses)
3. Additive manufacturing (3D printing)	3D printers will be smaller, faster and cheaper and will use a wider range of materials, such as plastic, aluminium, stainless steel, ceramic or even advanced alloys, and will begin replacing factory operations ²⁴	20% of total manufacturing in US is done with 3D printing up from current <1%	Lower trade of finished goods Increase of raw materials trade Recycling of materials for 3D printing manufacturing
4. Introduction of autonomous road and maritime transport	Driverless transportation is expected to transform mobility in cities, ports and also the current supply chains. Even though vessels are highly automated today, some new systems and regulations are necessary to enable unmanned and autonomous ships	First pilots with autonomous trucks in TTO ports First pilots with autonomous vessels in TTO waters (i.e. bunkering operations)	Change of competitive position between different ports in the Caribbean. Port Infrastructures (berths, equipments, etc.) becomes a commodity and ITC solutions for autonomous vehicles is a must
5. More supply chain disruptions	Increase in the number of disruptive events impacting in port activity in European ports	Increase volatility of cargo flows at Caribbean ports	Necessity of resilience and flexibility in port infrastructure and supply chain players Good geographical position of TTO to avoid Hurricanes

²¹ "Emerging trends defining the Ports of the Future: case study of future scenarios of the Port of Barcelona in 2040". Authors: Javier Garrido, Sergi Saurí, Esther Raventós, Carles Rúa, Jordi Torrent

²² Eurostat (2020). Data E-commerce. Accessed July 1 2020: <https://appsso.eurostat.ec.europa.eu>

²³ <https://www.oecd.org/coronavirus/policy-responses/e-commerce-in-the-time-of-covid-19-3a2b78e8/>

²⁴ The National Development Strategy of Trinidad and Tobago 2016-2030 <https://www.planning.gov.tt/sites/default/files/Vision%202030-%20The%20National%20Development%20Strategy%20of%20Trinidad%20and%20Tobago%202016-2030.pdf>

Maritime and ports

The future of the sector is also highly conditioned by two factors of uncertain evolution. The first, already mentioned in the previous point, is the possible intensification of the level of concentration in the sector, especially among shipowners. Currently, the maritime sector is concentrated in three major alliances and in the terminal sector four large groups (Hutchison, APMT, PSA and Dubai Ports) concentrate on the management of the main global port terminals. It is also possible, however, that in the coming years new, smaller and more dynamic actors will be able to enter the sector by competing with traditional players.

The second is the uncertain evolution of the maximum size and scale of ships in large intercontinental seaports. An evolution in container ships, cruise ships, *car carriers*, ferries, etc. is foreseen in terms of greater dimensions. This will have a knock-on effect in which the average ship size of the small or medium ports will increase. However, it is difficult to forecast today what the increase in the maximum dimensions of ships of the main cargo segments will be.

The following tables describe in more detail the specific trends identified in each area, define the expected state of affairs in 2030 and show their main impacts on Trinidad and Tobago maritime and port ecosystem. Table 6 describes each of the trends.

Table 6. Maritime and Ports trends

Trends	Description	Expected situation in 2030	General impacts in TTO
1. Increase in ship size	Increase of container, bulk and cruise ships deployed in global trade routes. This will in turn affect smaller ports. ²⁵	Largest container vessel: 30,000 TEU, up from current 23,756 TEU ²⁶ Average size of oil tanker: 80,000 DWT, up from current 54,000 DWT Largest cruise ship with capacity for 9,000 passengers, up from current 5,500 ²⁷	Increase of average ship size calls in TTO (Length : 300m; Draught : 12-15m, Beam : 50m) Traffic concentration at peak times Impact on infrastructure and equipment Higher peaks of passengers
2. Concentration and cooperation of shipping lines	Global alliances have become a dominant feature of the container shipping market. The strong position of the three alliances is threatening the other stakeholders in the market, for example, the ports. ²⁸	6 global shipping lines accounting for 80% market share, down from current 8 companies	Tariff increase Increase in vessel size, reduction in number of calls Strategic alliances with shipping companies

²⁵ https://www.itf-oecd.org/sites/default/files/docs/15cspa_mega-ships.pdf

²⁶ Garrido J, Sauri S, Marrero Á, Gül Ü, Rúa C. Predicting the Future Capacity and Dimensions of Container Ships. Transportation Research Record. 2020;2674(9):177-190.
doi:10.1177/0361198120927395

²⁷ Ros, Sauri et al. Economies of scale in Cruise Shipping. <https://link.springer.com/article/10.1057/s41278-020-00158-3>

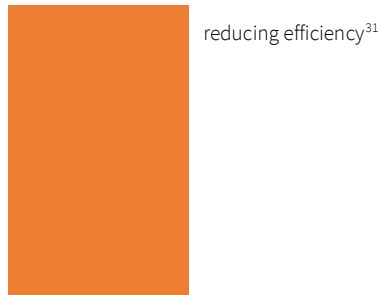
²⁸ <https://piernext.portdebarcelona.cat/en/governance/power-of-alliances-how-can-ports-deal-with-risks/>

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3.Changing in maritime networks due to new trade routes²⁹	<p>Maritime navigation through the Arctic is becoming feasible due to climate change.</p> <p>With the explosion of the African emerging countries, the route of the Cape of Good Hope will increase in use.</p>	<p>5-10% of maritime trade of the Panama Canal goes through the Arctic</p>	<p>Decrease of certain trade in Panama Canal and Caribbean Region (TS). Loss of transshipment in TTO ports.</p> <p>Possible new maritime networks and line stops from routes of the Cape of Good Hope</p>
4. Automation of terminals	<p>Despite the fact that only 3% of container terminals are currently automated, ports are speeding up the automation process. This presents important advantages but also has some drawbacks that can make the speed of implementation vary depending on each port's characteristics.³⁰</p>	<p>3 semi or fully automated terminals in Central America's ports. Currently only a semi-automated terminal in Panama.</p>	<p>Certain changes in maritime trade flows Competitive disadvantage with other automated ports in Central America</p>
5. Increase in containerization	<p>There is a trend related to the growing use of containers in seaborne trade, when compared to other non-unitized modalities of transportation such as bulk, in big bags or as break bulk. Today, containers account for 24% of the total seaborne trade (in tons).</p>	<p>Containerized cargo participation 28% up from current 24%</p>	<p>Increase in container traffic Limited growth in breakbulk, bulk and liquid</p>
6. Increase in stakeholder pressure on ports and maritime activity	<p>The first two ECAs in the Baltic and North Seas set limits on sulphur emissions only (Sulphur ECAs or SECAs), whereas the North American and US Caribbean Sea ECAs cover sulphur, nitrogen and particulate matter emissions (4)</p>	<p>Investments in mitigation above what is legally required double in 2030 compared to 2019</p>	<p>Impact on infrastructure and equipment Adaptation of ports and maritime activity to new environmental measures (ECA or SECAs)</p>
7. Increase Port City relationships	<p>Ports and cities are historically closely linked, but the link between port and city growth has become weaker. Economic benefits often spill over to other regions, whereas negative impacts are localised in the port-city.</p>	<p>Investments in Port City Waterfront New activities in Ports related to the city (urban logistics, logistic added value services, etc.)</p>	<p>Impact on port infrastructure and related industrial activities with synergy between the citizens and the port activity</p>
8. Digital quotation and booking of containers	<p>Digital quotation and online bookings refer to the systems that allow shippers to check different prices for the transportation of their cargo on-line, being able to compare and choose automatically and digitally. As opposed to the majority of industries, maritime business continues to rely on manual processes, increasing costs and</p>	<p>Share of online booking for shipping reaches 40% up from current 5-10%</p>	<p>Increase in global trade due to cost reduction Competitive advantage for ports and liners offering the service</p>

²⁹ N Melia, K Haines, E Hawkins, J. Day. (2017). Towards seasonal Arctic shipping route predictions. Environmental Research Letters, Vol.12, n.8.

³⁰ <https://piernext.portdebarcelona.cat/en/technology/the-past-the-present-and-especially-the-future-of-automation-in-container-terminals/>



reducing efficiency³¹

Qualitative impacts of the trends in Trinidad and Tobago in the mid-term (2030)

The expected qualitative impact for each of the trends is presented in Figure 20. The expected positive impacts in TTO in the medium-long term are noted in green, while negative impacts are noted in red. The impacts are scaled from -3 (very negative) to +3 (very positive).

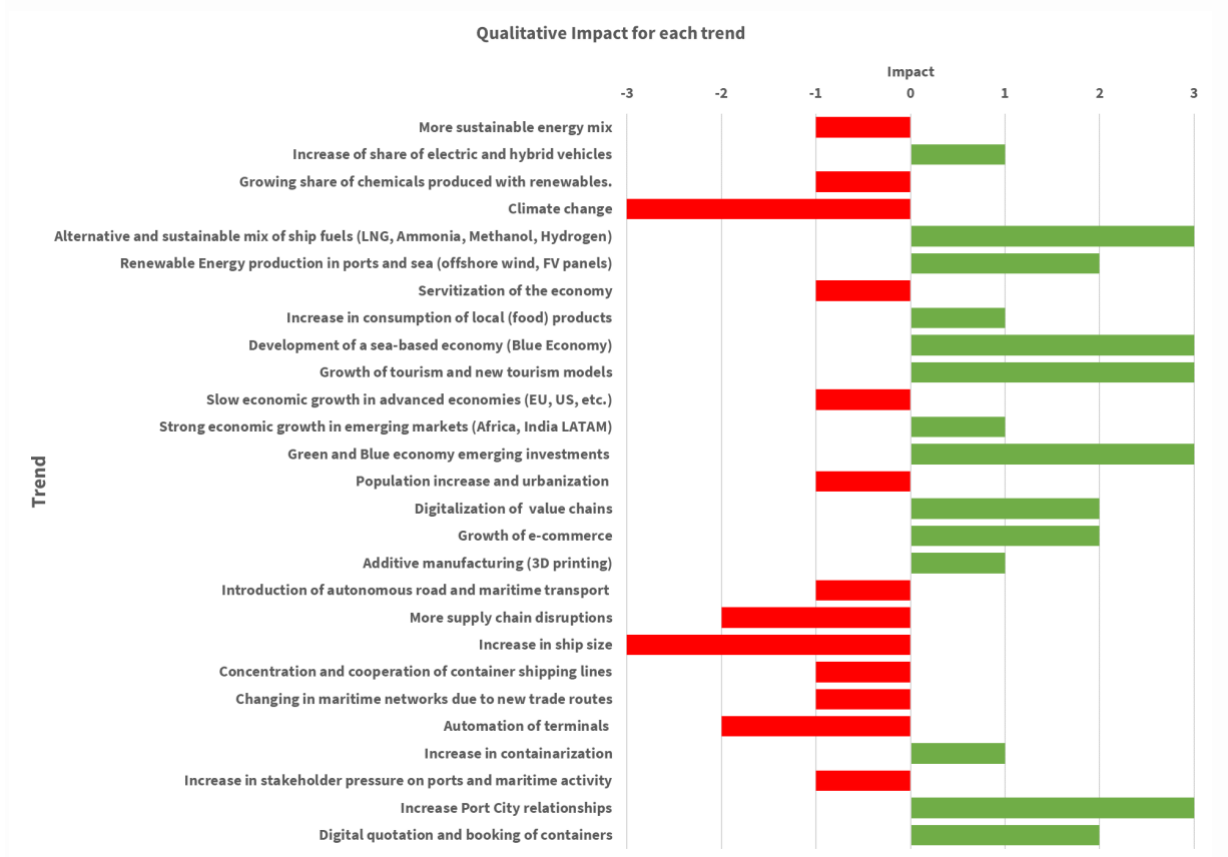


Figure 20. Qualitative impacts of trends in Trinidad and Tobago in the mid-term.

Conclusions on the trends and Vision 2030

Based on the trends identified previously for each sector, the main conclusions that we can draw to define a Vision 2030 for TTO are:

³¹ <https://piernext.portdebarcelona.cat/en/logistics/electronic-documentation-in-transport-a-reality-soon-to-take-full-effect/>

- A need to **diversify an economy highly dependent on fossil fuels**. The global awareness for climate change will reduce significantly the global oil demand (transport and industry sector)
- The **Blue Economy** sector offers a high potential for TTO. The global increase in tourism and leisure activities can benefit an **ecotourism** economy in TTO. **Underwater cultural heritage** could be an interesting sector to promote.
- Other sectors with high potential for TTO population are **aquaculture and mariculture**.
- Increasing demand from the shipping sector offers an opportunity to develop a **regional Hub for bunkering, especially sustainable alternative fuels such as LNG, Ammonia or Hydrogen**.
- Port and maritime sectors can promote the **renewable energy economy** (wind farms, photovoltaic panels, etc.).
- **Digitalization** is a key driver to improve efficiency of ports operations and maritime transport logistics. It is also critical to the full operability of the SEW and reduction in ‘excessive bureaucracy’ affecting doing business among all value chains.
- Port operations are also affected by the **increase in vessel size** and **automation** of terminals.
- **Yachting and marina services** have good prospects and can bring relevant economic benefits to TTO.
- A specific group of **trends negatively impact the international container trade**, while ‘emerging markets’, ‘further containerization’, ‘growth in e-commerce’ & ‘digitalization of chains’ will compensate for this effect.
- **Cruise activity is an emerging sector** in the Caribbean and in TTO, there is a need for the **improvement of port facilities** and services to develop sustainable growth of the industry. Among its economic benefits, the Cruise Sector provides **employment opportunities** for tourism stakeholders (i.e. cruise shipping agents, tour operators, tour guides, taxi drivers, craftsmen and interpreters, to name a few). It is also considered that this sector **can have negative externalities** for other sectors, therefore, it is vital that Cruise is effectively managed and controlled in an environmentally sustainable way.

2.4 Trinidad and Tobago challenges, SWOT and PESTLE analysis

Economy Diversification

Trinidad and Tobago’s economy is highly dependent on oil and gas, a situation that has been accentuated by competition from neighbouring findings of oil wells (Guyana). Its extensive Exclusive Economic Zone (EEZ), in relation to its land area, and T&T’s natural resources diversity must be sustainably exploited by other sectors. Diversifying the T & T economy through sea-based industries in line with the Green Economy concept makes The Blue Economy a suitable path for T&T to follow that could secure the resilience of the country.

Small Island Developing States (SIDS) are in a more vulnerable position from the effects of climate change. Therefore, addressing climate change and its sustainable development must remain a priority for those to ensure the future of its economy and society. A more diversified economy would result in a more resilient country in terms of the effects of climate change and the dependence on international oil prices.

Environmental protection, sustainability, resilience and carbon neutrality

Inaction against climate change will have serious and lasting effects in the Caribbean region. SIDS, while contributing less than 1% of global greenhouse gas (GHG) emissions, are most affected by the impacts of a changing climate on their future development in comparison to their global counterparts (sea level rise, coral bleaching, frequent natural disasters, draughts, biodiversity loss, carbon capture loss, etc.). Estimated annual losses of US\$ 22 billion by 2050 and US\$ 46 billion by 2100 have been predicted by the Global Development Institute and will likely be driven by impacts to infrastructure and productive sectors such as tourism, fisheries, and agriculture³² (other estimates raise it to 5% of its GDP in the next decade³³). Moreover, SIDS are particularly vulnerable to natural disasters since an event can geographically affect the whole nation at once.

The SAMOA Pathway encourages SIDS to conserve at least 10 percent of coastal and marine areas by 2020. Well-managed Marine Protected Areas are a core element of ocean and coastal zone management and underpin the continued health and viability of the Caribbean's vulnerable marine ecosystems. In that regard, the ICZM and National Protected Areas Strategy should go along with the future maritime policy.

Ocean pollution is also related to the future value of ocean assets. It was estimated that in 2010, 0.16–0.42 mn metric tons of plastic entered the Caribbean Sea³⁴ and 85% of wastewater was untreated³⁵. This includes toxic pollution from marine debris, untreated sewage, and agricultural run-off which puts a heavy strain on the health of marine life and the general public. Large plastic particles can injure and kill fish and other marine life by way of ingestion, suffocation, infection, and entanglement, and lastly ingestion of microplastics.

Food Security

Food security is an imperative partly because of the need to ensure that the country is able to produce most of the food it consumes itself through sustainable agriculture and fisheries or can obtain from neighbouring territories, and partly because of the prevalence of predatory pricing and consumption of dumped, harmful or substandard products. New opportunities for securing food are needed, in line with the trend of developed countries to opt for proximity food production to curb GHG-related emissions.

The Blue Economy

The Blue Economy refers to the range of economic sectors and related policies that together determine whether the use of oceanic resources is sustainable. The concept seeks to **promote economic growth, social inclusion, and the preservation or improvement of livelihoods** while at the same time **ensuring environmental sustainability of the ocean and coastal areas**. Essentially, developing a Blue Economy is about sustainable use of the ocean resources³⁶.

³² UN-OHRLLS. (2017). *Small Island Developing States in Numbers-Updated Climate Change Edition 2017*. Available at: https://unohrlls.org/custom-content/uploads/2017/09/SIDS-In-Numbers_Updated-Climate-Change-Edition-2017.pdf.

³³ Caribbean Marine Climate Change Report Card 2017. (2017). Commonwealth Marine Economies Programme.

³⁴ Jambeck, J. R. et al "Plastic Waste Inputs from Land into the Ocean." *Science* 347 (6223). 2015.

³⁵ Regional Sectoral Overview of Wastewater Management in the Wider Caribbean Region. United Nations Environment Programme-Caribbean Environment Programme, 2010.

³⁶ Mahadeo, S. et al. (2021). A Sustainable Blue Economy. Trinidad and Tobago. UNESCO.

The Tobago House of Assembly in its report on the First Conference on the Sustainable Blue Economy in Nairobi, Kenya, in 2018, noted this to be a good option in allowing the country to meet its agreements on the reduction of carbon emissions as well as protecting ecosystems and continuing to support local communities³⁷.

A **key challenge** for some Caribbean SIDS relates to their **eligibility for aid and concessional loans** from some bilateral and multilateral development partners³⁸. For example, Barbados and Trinidad and Tobago are ineligible for ODA, due to their high income and high ranking in UN's Human Development Index (HDI).

However, significant commitments continue to be made to Climate Finance, including for activities directly related to the Green and Blue Economy, which aim to increase the ability of Low Income Countries to access funds for the implementation of activities to build and diversify their economies while protecting the natural environment. **Trinidad and Tobago is eligible** to receive funding through a number of these funding mechanisms including the [Green Climate Fund](#) (GCF), the [Global Environment Facility](#) (GEF), and [ProBlue](#).

Trinidad and Tobago has already engaged with the **GCF**, through its Ministry of Planning and Development, and has received readiness funds to build the capacity of the country to access this fund to support activities related to environmental resource management. This is a potential source of funds to help implement activities related to the National Maritime Policy and Strategy.

Trinidad and Tobago has also been engaged with the **GEF** for many years, and most recently received funds to implement a project entitled Strengthening Trinidad and Tobago's capacity in transparency for climate change mitigation and adaptation. As additional funds are made available specifically for Blue Economy plans and activities, it is also a potential source of funding for activities under the National Maritime Policy.

Additionally, **ProBlue**, which is an initiative of the World Bank, also offers access to funds based on four primary pillars: (1) improved fisheries governance; (2) Marine Litter and Pollution Management; (3) blueing oceanic sectors; and (4) integrated seascape management, providing additional opportunities.

The Government of Trinidad and Tobago's [Vision 2030 Strategy](#) also references the establishment of a green infrastructure fund (**GIF**) to support the country's investment in public transport, research infrastructure, green infrastructure including solar, water and wastewater facilities, climate resilient infrastructure, and social infrastructure such as affordable (greener) housing. The creation of such a fund could also support Blue Economy initiatives in the country related to maritime policy.

According to the Caribbean Development Bank (2018) **new sources of financing have emerged** or become more important, such as South-South Cooperation, international climate funds and impact investors. In parallel, a much richer and more sophisticated range of financial instruments and tools is being deployed in support of development: from blended finance arrangements to green bonds, social and development impact bonds, debt-for-nature swaps, and state contingent debt instruments.

In view of the above, the ecosystem industry taxonomy identified in the gap analysis can be fit with The Blue Economy sectors as shown in Figure 21. These ecosystems will become the core elements, encompassing all marine-related sectors, of the development of the strategy.

³⁷ Robin, H; Ramsey, A; Duncan, C; Hazel, C (2018) First Sustainable Blue Economy Conference, Nairobi, Kenya, November 26th – 28th 2018 Report. Tobago House of Assembly, Scarborough.

³⁸ Caribbean Development Bank. (2018). Financing the Blue Economy. A Caribbean Development Opportunity.

Development of a National Maritime Policy and Strategy

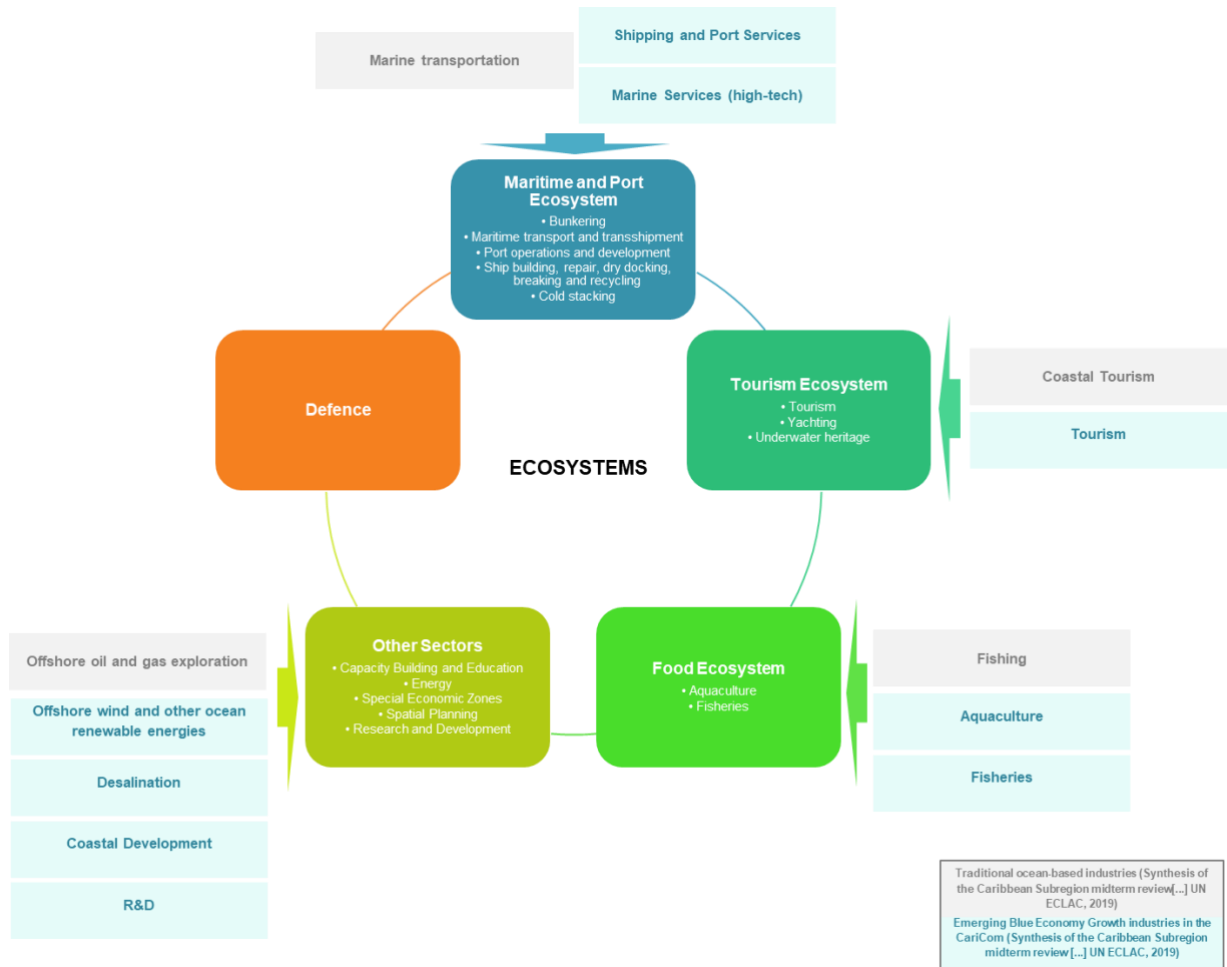


Figure 21. Identified ecosystems and their relation to traditional and blue economy classification.

2.4.1 Global SWOT (2021-2030)

Based on the gap analysis and the challenges and trends already indicated in the previous sections, a SWOT analysis has been carried out. The elements in each quadrant are grouped according to these being the country's instruments, resources, sectors or sectors based on natural resources. The following table contains the SWOT matrix (Table 7).

Table 7. Global SWOT matrix.

	Internal origin	External origin
	Strengths	Opportunities
Strong points	<p>Instrumental</p> <ul style="list-style-type: none"> • T&T is a signatory of several relevant international conventions. • Large sovereign wealth fund (25% of GDP) and currency reserves. • Lead country in the Caribbean Community (CARICOM) in terms of largest economy and regional trade³⁹. • Well-trained English-speaking workforce. • Single Electronic Window initiative. <p>Resources</p> <ul style="list-style-type: none"> • TT sea based resources rich in biodiversity, and oil and gas. • World's eighth-largest producer of liquefied natural gas. • Extensive Exclusive Economic Zone (74,199 sq km). <p>Positioning</p> <ul style="list-style-type: none"> • Gulf of Paria natural shelter for bunkering, coldstacking, transshipment and ship-to-ship transfers. • Geographic strategic position: TT is outside of the hurricane belt; at the meeting points of shipping lanes provides natural geographic advantage; proximity to the Panama canal. • Port of Spain is the financial capital of the Caribbean. <p>Sectoral</p> <ul style="list-style-type: none"> • Existing petrochemical industry (global exporter of methanol and Green Ammonia). <p>Sectoral based on natural resources</p> <ul style="list-style-type: none"> • Strong winds all year around for developing off-shore renewable energy sector (wind turbines). 	<p>Instrumental</p> <ul style="list-style-type: none"> • Several draft policies or strategies (The New Shipping Bill, Fisheries Management Bill, ICZM, Protected Areas, National Transport Strategy, National Energy Policy Green Paper...) create the conditions for developing the maritime sector. • Deploying a strong Maritime Authority (accounted for in the New Shipping Bill) for a comprehensive development of the whole marine sector. • Collaboration procedures and information sharing between agencies. • Improvement of Single Electronic Window implementation, full deployment and exploitation of all capabilities to increase efficiency in all depending procedures. • Increase private participation and investment (PPP initiatives). • Collaboration with all stakeholders (inclusive of coastal communities dependent on sea resources) for marine spatial planning. • Marine Spatial Planning. Habitat protection and restoration and blue carbon habitats protection (e.g. mangroves). • Building trust with all stakeholders for their engagement in the definition and deployment of initiatives. Walk towards a sustainable fishing sector. <p>Sectoral</p> <ul style="list-style-type: none"> • Potential of Tourism, specifically ecotourism, which offers a differential product to other CARIBBEAN states. • Ship repair and maintenance sector, non-commercial ship building. <p>Sectoral based on natural resources</p> <ul style="list-style-type: none"> • Aquaculture as an alternative to traditional fishing. • Exploit the environmental and societal aspects of the Blue Economy concept. Develop new business opportunities from other sides of sea resources. • Renewable offshore energies. • Alternative fossil fuels for bunkering (becoming a hub for LNG).

³⁹ Braithwaite, S. (2020). CARICOM Report. Progress and Challenges of the integration agenda. Inter-American Development Bank. TECHNICAL NOTE N. IDB-TN-2076

		<ul style="list-style-type: none"> • Extending fisheries value chain both upstream (e.g. vessel support services) and downstream (e.g. processing of whole fish into higher value products).
	Weaknesses	Threats
Weak points	Instrumental <ul style="list-style-type: none"> • Lack of training in several administrative issues. Need capacity building in terms of the maritime sector, stakeholder engagement, policy development. • Ineffective public initiatives. Uncoordinated agencies. • Local companies struggle to access financing. Inadequate financial sector supervision. • Lengthy administrative procedures and customs. Need quick implementation of digitalization throughout all administrations and stakeholders. • Lack of data of the state of the sea (in terms of marine biodiversity, fish quotas, climate change impact...) necessary for marine spatial planning, decision making and development of the maritime sector. A lack of a centralized system or database for climate change related data. • Uncoordinated research development, no long-term data collection plan. • Inadequate technology or institutional capacity to collect, interpret or analyse information from sector agencies. • Lack of public awareness and education strategies. Resources <ul style="list-style-type: none"> • The fisheries sector is not valued in terms of its economic contribution to GDP as well as contribution to food security and livelihoods of coastal communities. • High dependence on international donors as the main source of climate finance. Sectoral <ul style="list-style-type: none"> • Small economy that is reliant on oil and gas and dependent on oil prices subject to fluctuations. • Underdeveloped non-energy sector (including agriculture and tourism). • Projected decline in energy resources. • Data gaps in fish population and biodiversity. • IUU fishing. • Weak monitoring, control, surveillance and enforcement in the fisheries sub-sector. • Many cold stacked or abandoned vessels in the Gulf of Paria. 	Instrumental <ul style="list-style-type: none"> • Delays in servicing can be a deterrent for visiting vessels. • Regulation and enforcement of vessel pollution. • Marine spatial planning needed (Protected Areas plan). No Particularly Sensitive Sea Area (PSSA) by IMO. Sectoral <ul style="list-style-type: none"> • Current oil and gas reserves and dependence might deter private companies from shifting their economic activities to renewable energies. Environmental <ul style="list-style-type: none"> • Ecosystem degradation due to several economic activities. • Decline in biodiversity of marine organisms, in particular fish species as a consequence of fishing down the food web. • Small Islands Development States (SIDS) vulnerability to climate change. • Latent threat of oil and gas spills. • Invasive Alien Species. Sargassum mat (invasive species). Need to correct this issue (e.g. find value to sargassum as a new business line). Other IAS such as lionfish or brittle star, that imbalance the original ecosystem. Invasive alien species are also spread through ships ballast water as well as ships hulls or biofouling. • Environmental impacts of hull antifouling paints.

	<ul style="list-style-type: none"> • Lack of and slow connectivity that undermine the growth of businesses dependent on imports and exports. • Lack of foreign exchange. • Volatile freight rate situation. <p>Sectoral based on natural resources</p> <ul style="list-style-type: none"> • The fisheries sector is affected by poor facilities, theft and lack of insurance, threat of piracy, conflicting sectoral uses in the marine space, most notably the oil and gas and shipping industries, disturbance of spawning and fishing ground with seismic exploration, pollution impact, habitat destruction and overfishing. • Lack of experience, national or regional, in offshore renewable energies. 	
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Impacts of trends on the SWOT

The following SWOT shows the expected impact of the trends of section 2.4 in the SWOT of TTO defined in the previous section. In green we have highlighted the positive impacts of a trend (for instance, the trends that reinforce the opportunities), while in red the negative ones (such as the trends that accentuate the weaknesses).

Strong points	Internal origin	External origin
	Strengths	Opportunities
	<ul style="list-style-type: none"> • Digitalization is a key driver to improve efficiency of ports and maritime transport logistics. Port operations and infrastructure are affected by digitalization of value chains. → SEW must keep up with this trend. • Increasing demand for the shipping sector offers an opportunity to develop a regional hub for bunkering → It strengthens T&T as a sub-regional transshipment hub and opens up an opportunity for becoming a regional transshipment hub. • LNG, Ammonia and Hydrogen are the fuels of the future → Strengthening of T&T's position as producer of liquefied natural gas. • Climate change will increase disruptive environmental episodes → TTO can take advantage of their favourable geographical location. Gulf of Paria natural shelter for bunkering, coldstacking, and transshipment and ship-to-ship 	<ul style="list-style-type: none"> • The Blue Economy sector offers a high potential for TTO → It generates an opportunity for the diversification and resilience of the T & T economy. • Port and maritime sectors can promote the renewable energy economy (wind farms, photovoltaic, etc.) → opportunity to develop new energetic business models not dependent on fossil fuels. • Local for local (food) → opportunity for promoting aquaculture. • A group of trends impacts positively in the maritime trade 'further containerization', 'growth in e-commerce' & 'digitalization of chains' → Need to catch up with these trends in TTO. • Yachting and marinas → It generates an opportunity for T&T to catch up with related trends or it will have an adverse effect on its weaknesses (lack of efficiency and competitiveness in some processes).

	transfers. TTO is outside of the hurricane belt, at the meeting points of shipping lanes.	<ul style="list-style-type: none"> • Good perspectives for cruise and nautical sectors → Opportunity for TTO to develop economic activities (ecotourism, yachting building and repair, etc.). • Blue economy investments → Take advantage of international investments to develop this sustainable economy in TTO.
Weak points	Weaknesses	Threats
	<ul style="list-style-type: none"> • Digitalization is a key driver to improve efficiency of port and maritime transport logistics. Port operations and infrastructure are affected by digitalization of value chains. → Reduces current bureaucratic inefficiencies. • Port operations are also affected by the increase in vessel size and automation of terminals. → This poses a threat to T&T if ports are not adapted to berth bigger vessels. • Automation of terminals and new ways of autonomous transport → TTO should start adopting new technologies related to automation (vehicles, port equipment, etc.) to improve its regional competitiveness in the long term. 	<ul style="list-style-type: none"> • The global awareness for climate change will significantly reduce the global oil demand (transport and industry sector) → significant threat for economic sector in T&T and for the SIDS. • The global awareness for climate change will significantly reduce the global oil demand (transport and industry sector) → Opportunity for alternative fossil fuels • Local for local (food) in developed economies → threat for T&T exports. • A group of trends (servitization, miniaturization, 3D printing, electric vehicles, etc.) negatively impacts international container trade. • Harmful environmental effects of uncontrolled maritime activity (bunkering, cruise sector, etc.) → Necessity to guarantee the development of a sustainable Blue based Economy. • Increasing pressure of society on port and maritime activities. → Difficulties for ports and maritime stakeholders to develop their activities.

In the gap report several economic ecosystems were identified. The following subsections describe more in-depth the SWOT analysis for key grouped sectors following the classification already indicated in the gap analysis section.

2.4.2 Maritime and Port Ecosystem

	Internal origin	External origin
Strong points	Strengths	Opportunities
	<ul style="list-style-type: none"> Relatively calm waters in the Gulf of Paria for ship-to-ship operations. Single Electronic Window initiative. Established ship repair sector. New Shipping Bill. Point Lisas large industrial state with ammonia, methanol, etc. plants. Point Fortin large LNG plant. Conditions for strong cold stacking sector. Trinidad and Tobago is in the top three countries in terms of connectivity in CARICOM after Bahamas and Jamaica. It is currently a sub-regional hub. PCS (Port Communication System) in place about to start. 	<ul style="list-style-type: none"> Become a regional hub in terms of transshipment, bunkering services, port logistics hub Exploit LNG supply capabilities. Supply LPG at ports for newer vessels. Promote contracting local seafarers. Improve the attractiveness of T&T to shipping companies. Improve port facilities for taking larger cruise and container ships. Implement Special Economic Zones to attract local / FDI businesses. Explore PPP opportunities for port management. Potential growth for maintenance and repair of a wide range of ship sizes (especially small and medium)
Weak points	Weaknesses	Threats
	<ul style="list-style-type: none"> Irregular oil spills, possibly linked to uncharted underwater pipelines. Ship pollution, waste management, ship in port environment issues; Slow implementation of Single Electronic Window. Congestion problems with truck operations at ports. Regular dredging needed for channels and port for bigger ships, expensive; Low port productivity, slow processing, moving, outdated equipment and uncompetitive labour; Unable to service larger vessels due to size of infrastructure; Lack of knowledge of the ship building sector from the public sector side. Very slow customs procedures that hamper competitiveness. Lack of adequate port infrastructure. New Panamax containerships that cannot be berthed are undermining the role of Ports in Trinidad and Tobago as a transshipment hub. Lack of national development plan. 	<ul style="list-style-type: none"> Cold stacking potential environmental impacts. Busy marine space. Foreign investment would not take an interest in Ports with outdated equipment. Trinidad and Tobago competes seasonally with Aruba in terms of transshipment (fuel and bulk cargo). Ease to do businesses hurdle for transshipment. Security and maritime piracy.

Everything relating to the maritime ecosystem has to physically pass through ports. The competitiveness of T&T ports is therefore a key element for all prospects of trade and transshipment, etc. and is high priority. According to the UNESCO report on the Blue Economy, transformational work is being done at the Port Authority of Port of Spain to adopt a new business model. The State is seeking to enter into Public-Private Partnerships (PPPs) with international companies, shipping lines and local companies for port management. Investment, digitalisation, and automation of port operations will contribute to increasing the sector's efficiency and relevancy.

2.4.3 Yachting and Tourism

	Internal origin	External origin
Strong points	Strengths	Opportunities
	<ul style="list-style-type: none"> ● Favourable climatological conditions, under the hurricane belt; ● Natural beauty. ● Track record of hosting international regattas, game fishing tournaments. ● Several ecotourism destinations UNESCO Man and the Biosphere designation in North-East Tobago, Blue Flag status beaches, Caroni Bird Sanctuary, Turtle Village Trust, Paria Springs eco-community etc.; ● Chaguaramas cluster has positioned itself as the premier yacht repair hub in the Southern Caribbean. ● Many underwater cultural heritage sites. ● Protected Areas. 	<ul style="list-style-type: none"> ● Boosting local tourism (between Trinidad and Tobago) and regional tourism (between Caribbean islands). ● Boat racing, Yacht regattas, fishing tournaments; ● Develop UNESCO Underwater Cultural Heritage sites for Dive tourism. ● Other ecotourism activities (nature photography, Caroni Bird Sanctuary, Blue Flag beaches, UNESCO Man and the Biosphere designation in north-east Tobago...; UNESCO, 2020). ● Leverage growth in Cruise tourism. ● CARICOM level tourism policy as it is regarded as the most tourism-dependent region worldwide. ● Ecotourism can change wealth distribution in favour of rural communities. ● Funding sources for climate investment projects.
Weak points	Weaknesses	Threats
	<ul style="list-style-type: none"> ● Inadequate port facilities for berthing multiple cruise and ferry vessels on the same day; also larger new cruise ships. ● Extensive bureaucracy and documentation for yachts. ● Sun, sea and sand is not a distinguishing tourism product as compared with other Caribbean islands that pose strong competition. ● No marina service in Tobago. ● Use of antifouling paints, improve yacht waste reception facilities. ● Lack of eco-tourism policy and strategy resulted in: <ul style="list-style-type: none"> -no conservation, unprotected natural/cultural heritage resource; - very little financial allocations ● Lack of eco-tourism knowledge/training 	<ul style="list-style-type: none"> ● SIDS vulnerable to destructive events either natural and man-made (storm surge, sea level rise, coastal erosion, coral bleaching) and invasive alien species that affect the attractiveness and sustainability of T&T. ● Climate vulnerability to coastal communities. ● Increased tourism can lead to environmental degradation of coasts. ● Hard and soft coral decline. ● Mass tourism by cruises has negative effects: emissions at port, high social and environmental impact in a short period of time (large number of visitors in one cruise). ● Environmental impacts of the yachting sector (sewage and biofouling).

	<ul style="list-style-type: none"> • Lack of incentives to support the maritime sector • Lack of tourism development in marine and coastal tourism. 	<ul style="list-style-type: none"> • The removal of seagrass is being considered from the Nylon pool to facilitate more tour boat operators using the area. (UNESCO)
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2.4.4 Fisheries

	Internal origin	External origin
Strong points	Strengths	Opportunities
	<ul style="list-style-type: none"> • The New Fisheries Management Bill • Coastal communities based on artisanal fishing. • T&T is a signatory of several international conventions on illegal fishing. • Signatory to international conventions concerning the conservation and management of fisheries resources, port State control measures to combat IUU fishing; marine biodiversity, flag State control over TFO fishing vessels, convention regulating trade in endangered species of wild fauna and flora, among others. 	<ul style="list-style-type: none"> • Aquaculture, particularly mariculture, as an alternative for many local fishermen and securing food supply. • Shift from commercial to recreational fishing (catch and release) as a source of livelihood linked to tourism. • Creating value added products. Extending fisheries value chain both upstream (e.g. vessel support services) and downstream (e.g. processing of whole fish into higher value products). Building trust with local fishers to walk towards a sustainable fishing sector. • Creating value with new business opportunities with current IAS (sargassum mats at the coast). • Increased exploitation of large pelagic fisheries resources on the high sea.
Weak points	Weaknesses	Threats
	<ul style="list-style-type: none"> • Vessels flagged to regional and extra-regional States engaging in IUU fishing, and other illegal fisheries activity, in the ports and waters of TFO. • Illegal fishing and threat to fish stocks and livelihoods. • Environmental issues with pollution affecting the sector. • Ghost fishing needs to be tackled. • Need for more fishing training and other sustainable techniques. • Lack of data on fish stock and biodiversity. • Many commercially exploited fish species or stocks within the region have been overfished or over-to-fully fished⁴⁰. • Need for improved fishing facilities and for increased support at landing sites to improve sanitary and phytosanitary standards to comply with foreign markets. • Weak fisheries monitoring, control, and surveillance capacities to control activities of national-flag vessels in the EEZ and on the high seas and to implement inspection and traceability systems to control landings and 	<ul style="list-style-type: none"> • Invasive Alien Species (lion fish, brittle star, sargassum mat...) • Ghost fishing, by-catch (e.g. Shrimp Trawling), overfishing... has negative environmental impact. • Further and longer fishing expeditions for artisanal fishers. • Illegal fishing is not monitored • Potential loss of existing export markets and access to fisheries resources on the High Seas if IUU fishing is not addressed traceability systems are not implemented and catches of endangered, threatened and protected species in fisheries are not managed. • Blacklisting of TFO at other ports/by other states • Lack of up-to-date listing of fishing craft.

⁴⁰ <http://www.fao.org/fishery/facp/TFO/en>

	<p>transshipment of foreign vessels in the country's ports</p> <ul style="list-style-type: none"> • Inadequate institutional structure, management systems and resources for fisheries conservation and management. • Uncertainties regarding the ecological and socio-economic impacts of climate change on fisheries. Consequently, fisheries management planning is limited in this respect. 	
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2.4.5 Defence

	Internal origin	External origin
Strong points	Strengths	Opportunities
	<ul style="list-style-type: none"> • 360 Radar monitoring system in place operated by the Coast Guard. • The mandatory IMO conventions of SOLAS, STCW, LOADLINE, Tonnage, COLREG and MARPOL have been accepted by T&T, yet not implemented. 	<ul style="list-style-type: none"> • Having a new shipping act promulgated for Port State Control Inspections by officers under the Maritime Authority to implement and enforce IMO Conventions. • Protection of the underwater cultural heritage. • Implementation of VTMS as an additional layer of information to the current 360° radar system. • Promulgate vessel registration under the new Shipping Bill.
Weak points	Weaknesses	Threats
	<ul style="list-style-type: none"> • Customs reforms are necessary. There are delays for downstream activities. • Need registration system for local and international vessels. • Training to modernize customs and SEW. • Lack of capacity to enforce international conventions. • Need to monitor the vessels. • No legislation for no-wake zone and rental of pleasure boats. • Control IUU fishing. • Reduce criminal activities (boat hijacking, smuggling, trafficking). 	<ul style="list-style-type: none"> • Need more protection against environmental hazards. • Derelict/underwater wrecks pose peril at manoeuvring in some important locations close to ports. • Inadequate cooperation with other countries whose fishing vessels utilize the ports in T&T for the landing and transshipment of fish and fish products.

2.4.6 Other sectors

	Internal origin	External origin
Strong points	Strengths	Opportunities
	<ul style="list-style-type: none"> Trinidad and Tobago dominates intra-CARICOM trade. Availability of natural resources for other energy sources. There are currently many stand-alone strategies or policies, for example ICZM, that prepare the ground for comprehensive spatial planning. 	<ul style="list-style-type: none"> Improve export competitiveness of the manufacturing and other sectors in CARICOM and Extra Regionally. New sector in offshore energy. Regional opportunity for Trinidad, Guyana and Suriname in the oil sector. Explore potential for PPP. Promote local marine careers. Promote CARICOM trade. Carbon Capture using closed oil drills. Special Economic Zones Policy deployment.
Weak points	Weaknesses	Threats
	<ul style="list-style-type: none"> T&T relies on inefficient energy sources. There are VAT problems when importing equipment. Need for legislation/regulation and policing for navigation and no-wake zones. For many companies it is paramount to access financing at a reasonable interest rate to invest in their activities. Legislation with high risk of evasion. T&T is not competitive in terms of incentives. Customs process deters businesses and hampers competitiveness. Inadequate inland transportation infrastructure from key marine activities and ports. Lack of Protected Areas in Trinidad. 	<ul style="list-style-type: none"> Oil-and-gas-based economy is not in line with sustainable economic growth. Underdeveloped non-oil and gas sectors and lack of experience and resources in the public sector might hamper promotion of other sectors. Developing sectors with their backs turned on other sectors: Maritime Spatial Planning needs to be comprehensive. GoRTT is hampered by inefficient processes and bureaucracy. The high cost of doing business increases imports also making exporters uncompetitive. This added burden on cost of living negatively impacts socioeconomic situation.

2.4.7 PESTLE Analysis

A PESTLE analysis (Table 8) is an audit of six external influences typically on an organisation, in this case the maritime sector. By analysing those factors, the sector can gain insight into the external influences which may impact their strategy and business decisions.

Table 8. PESTLE Analysis for the maritime sector of Trinidad and Tobago.

	External factors	Factors affected within the maritime sector	Importance to the maritime sector
Political	Government policy	Governance under a Maritime Authority	High.
	Political stability	T&T 2030 Vision	High.
	Industry regulations/policy	Transport Strategy GoRTT National Energy Policy Green Paper; Offshore renewable energy	High. High.
Economic	Globalisation	Reduction of exports to developed countries.	High.
	Economic decline in developed countries	Increase in consumption of local ocean resources.	Medium-high.
	Circular economy	Decrease of raw material products (oil and gas).	High.
		Access to USD.	High.
Social	Growth of tourism and new tourism models	High tourism competence in CARICOM region to attract tourists to T&T.	Low-medium.
	Increasing social inequalities	Population dependent on sea-resources experiences increasing inequalities due to employment insecurity and low wages.	Medium-high.
	Gender inequalities	Few opportunities for women in the maritime sector, gender-biased industry.	Medium-high.
Technology	Automation	Digitalization of value chains. Need to deploy a strong digital infrastructure for ports and maritime services.	Medium
	Innovation		
	Disruptive technologies	Effective implementation of the Single Electronic Window	High
	Social networking		
	Upgrades	Demand for safety and security. Enforce safety and security regulations.	Medium
	Robotics		
	Artificial Intelligence	New ways of transport	High

Development of a National Maritime Policy and Strategy

Legal	Security	(autonomous vessels, trucks or port equipment). Adaptation of port infrastructures for connected vehicles.	
	IMO Conventions	Flag State control - Ability to issue certificates based on surveys to the IMO and ILO standard for T&T flagged ships.	High
	ILO Conventions	Ability to supply crew from Countries being a party to the Maritime Labour Convention. Shipowners recruit seafarers from States party to MLC.	Medium
		Ability to offer protection of the rights of foreign seafarers in T&T ports and seafarers onboard T&T flagged vessels.	High
	Legislative drafters external to the maritime administration	The development of legislation to incorporate the provisions of the various IMO conventions to which T&T is a party.	High
	Availability of local maritime law experts	Port State Control - Ability to enforce the convention provisions on vessels calling at T&T ports without the convention provisions being promulgated in national legislation.	High
	Caribbean Memorandum on Port State Control - List of relevant instruments	Port State control activities to control substandard shipping.	
	Other national legislation not related to maritime and port sectors	Priority of maritime legislation	High
	CARICOM - Agenda	Priority for maritime matters including legislative priority.	
	Change in administration/government (every 5 years)	Government priorities and legislative development. New administration may have a different focus and vision.	Medium Low

Environmental	UN 2030 Agenda	Climate change action and renewable energy sources. Sector needs to address decarbonization of the industry.	High
	Environmental degradation		
	Natural resource decline	Marine habitat degradation. Fishing sector is highly dependent on the state of the sea.	High
		Demand for alternative marine fossil fuels. Take the lead in alternative fossil fuels supply.	Medium

2.5 Final remarks on the Trinidad and Tobago Vision. The framework of analysis.

The SWOT and PESTLE analysis of the maritime sector, based on the trends analysed, give us some guidelines on how to approach the definition of the maritime strategy. The analytical frame of reference (see Figure 22) that will be used later on can be structured around: the instruments, the tools needed to improve and promote the maritime and port sector; and the improvement by sectors, both current and emerging. Within the sectors, some of them are interrelated with the blue economy concept.

In terms of economic growth and business investment, Trinidad and Tobago needs to create an efficient enabling environment. At its foundation is an instrumental core which addresses improving the current level of competitiveness across all maritime sub-sectors. This involves capacity building at all levels, business transformation making bureaucratic administrative processes (customs) more efficient or improving regulatory instruments.

Simultaneously, operating alongside are two opportunity sectors. The first group is categorised as new emerging sectors where T&T already have a natural competitive advantage. With robust management and incentives T&T can be a leader. Secondly, the group of existing operational sectors can be improved to increase competitiveness of their economic activities.

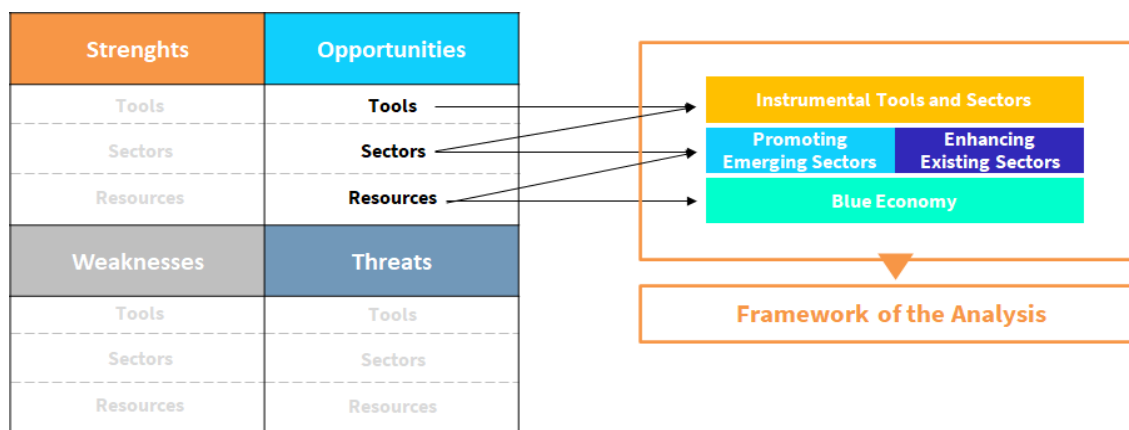


Figure 22. Preliminary conclusions on the framework of the analysis.

Development of a National Maritime Policy and Strategy

Finally, by virtue of all of the above, a vision statement that encapsulates and clarifies what Trinidad and Tobago desires to achieve for the maritime sector in the medium to long term.

Vision Statement

To become an economically sustainable holistic maritime economy that is globally competitive, contributes to wealth creation for all socio-economic strata, driven by a thriving Blue Economy using environmentally sustainable practices.

Mission Statement

To apply efficient processes using innovation and technologies to enable a maritime sector that propels Trinidad and Tobago toward a sustainable Blue Economy in line with the principles of T&T National Vision 2030; meanwhile, strengthening institutions to provide a diversified workforce within a well-regulated, safe and secure economy T&T.

3 Policy and Strategy

The aim of this section is to set out the strategic vision of the policy. The rationale followed in the developing of the policy and strategy is depicted in figure 23. By virtue of the contextualization given by the SWOT and 2030 trends and the vision and mission message derived at the end of the previous section, Policy Directives are stated. Second, Strategic Objectives are derived, and finally policy statements. The materialization in concrete actions are presented in the following section (4): action plan.

In this way, Policy Directives, Strategic Objectives, Policy Statements and Action Plans satisfy the strategic dimensions in each core area of the framework of analysis.

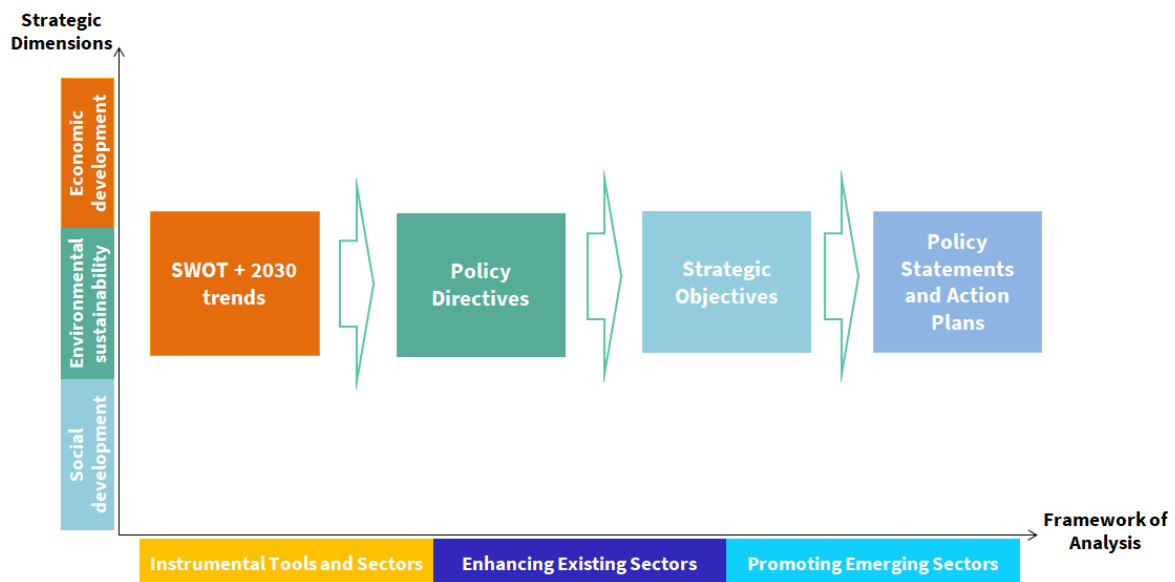


Figure 23. Rationale of the policy and strategy.

3.1 Strategic Dimensions and UN 2030 Agenda

By virtue of the UN Decade of Ocean Science for Sustainable Development (2021-2030) and the Trinidad and Tobago vision for sustainable development, the maritime strategy must be in line with the sustainable development goals (SDG) of the United Nations. Figure 24 depicts the three Strategic Dimensions and how they relate to the development aspects considered in the gap analysis and the SDG. The three dimensions are economic development, environmental sustainability and social development. Each action should be aligned with the development of each dimension and not undermine one dimension in favour of another.

Strategic Dimensions

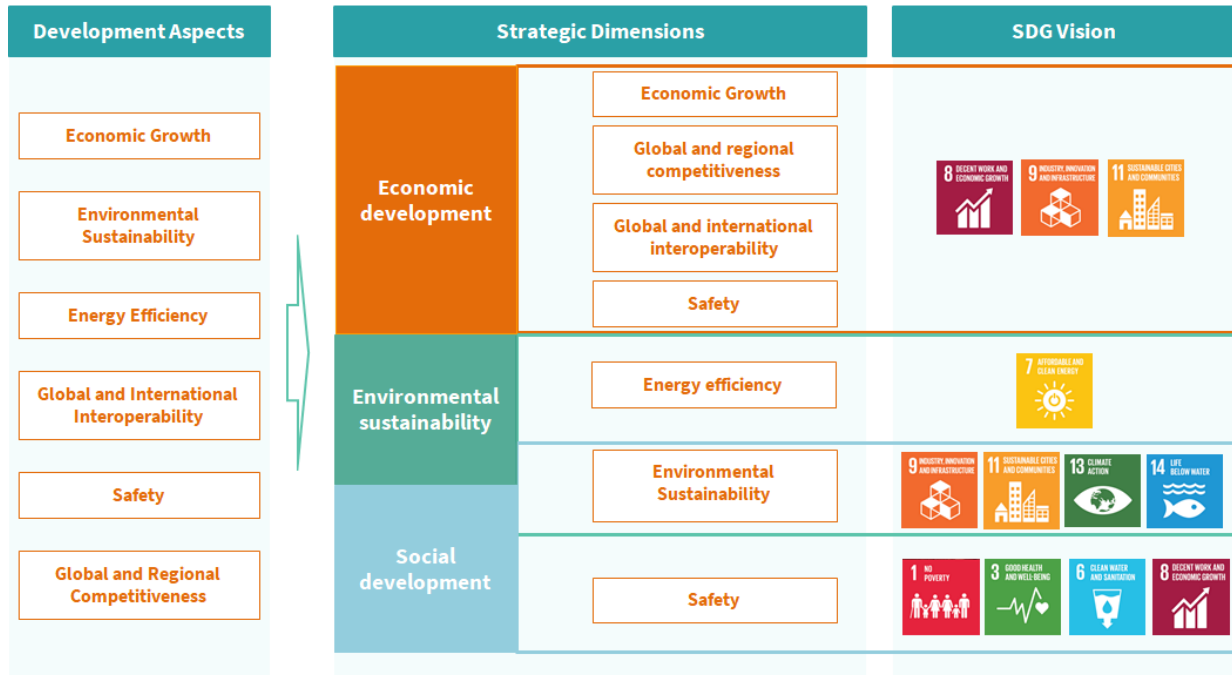


Figure 24. Strategic dimension of the strategy and alignment with the goals of the UN 2030 Agenda.

The policy statements fall upon the framework of analysis described in section 2.5. The three core areas are to create an enabling environment by improving instrumental tools and sectors; enhance existing sectors; and promote emerging sectors. The following figure (25) gathers each **key strategic area** to tackle at each core area. In the next section, 3.2., Policy Directives are stated and in section 3.3 **strategic objectives** are derived according to each key strategic area.

Key Strategic Areas



Figure 25. Core areas and key strategic areas, turquoise accent on Blue Economy sectors.

3.2 Policy Directives

As a result of the SWOT analysis and the framework of analysis identified at the end of the previous section, the following policy directives have been distilled. These should be guiding principles that Trinidad and Tobago should apply regardless of the actual implementation of action plans in the future.

Policy Directive 1

To accelerate the re-engineering of administrative and customs processes that affect the cost of doing businesses along the logistics chain, by simplifying processes and using digital tools to allow a fluid and flexible communication between regulation bodies and users.

Policy Directive 2

Create an enabling environment by reducing the administrative burden of current and future plans.

Without this, the development of the sectors will be hindered by lack of efficiency and competitiveness.

Policy Directive 3

Developing the maritime economy by making good use of the country's natural resources, through the Blue Economy concept and deriving socio-economic benefits. That is, to grow the T&T economy with its natural ocean resources while ensuring environmental sustainability and social development. It is of paramount importance that the maritime strategy is aligned with the UN SDGs and action against the global climate crisis to ensure a liveable and sustainable future.

Policy Directive 4

Develop capacity to monitor the state of the sea by implementation of a national data collection plan. Build and maintain information on the state of the maritime sector, both activities and natural resources, through a national data collection strategy. There is a need to create a public database on the activities of the maritime sector and the state of natural resources, including the state of the sea, which public institutions and individuals can consult to enable knowledge transfer and more informed actions regarding their impact on the sea.

It will include all sub-sectors, from energy to fisheries and tourism, etc., that have an impact on the marine ecosystem and its economic sectors. Sustainability reporting is paramount to understand the state of T&T's natural resources, the impact of its economic activities and to improve the country's development prospects.

Policy Directive 5

Promote Trinidad and Tobago's potential as a maritime hub. Contribute to T&T's foreign vessel service package" with bunkering, cold stacking, ship repair and transshipment.

Policy Directive 6

Involve all stakeholders and local communities to participate in the definition and implementation of maritime initiatives and actions. They can provide knowledge and expertise for a better formulation of maritime spatial planning and project development, including innovation activities, in related sectoral activities. This could be done through a public-private partnership, such as a cluster.

Policy Directive 7

Prioritize the establishment of the Maritime Authority. A single authority that brings together all actors to promote collaboration and cooperation and innovation projects.

Policy Directive 8

Promote emerging sectors. Trinidad and Tobago has the natural resources to expand its economy. New sea-based opportunities lie ahead, which can help diversify its economy in a more environmentally-friendly manner and make the country more resilient.

Policy Directive 9

Enhance existing sectors. Trinidad and Tobago's dominant presence in the Caribbean region should not be taken for granted and its competitiveness should be enhanced. The current mature maritime sub-sectors can benefit from investment in newer technologies and more sustainable practices.

Policy Directive 10

To actively include a sustainability vision in all undertakings of public bodies and prioritize climate change abatement and sustainable actions and projects. To actively promote, question customary practices, regulate and incentivize energy efficiency, emission and pollution reduction of existing maritime sectors.

As a result of the interaction of these areas with the strategic dimensions identified in the previous section, Figure 26 shows the impact of the Policy Directives on the different strategic dimensions (namely economic, social and environmental) and core strategic areas (namely improving T&T instrumental core, promoting emerging sectors and enhancing existing sectors).

In the following section, specific strategic objectives are details one for each strategic area in line with the Policy Directives presented above.

Impact of Policy Directives on Strategic Dimensions

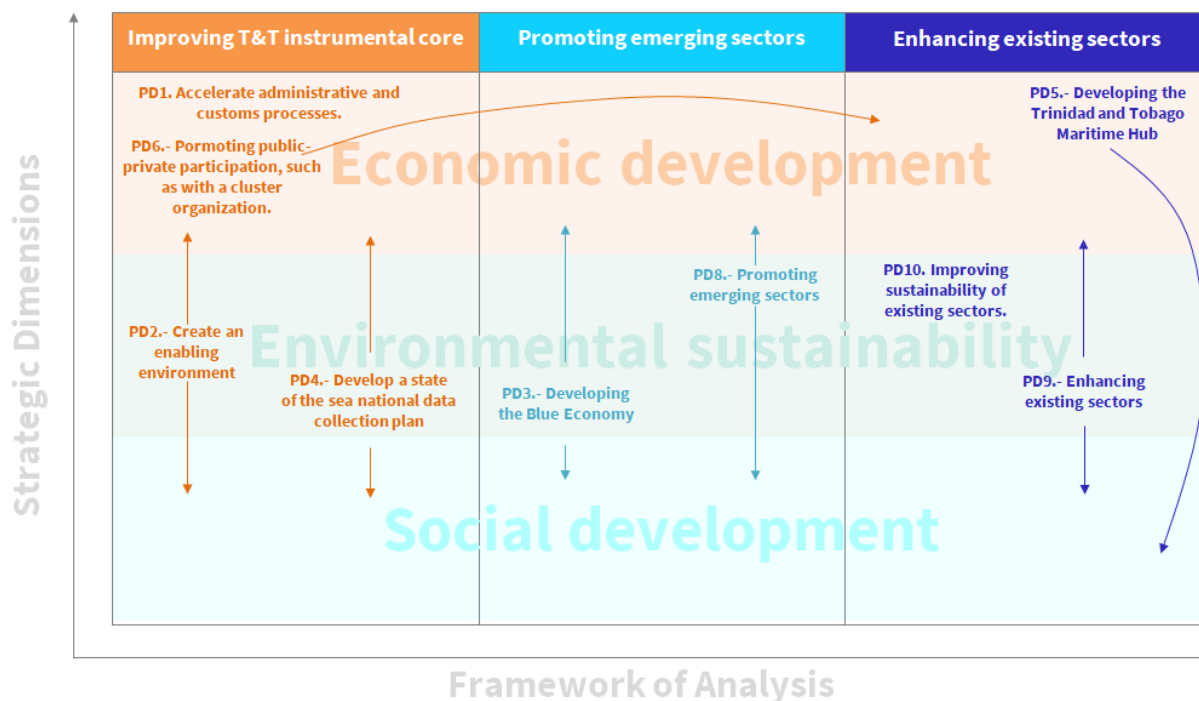


Figure 26. Impact of Policy Directives on Strategic Dimensions classified by main framework of analysis incidence.

3.3 Strategic Objectives

This section derives the strategic objectives for each key area, with a summary justification, all in the form of a table per area.

3.3.1 Instrumental Tools and Sectors

Capacity Building and Education



Relation to SDG

Capacity building is a cross-cutting dimension that is paramount for creating the **enabling conditions for growth** of the maritime sector in Trinidad and Tobago. All capacity building activities should be conducted at the individual, institutional, and society levels. According to the Vision 2030 National Development Strategy “*in many areas of national life in both the public and private sectors, productivity is demonstrably low. This affects the country’s competitiveness, not only by increasing the cost of production but also by increasing the cost of doing business.*” Capacity building and Education is key for enhancing the **efficiency of the maritime sector** in general, easing the **implementation of innovative and sustainable new practices** and improving the **ease of doing businesses** and investing in new initiatives.

Strategic Objectives

At the individual level:

- Training programs for managers and officers at different levels. One key element is the continuous shift to digitalization of all processes. Technological competencies are needed to remove the bottleneck formed by administrative processes.
- Moreover, experience in diverse maritime sectors is needed so as to ensure fluid communication at the same level between the administration and stakeholders in new sectors and yield successful new initiatives.

At the organisational and societal level, the focus should be on

- Strengthening institutional structures, processes, and resources through analysis, development, and sharing of best practice.
- Update legislation for maritime education and Quality Management System to allow T&T to certify its own officers. Government facilitation for placement of cadets on vessels working in T&T Waters. Employment opportunities as a result of maritime development. More safety at sea training.
- Increased collaboration within T&T in training would make all organizations better equipped to address economic and sustainability aspects of fisheries and marine industries.
- Widespread education is needed on issues affecting the ocean and related management activities using a range of communication tools and techniques.
- Moreover, the involvement of local communities in their related sectors is beneficial for the improved environmental and social sustainable development of the country. Knowledge transfer needs to reach all parts of society so that new techniques, approaches and the exploitation of new industries are effectively and efficiently deployed.

Research and development



Relation to SDG

One important function that remains deficient is **data collection and monitoring**. It is a key priority for development. The National Protected Area Systems Plan for Trinidad and Tobago includes four Open-Ocean Waters and Deep-Sea protected areas for the first time (other than coastal protected areas). However little biological data has been collected and those aspects that are not monitored cannot be improved. Proper maritime spatial planning needs to be fed with quality data and in depth knowledge of the state of the sea. Therefore, more data on the state of the sea is required as well as a centralized framework for data collection and monitoring.

Dr. Krishna Kumarsingh commented on some of the challenges are “*lacking or underdeveloped policy and legislative framework, lack of quality data, monitoring and evaluation capacity*”. There is currently a pool of Environmental Impact Reports that could be fed into a future public database.

The emerging sectors indicate that Trinidad and Tobago has the opportunity to continue developing. However, **more research** is needed to understand its economic viability. Moreover, **research can help grow new industries** and take advantage of overlooked opportunities. For example, finding a niche business for Invasive Alien Species. For example the *A Sustainable Blue Economy Trinidad and Tobago report* (Mahadeo et al., 2021) states that there is no overall research plan to determine the research which is needed for the development of a sustainable Blue

Economy and states that the engagement of the private sector in research would be essential for the development of Blue Economy.

In that respect, the National Vision 2030 prescribes as a key transformation “Move to more evidenced-based decision making to attain value for money and reduce the negative impact of costly, ad hoc reactionary policy decisions”. The deployment of long-term monitoring strategies and research is vital for the more efficient development of the maritime sector.

Strategic Objectives

- Developing a data collection plan of the state of the sea (ecology, bathymetry, oceanography, biodiversity, pollution...).
- Developing a framework for National Data Sharing policy to allow for the publication of all data on a public database system.
- Defining a National Research and Innovation Strategy to secure long-term research in new opportunity sectors related to the natural resources that the Blue Economy can provide.
- Engaging the private sector in research and innovation projects for new opportunity sectors.

Digitalization and Single Electronic Window



Relation to SDG

Digitalization is a current global trend. Port operations and infrastructure will be affected by digitalization of value chains (digital quotation and booking of containers and digitalization of value chains). **Digitalization** is a key driver to improve **efficiency of ports** and **maritime transport logistics**.

A significant amount of work has been done to develop and implement a Single Electronic Window and it should be noted that considerable progress has in fact been made to overcome the various hurdles to implementation. Results achieved to date include:

- Online Vessel arrival and departures declarations
- Online shipping agent declarations and payment calculations. Payment Receipts
- Online Clearances
- Private Sector Risk Management System for arriving and departing vessels (notifications).

Whilst the progress is commendable, there remains a significant final effort required to reap the true benefits of the program including increased efficiencies, trade facilitation and international competitiveness, which is paramount to ensure the competitiveness of the maritime sector (bunkering, ship building, repair, and dry docking, transshipment, coldstacking...) where T&T still ranks in a low position in the World Bank's Doing Business Index 2019 (105 out of 190).

Specific challenges include:

- **Legislation.** Modernising the National Legislative Framework to support the implementation, administration and maintenance of the SEW as it relates to the relevant departments and agencies and

to facilitate the SEW trade and business functions. Current Data protection act is based on the UK 2011 Act that has been replaced by EU GDPR. TTD legislation should be updated accordingly (Electronic transaction and data protection to facilitate sharing among agencies and the use of electronic processes VS manual processes).

- **Change Management and Communications.** Change Management Consultancy has been completed, and training on change management and change management leadership was delivered to key stakeholders. Communication and direction from top level government personnel (cabinet committee) should continue to ensure political buy-in from all relevant departments and agencies with regular follow up on the implementation progress. Stakeholder Awareness Campaign to continue to help organizations embrace changes (Key personnel from various agencies including communications departments of the Ministry of Finance, Ministry of Planning and Development, Ministry of Trade and Industry, Customs, Fisheries Division).
- **SEW upgrades.**
 - Platform is based on 2009 technology. Update to current application with additional services including electronic payment (within 2 years).
 - Implement SEW enhancement projects to increase interoperability (sharing of info with other government IT systems local and cross border).
 - Ensure the delivery of the Business Continuity Plan and Data Recovery Solution for the SEW
 - **Port Community System.** Continued development and implementation of the Port Community System to integrate various electronic systems (common interface), streamline the process and fix breaks in transmission of electronic information.
 - Customs- ASYCUDA system (processing of declarations)
 - Ports – NAVIS system (terminal operating system)
 - Other Government Agencies (e.g. Maritime Services, Fisheries Division, Plant Quarantine) – SEW
- **Trade and Business Information Portal.** Continued development and implementation of this project (in-process of hiring vendor).
 - Import/export procedures and requirements per item.
 - Agencies involved
 - Approvals required
 - Timeline
 - Fees required.
- **SEW Organizational Structure** SEW is currently a unit within the Ministry of Trade and Industry. Improve the Institutional structure of SEW to strengthen governance. Consider forming an independent body governed by its own regulations and legislations. Include dispute resolution (inter-department) function.
- **IT skills.** Some IT training has been undertaken across the various departments and agencies involved. The skills, experience and training required for all related departments and agencies including the SEW Team should be defined and transmitted.
- **Public Education and Feedback.** Communications to public business associations, shipping associations and general public on the use of the SEW and reporting of issues to SEW to provide input for continuous improvement.

Strategic Objectives

- Strengthen the implementation of the SEW to make it more interoperable and ease the utilization for every stakeholder. Support ongoing improvement **projects** such as **projects for development of a business development portal and to expand use of the SEW to other regulatory agencies.**

Governance



Relation to SDG

A **single authority** for the governance of sea-related aspects is a demand for the sector in general and it is needed for the progress of the maritime sector. The New Shipping Bill (2020) gives rights to the Maritime Authority and it establishes its powers:

- The Authority would have the functions of advising and reporting to the Government on policy relative to maritime matters, regulating maritime activities, including Port State Control, Flag State Control and Coastal State Control activities, advising the Government and stakeholders on maritime activities, to be the focal point for communications to the International Maritime Organisation (IMO), advising the President on the declaration of certain places as harbours, to promulgate notices to mariners in order that nautical charts and publications are kept up to date and to provide data management arrangements to support hydrographic information dissemination and any other function given to it under any other written law.
- Regulate registry of ships and offshore installations, seafarers, shipbuilders and shipbreakers, safety, security and the prevention of maritime pollution.
- Approve or authorise marine training institutions.
- Conduct inquiries into incompetence or misconduct of seafarers, into collisions or maritime casualties.
- Regulate ships and offshore installations.
- Impose fees, charges or administrative fines
- The Board is composed of experienced members within the maritime field, also a member of the Coast Guard, a representative of the Fisheries Division.
- Establish and maintain quality standards for the certification of seafarers.

In that regard, the 2030 Vision (National Development Strategy) sets as an institutional transformation the strengthening, the oversight, accountability and the **autonomy of the independent institutions**; and improving public sector institutions through performance management, modernised structures and strengthened coordination, capacity building and decentralisation of certain powers of the Central Government.

In that regard, a **Cluster initiative** may be suitable for the driving and ensuring implementation of marine-related actions and initiatives. For example, in Maritime Spatial Planning initiatives to centralize and coordinate ICZM, Protected Areas along with the Ministry of Planning and the involved sub-sector stakeholders. As an international example the Spanish Maritime Cluster aims to group in a single organization all the industries, services and economic activities of our country related to the sea, promoting collaboration and cooperation. They work, among others, in maritime transport, fisheries, ports, sea-based energies, marine research, R&D, capacity building, culture, heritage or social wellbeing.

Strategic Objectives

- Implement the Maritime Authority.
- Establish the Maritime Cluster of Trinidad and Tobago. It should play a role in planning decisions as a representative of all stakeholders' dependent on the sea's resources. Take a leading position in the promotion, integration and development of marine spatial planning and promoting maritime initiatives.
- Ensure experience and knowledge of the maritime sector in relevant and technical positions.

- Engage with all stakeholders (from businesses to coastal communities) in the definition and development of marine initiatives.
- Gender equality focus as a cross-sectional vision in all initiatives.

Spatial Planning



Relation to SDG

Spatial Planning, Maritime Spatial Planning in this case, is one of the **cornerstones** for the development of the maritime sector. Maritime Spatial Planning requires a comprehensive approach, including all current initiatives under an overarching organization that coordinates all involved agencies. The inter-ministerial ICZM is a first step towards comprehensive **marine spatial planning**.

In addition, good quality transportation infrastructures allow for the development and attraction of businesses. The Vision 2030 National Development Strategy states that “*High quality infrastructure unlocks economic potential, ensures an equitable distribution of growth and opportunities throughout the country. It also boosts productivity and competitiveness, allowing businesses to grow and prosper, create employment and attract investment. It is, therefore, imperative that we adopt a systemic and comprehensive approach in building strong infrastructure and transportation systems that are resilient and of high quality.*” This was highlighted during the consultation phase and noted that the quality of either Port or hinterland infrastructure is paramount for the competitiveness and development of businesses in T&T.

Strategic Objectives

- Legal framework for the establishment of a marine spatial plan.
- Approval of the Integrated Coastal Zones Management Policy Framework.
- Establish a marine spatial plan that would in fact be based on the National Protected Areas and the ICZM, from a holistic point of view that manages all uses with a long-term vision and Blue Economy sustainability premises. It must be a dynamic tool. Examples would include the Seychelles or Antigua and Barbuda Marine Spatial Plans.
- Investment in infrastructure that has an impact on the efficiency and competitiveness of port operations (including hinterland transport infrastructure).
- Promote the use of Special Economic Zones.

Public-Private Partnerships (PPP)



Relation to SDG

Technological development as one of the main reasons (especially in the container sector)

Participation in the ownership and in the management of port and shipping operations (terminals, shipping companies, etc.):

- An increase of capital in the port equipment and maritime sector
- More consolidation of the international transport industry
- An increase of the integration of shipping companies, ports and land transport companies

Other elements that contribute to an increase of the participation of the private capital:

- An increase of the port services efficiency
- New financial resources for port development and maintenance
- Reinforcing the entrepreneurship and management capacity
- Reducing the bureaucracy and political weight on the port management and port operations
- Expectation of profits from introducing competition on port operations

Strategic Objectives

- Create the necessary conditions for the participation of private capital, through PPP, on port ownership and management.

3.3.2 Promoting Emerging Sectors

Aquaculture and Fisheries



Relation to SDG

The fisheries sector is a relevant sector for the people of Trinidad and Tobago, its added value to the country is high since many rural coastal communities depend on the fishing sector. The adoption and implementation of the long-awaited new Fisheries Management Bill offers opportunities to support a sustainable fishery for Trinidad and Tobago and to address a number of issues within the sector. This Bill will enable TTO to implement international best practices in fisheries management, to discharge its international obligations as a coastal, flag, port and market State, to regulate both fishing and fishing related activities and strengthening of the fisheries monitoring, control, surveillance and enforcement capability, among other things.

Challenges include:

- Activities that threaten fish stocks and their environment, the sector being highly dependent on the sustainable use of natural resources especially coastal communities dependent on artisanal fishing.
- Weak fisheries governance and fisheries monitoring, control, surveillance, and enforcement; outdated fisheries management and legislation; outdated institutional structure and systems for fisheries conservation and management

- Lack of required facilities for handling and processing that meets sanitary and phytosanitary standards required by export markets.
- Added value for products. There are opportunities for growth in **extending value chains** in both upstream (e.g. vessel support services) and downstream (e.g. processing of whole fish into higher-value products, tourism demand) activities.
- A need for increased monitoring and surveillance.
- More **survey campaigns**, characterisation of the biodiversity and state of fish stocks is necessary.
- The improvement of fisheries conservation and management through the development of fisheries-specific management plans; agreement with stakeholders on the management measures to be implemented for long-term sustainability of resources.

However, there is considerable **expertise and experience within the country** upon which to draw, and opportunities exist through **capacity building, increased cooperation among stakeholders, and increased reliance on scientific approaches to identified problems**.

Increased support to industry for the development of sustainable **aquaculture and mariculture** in Trinidad and Tobago will also allow for the expansion of the fisheries sector while supporting economic diversification and advances in the adoption of Blue Economy strategies (currently only pilot projects have been carried out). With proper support and delivery of relevant training, it has the potential to expand the fishing industry, help reduce fish imports, improve food security, and make the industry more climate change resilient⁴¹. In parallel, it can create **employment opportunities for communities that are dependent on fishing**.

Such initiatives however, would require the development of an enabling aquaculture policy and legal frameworks, as well as programmes that build knowledge and capacity. It is also necessary to regulate the spatial planning of aquaculture, it can become a threat for mangroves, paramount for natural protection against climate change (carbon capture, storm surges, tsunamis...), biodiversity and ecotourism opportunities.

The FAO (2014) estimated that greater investment in CARICOM's aquaculture development could increase total fish production by as much as 30% in a decade. Aquaculture development also has the potential to increase the production of other commodities such as seaweed.

Strategic Objectives

1. Strengthened fisheries conservation and management aligned with international best practices and considering the ecological and socio-economic impacts of climate change and TTO's international obligations as a flag, coastal, port and market State;
 - a. Development and implementation of fisheries data collection and fisheries management information systems;
 - b. Expand capacity to conduct coordinated, collaborative and policy-directed fisheries scientific research – including monitoring of the status of fish stocks and biodiversity;
 - c. Develop and implement a stakeholder training programme on sustainable fishing practices, basic maritime skills required for registration as a fisher, value-addition and small-business development and marketing in the fisheries sub-sector
2. Strengthened fisheries monitoring, control, surveillance and enforcement programme to support implementation of new fisheries management legislation (once enacted);
 - a. Implementation of a Vessel Tracking System – Establish a vessel monitoring system for the fishing fleet of artisanal and non-artisanal fishing vessels;
 - b. Development and implementation of fisheries management systems, including licensing, registration and permitting systems with the requisite databases and reporting;

⁴¹ Caribbean Development Bank. (2018). Financing the Blue Economy. A Caribbean Development Opportunity.

- c. Strengthened collaboration, cooperation and information-sharing among national regulatory agencies to combat illegal, unreported and unregulated fishing;
- d. Development and implementation of a training programme for fisheries enforcement officers, especially related to the impending new fisheries management legislation;
- 3. Development of aquaculture and mariculture as an alternative source of fish production for improved food security and livelihoods, supported by the requisite policy and legislative framework;
 - a. Development of aquaculture policy and legislative framework;
 - b. Stakeholder training on sustainable and safe environmental aquaculture practices;
 - c. Stakeholder training in aquaculture and aquaponics system development;
 - d. Strengthened fish value chains and marketing in the aquaculture sub-sector.

Offshore Renewable Energies



Relation to SDG

Trinidad and Tobago is one of the countries with the highest CO₂ emissions per capita, close to Qatar (first in CO₂ emissions per capita), and far from the rest of CARICOM countries. One of Trinidad and Tobago's current weaknesses is its energy mix dependence on natural gas and oil.

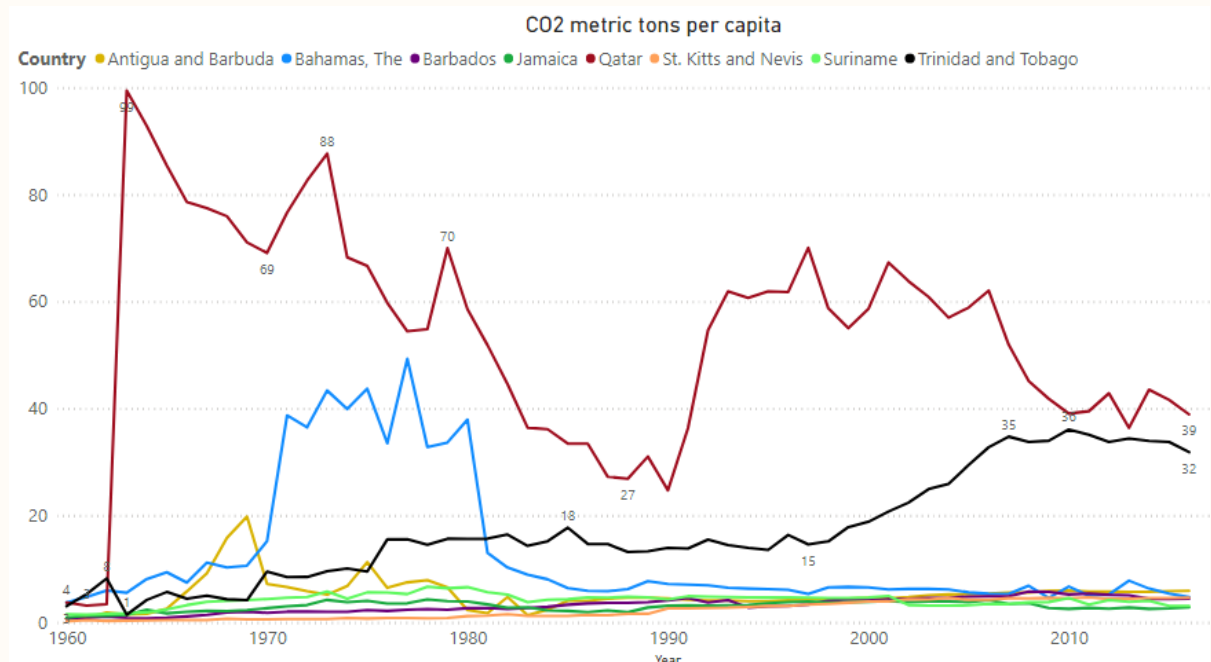


Figure 27. CO₂ metric tons per capita in Trinidad and Tobago.

Trinidad and Tobago has the natural resources to develop offshore renewable energies (wind turbines). T&T lies in an area with strong winds all year round. The southern Caribbean in general has particularly high average wind speed (capacity factors of 38%)⁴².

A note by Hon. Senator Franklin Khan Minister of Energy and Energy Industries at the Energy Chamber (February 1st, 2021) said *“In a country with limited land resources the judicious utilization of these resources is paramount. Other 6 countries have addressed this issue by harnessing the potential energy stored in the oceans and sea and in offshore wind and wave projects to generate electricity. Trinidad and Tobago is an archipelagic state with an exclusive economic zone of 74,199 square kilometres, which is approximately fifteen times the country’s land mass. Our EEZ has been largely unutilized with the exception of our deep-water oil and gas exploration which in itself is a recent and successful undertaking. We now have an opportunity to harness the energy potential stored in our marine environment from sources other than hydrocarbons in the form of wave and/or offshore wind energy.”*

On the other hand, 8% of all natural gas production in T&T is used for electricity generation. According to the Energy Chamber, this could be halved so that it can generate extra revenue by selling LNG or for the production of high value petrochemicals such as ammonia or urea⁴³.

Electricity Generation by Source (GWh)

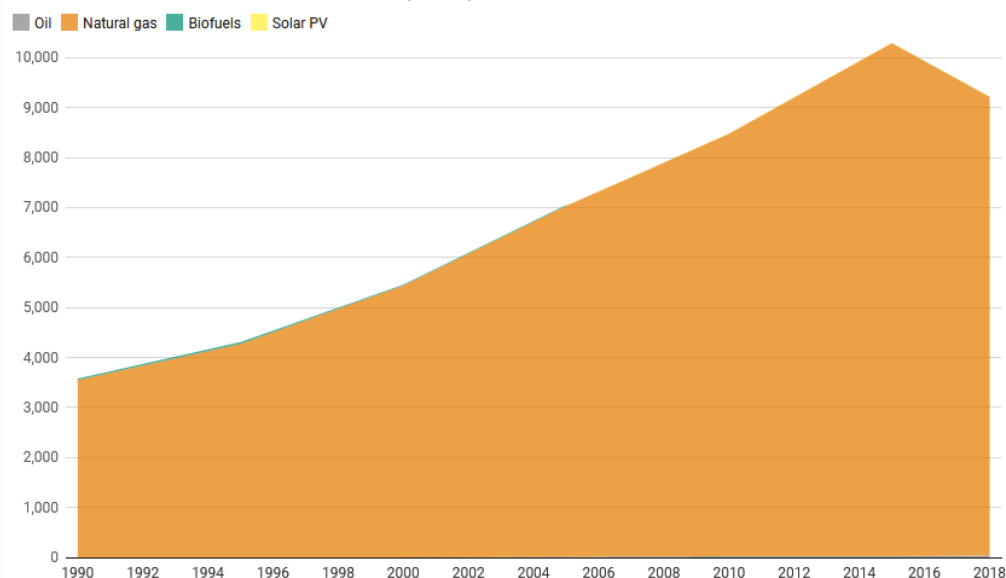


Figure 28. Electricity Generation by Source in Trinidad and Tobago (GWh)

Natural gas for electricity generation is currently subsidized, therefore pushing away the economic benefits of investing in renewable energies. Removing the subsidy, hence raising electricity prices, could serve as an incentive for the industrial, commercial and residential sectors to transition to renewable energy sources.

Currently, there is no provision for renewable energy power generation by Independent Power Producers (IPPs). According to the MEEI, The Government of the Republic of Trinidad and Tobago is seeking to establish a legislative framework for the generation of electricity from renewable energy sources. To complete this review, The Ministry of Energy and Energy Affairs (MEEA) has collaborated with the United Nations Environment Programme (UNEP) to develop a framework for policy and legislation to govern feed-in tariffs.

⁴² Marzolf, N. C., Cañeque, F. C., Klein, J., & Loy, D. (2015). A Unique Approach for Sustainable Energy in Trinidad and Tobago. Inter-American Development Bank.

⁴³ Oxford Business Group. Renewables to drive diversification in Trinidad and Tobago's energy market. Available at: <https://oxfordbusinessgroup.com/analysis/winds-change-steady-progression-towards-renewable-sources-generation>.

According to the IDB report on Sustainable Energy in Trinidad and Tobago⁴⁴, to be able to capitalize on the existing potential for wind farms, **legislation** that allows wind farms to be operated by independent power producers **needs to be established and a subsidy scheme for the promotion of wind farms** implemented. **Offshore wind farms are in an early development stage** in the Caribbean, where a shortage of assembly teams, unavailability of large cranes and inexperience in general **make commissioning costs higher** than in other countries.

Most ocean power technologies are still in their infancy. Due to maturity issues surrounding technology and location, only tidal power stream plants are a realistic opportunity. Ocean Thermal Energy Conversion (OTEC) has great potential and an international or regional approach in the Caribbean should be considered. However, this would require a significant investment in R&D before it can provide a sizable contribution.

Strategic Objectives

- Attract investment in the offshore renewable sector.
- Collaborate with other agencies to remove subsidies to fossil fuels for electricity production and implement feed-in tariffs for the promotion of renewable energy generation.

Alternative Fossil Fuels



Relation to SDG

The **2018 IMO GHG strategy** is to reduce total annual shipping **GHG emissions to 50% of 2008 levels**. Moreover, on January 1st, 2020 new International Maritime Organisation rules on reducing sulphur oxide emissions are put into force. **LNG** could be considered an **alternative** to high content sulphur fuels. Shipping companies will need to address this.

Liquefied Natural Gas (LNG) has been conceived as an alternative fossil fuel for the maritime industry both for reducing GHG and pollution (low SO_x and NO_x). However, methane slips along the supply chain and in the combustion phase in engines need to be strictly controlled to avoid having more GHG emissions throughout the full life cycle. Adequate engine technology and best practices and control of methane emissions in the upstream supply chain can make LNG an adequate fuel for vessels with reduced global warming potential⁴⁵.

The country has an important liquefaction gas facility in the region (Atlantic -LNG company- located at Point Fortin), making it attractive as a bunkering location for ships passing through the region. According to the International Gas Union's "2018 World LNG Report", it is the eighth-highest nominal liquefaction capacity globally, and the highest in Latin America and the Caribbean. Make it an early-adopter opportunity to position T&T as a hub for more efficient fossil fuels (green LNG, LPG and methanol).

Strategic Objectives

- Exploit the LNG, methanol and ammonia production capacities of T&T.

⁴⁴ Marzolf, N. C., Cañeque, F. C., Klein, J., & Loy, D. (2015). A Unique Approach for Sustainable Energy in Trinidad and Tobago. Inter-American Development Bank.

⁴⁵ Balcombe, P., Staffell, I., Kerdan, I. G., Speirs, J. F., Brandon, N. P., & Hawkes, A. D. (2021). How can LNG-fuelled ships meet decarbonisation targets? An environmental and economic analysis. *Energy*, 227, 120462. <https://doi.org/10.1016/j.energy.2021.120462>

- Research and develop LNG production technology free of methane leakages.

3.3.3 Enhancing Existing Sectors

Tourism



Relation to SDG

A unique combination of natural features in a variety of terrestrial, coastal and marine ecosystems makes T&T an ideal eco-tourism destination. Marine and coastal zones in T&T account for 90% of tourism facilities. It is more important to Tobago's economy which is dependent on income generated by these facilities. One of these is the coral reefs which occupy about 70% of waters along the coast and have been estimated to be worth between 18 and 33 million USD⁴⁶.

Pre-COVID-19 figures estimate the contribution of the entire tourism sector to employment at almost 10% (direct and indirect)⁴⁷ and **7.8% (direct and indirect) to the country's GDP**, generating approximately **52,700 jobs**⁴⁸. The target market includes domestic tourists; overnight stays as well as cruise visitors. In 2018 one of the more active years total visitor arrivals were circa 500,000 of which 125,603 were from 75 cruise ship visits. The destination received the highest number of pre-booked tours during the season.

Given the positive forecast for 2022 cruise bookings the local cruise services sector is expected to rebound to pre-COVID-19 levels. This in addition to being south of the hurricane belt, has strategically positioned T&T to benefit from Cruise tourism which will further support diversification of the economy.

However, its potential externalities must be taken into account such as the massive arrival of tourists in a short period of time, degradation of the environment, cruise atmospheric pollution at ports, and low expenditure rates in the country given the short stays. Also, domestic tourism could benefit from more efficient ferry times between the two islands.

Approximately 80% of revenues earned in the **yachting sector** are from the transient yachting sector. The Chaguaramas area of services providers has positioned itself as one of the premier hubs for major overhaul and repair. With an average employment of 1,700 persons full-time, there exists an opportunity to further enhance the attractiveness to Trinidad and Tobago for these yacht services through expanding services to larger vessels and the education and training of the incumbent and prospective workforce. Specific challenges to be addressed are:

- Growing the competitive service market for transient vessels,
- Increasing capacity in berthing and servicing of larger yachts,
- Formal skills training for the workforce,
- Waste management, and

⁴⁶ Lauretta Burke, Suzie Greenhalgh and others, Coastal Capital: The Economic Contribution of Tobago's Coral Reef. World Resources Institute, 2008.

⁴⁷ ILO (2020) *Tourism sector in the English and Dutch speaking Caribbean An overview and the impact of COVID-19 on growth and employment*. International Labour Organization, Office for the Caribbean - Port of Spain. ISBN: 978-92-2-032747-0

⁴⁸ Ministry of Tourism, Culture and the Arts. Draft National Tourism Policy. July 2020. Available at: <http://www.tourism.gov.tt>

- Inefficiencies with immigration and customs procedures and clearances that negatively affect customer service.

A diversified tourism product in line with the Blue Economy concept, that can be distinguished from other Caribbean islands, particularly in the context of Tobago, has the potential to bring a new dimension for growth to the market.

Eco-tourism activities such as nature photography, snorkelling, scuba diving, kayaking, turtle and bird watching, in the context of an island destination with a UNESCO *Man and the Biosphere* designation in North-East Tobago, along with Blue Flag status beaches, can significantly boost the potential for developing the ecotourism market. Additionally, within Trinidad the Caroni Bird Sanctuary (one of three Ramsar sites) continues to support local livelihoods, particularly for bird watching tourism. Moreover, sea/marine sports including sailing, boating, diving and game fishing are currently active given that T&T is in a region with rich underwater biodiversity.

Eco-tourism often entails planned development in a relatively small-scale manner. It is likely to attract tourists that spend more time on site and therefore spend more money, more than mass tourism from cruise tourism.

Trinidad and Tobago has many underwater cultural heritage sites that can be exploited as a tourist attraction while preserving local history and promoting social development. Trinidad and Tobago ratified the UNESCO Convention on the Protection of the Underwater Cultural Heritage (Paris, 2 November 2001) on 27 July 2010 however since many ship wrecked vessels are Dutch or Spanish, International bilateral agreements would be needed to exploit them as a cultural/tourist attraction.

Strategic Objectives

- Promote a diversified tourism product based on the Blue Economy concept.
- Promote underwater cultural heritage as a national attraction.
- Improve the quality of service provided by the yachting services sector in order to make T&T a competitive destination for yachties.
- Improve ferry connectivity between Trinidad and Tobago.
- Define an eco-tourism strategy.
- Regulate mass-tourism activities to comply with the protection of Natural Protected Areas and prevent environmental damage.

Ship building, repair, breaking and recycling



Relation to SDG

Even though they look similar by their nature, ship building and ship repair are different businesses. Within each of them, they can target some specific markets such as fishing vessels, yachts or cargo ships. Globally, commercial ship building is about a 114 billion USD market and repair is around 30 billion USD. Major ship building players are located in Asia. Europe, the Middle East and the United States play an important role in ship repair of cargo ships.

In T&T, ship repair targets different market sectors. One is the regional market and the other is the visiting vessels. The regional market is quite diversified and includes yachts, fishing vessels, coastal trade vessels, ferries. This market also includes related offshore activities.

One of the advantages of the regional market is that clients are more captive, mostly for ship repair services. Even though Trinidad and Tobago has a good ship repair sector, Curaçao has the largest ship repair yard in the

Caribbean operated by a well-known Dutch company, Damen Shipyard. Therefore, the **T&T large vessel repair market might not be so captive**.

On the other hand, given the high competitiveness of the international **ship building activity**, this would not seem to be an attractive sector to count on for T&T economic development especially for commercial cargo.

Ship repair competitiveness relies on strong know-how, parts, components and extensive networks of suppliers. In T&T, such suppliers' networks rely on efficient transportation service combined with efficient custom services.

The ship repair activity is essential to some key T&T economic activities (such as oil and gas) and has a positive domino effect on other sectors such as marine parts and supply logistics.

Strategic Objectives

- Support the non-commercial ship building as well as ship repair sector in Trinidad and Tobago (small ships/vessels/boats such as tugs, offshore vessels, yachts and fishing boats).
- Support T&T key economic activities such as oil and gas, fishing, tourism etc.
- Improve Trinidad and Tobago connectivity through efficient global transportation network
- Increase custom procedures efficiency and as well as the supply chain
- Contribute to the "T&T foreign vessel service package" with coldstacking, bunkering and transshipment
- Leverage the need for diversified and specific labour skills to strengthen T&T know-how.

Bunkering



Relation to SDG

Bunkering services in Trinidad and Tobago target mainly vessels calling at Trinidadian ports. However, this service can be expanded in two stages. The first one is bunkering vessels passing by T&T and the other is adding LNG as vessel fuel. Figure 28 below shows that T&T is part of important routes for vessels transiting between the Gulf of Mexico or the Panama Canal to Eastern South America and South Africa. T&T strategic position is a key factor to enhance bunkering activities.

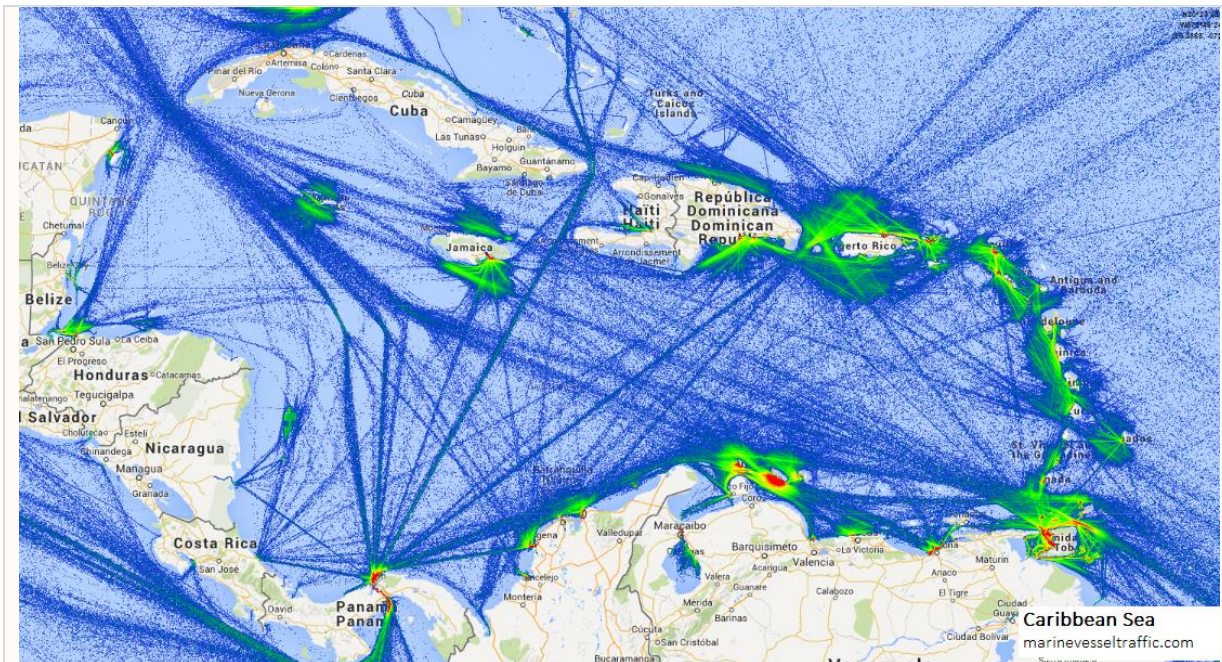


Figure 29. Vessel traffic density in the Caribbean Sea. Source: Marine Traffic.

The **access to affordable marine fuels is also another key success factor** to expand economic activity. T&T fossil fuel production can help position the country for LNG powered vessels. The States located in the Gulf of Mexico, such as Texas and Louisiana are used as cost effective supply sources. Venezuela could also be a nearby supply source but the actual political situation prevents T&T doing so. There is however the risk that once the political situation settles down in Venezuela, they could also prefer developing their own bunkering services which would compete directly with T&T.

Over the last few decades, there have been a lot of international initiatives to reduce marine emissions, especially sulphur oxides (SO_x). Some States have set ECA zones to reduce the emission of SO_x (0.1% HFO sulphur content in 2015 for the Baltic and North Sea). IMO also implemented rules to reduce sulphur content in marine fuels from 3.5% in 2012 to 0.5% in 2020. There are two ways to reduce marine SO_x emissions. One of them is to remove SO_x emissions from the exhaust using a “scrubber”. This technology has been through different tests and research and not all vessels can be easily retro-fitted. Another one is to reduce sulphur at the source, i.e. its content in marine fuel or switch to fuel without sulphur such as LNG.

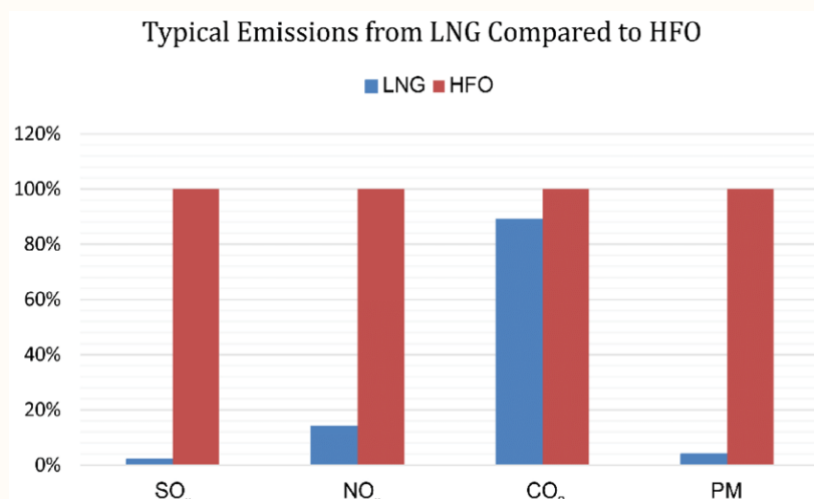


Figure 30. LNG Emission reduction compared to HFO. Source https://www.researchgate.net/figure/Relative-gas-emissions-for-LNG-and-HFO_fig2_334112753.

LNG has other emissions reduction advantages especially for NOx and Particulate Matters compared to HFO. On the other hand, unburned LNG accidentally released in the atmosphere is contributing 30 times more than CO₂. Of course, unburned LNG emissions are not so frequent with good operational practices but this is enough for environmental groups to question the virtue of this option.

Regarding LNG as fuel for ships, very few of them are using such fuel. Even though their number is increasing due to vessel emissions reduction actions combined with ever improving reliability of underlying LNG marine powered technologies, **most LNG powered vessels** (other than LNG tankers) are dedicated on specific regions or short routes. These vessels **tend not to transit by T&T waters**, reducing the potential to sell locally sourced LNG through bunkering.

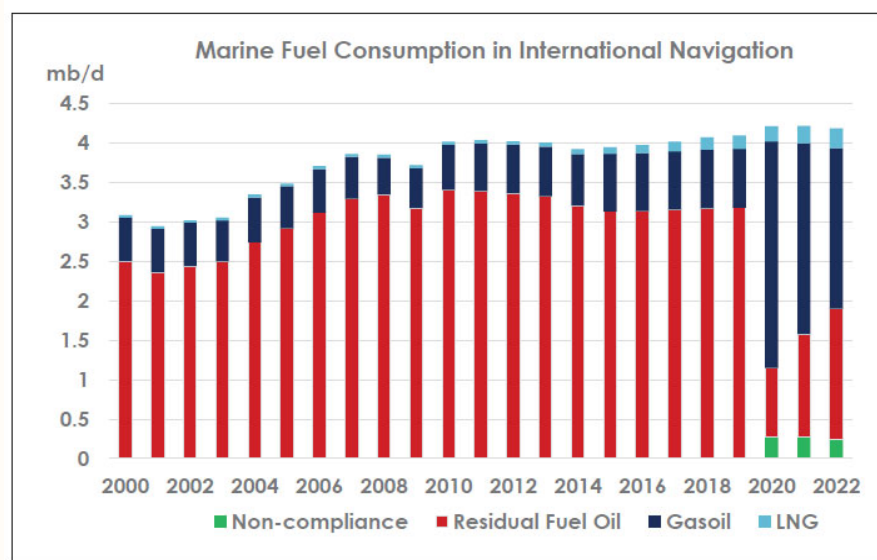


Figure 31. Marine Fuel Consumption in International Navigation. Source <https://www.tankstorageintelligence.com/wp-content/uploads/2018/09/compliant-fuel.jpg>.

Another important success factor is to facilitate business execution such as bunker purchase as well as bunkering vessels not calling in T&T ports using a tank barge.

Strategic Objectives

- Create **local marine related employment**
- Generate a net **positive foreign currency** balance by trading marine fuels
- Support the improvement of **T&T coastal trade procedures** to increase local marine transport efficiency
- Contribute to the “T&T foreign vessel service package” with coldstacking, ship repair and transshipment
- Leverage efforts to liberalize and **facilitate bunker supply options** while respecting T&T engagements through regional trade agreements.

Coldstacking



Relation to SDG

The energy sector experiences price fluctuation and offshore exploration and extraction heavily depend on the oil and gas market price. As such, extraction rigs, drilling vessels and other offshore heavy oil and gas infrastructures have to be shut down (cold-stacking) until the energy market resumes to better price conditions. For example, a unit costing 40,000 USD/day idling in a safe harbour with a skeleton crew can cost as low as 15,000 USD/day when coldstacked.

As a major Caribbean offshore oil and gas production country, T&T has at times dealt with rig operators coldstacking some of their equipment. Coldstacking marine and offshore equipment is complex and requires good preparation and maintenance plan to facilitate the work to start them again. Being a cost reduction procedure during low market demand, coldstacking is also risky for States. Indeed, rig operators can be forced to further reduce maintenance leading to extra start-up cost and uncertainties. With persistent unfavourable market conditions, rigs can become orphans and transform into an environmental risk. In this case, the State is challenged to take responsibility but the legal and financial implications are important and can lead to delays to time sensitive situations.

Beyond oil rigs, coldstacking is also a means to reduce vessel fleet operation cost in difficult market conditions. Car carriers, bulkers and other types of vessels are coldstacked for different periods of time.

Being located along important trade routes as well as offering a well protected anchoring area, coldstacking could be offered as a potential marine business venue for T&T.

Strategic Objectives

- Create a **predictable and efficient business environment** for cold stacking
- Improve the **social and environmental safety net** regarding abandoned and undesirable rigs, vessels and wrecks
- Contribute to the other marine activities such as bunkering, ship maintenance and repair by attracting potential customers
- Attract **foreign currency** and support **local expertise** in marine maintenance and surveillance.

Transshipment



Relation to SDG

T&T waters in the Gulf of Paria is a major transshipment hub. Located along major trade routes and beside major South American mining activities, T&T waters offer a **well protected area** allowing smaller vessels to carry iron ore from shallower draft ports in South America into large bulk carriers destined to Far East major ports. Invest TT has also a comprehensive information brochure to guide companies willing to get the appropriate permits. Oldendorff, a major player in T&T transshipment activities calls it the “Hub of the Americas”. They began in 2012

and they have the capacity to handle around 12 million tonnes of solid bulk (iron ore, coal and bauxite). Oldendorff transshipment activities generate around 200 jobs in T&T at all levels including management, operation and technicians. Oldendorff also handles other commodities, namely: Petroleum Coke (Petcoke), Potassium Salts (Potash), Grains (Maize, Sorghum, Rice, Wheat, Soybean, Sunflower and Seedcake) and Manganese Ore Aluminium Oxide, Hot Briquetted Iron, Pig Iron Mill Scale, Nickel Ore and Wood Pellets.



Figure 32. Source: Oldendorff.

Even though most solid bulk are not an environmental threat per se, the continuous transshipments can lead to product accumulation over the years in some areas and contribute to reducing T&T's marine biomass productivity and biodiversity. The long term consequences require regular State controls combined with a solid environmental safety net to ensure reducing transshipment environmental impacts or provide adequate financing for decontamination or seabed rehabilitation.

Strategic Objectives

- Create employment and generate foreign currency inflow
- **Contribute to the other marine activities** such as bunkering, cold stacking (bulk carriers), ship maintenance and repair by attracting potential customers
- Support the development of a **social and environmental safety net** as well as promoting a **continuous improvement culture** in these fields.

Port Operations



Relation to SDG

Improving the efficiency of ports is currently one of the cornerstones that need to be improved to see an overall increase in efficiency, competitiveness thus enabling the growth of existing and new business opportunities. Efficient port and maritime operations are a key element for the rest of the economy, for example it is clear that they have an impact on trade imports and exports. Their synergy with the rest of the economy make these important sectors to strengthen the economy as a whole.

For example, the Vision 2030 National Development Strategy sets as an initiative to “*place effort on improving the quality of port services by reforming the Port Authority, increasing private investment in the maritime sector and integrating port operations. Additionally, expansion of port infrastructure through the construction of port facilities in Toco and other parts of Trinidad and Tobago would also be undertaken.*” These initiatives are in line with the inefficiencies that stemmed from the consultancy phase.

In addition, the connectivity between Trinidad and Tobago by sea is highlighted as an issue. The vision states that it will be improved by “providing a faster, alternative sea route to and from Tobago; opening up the northeast region of Trinidad for port development; and acquiring new fast ferries.

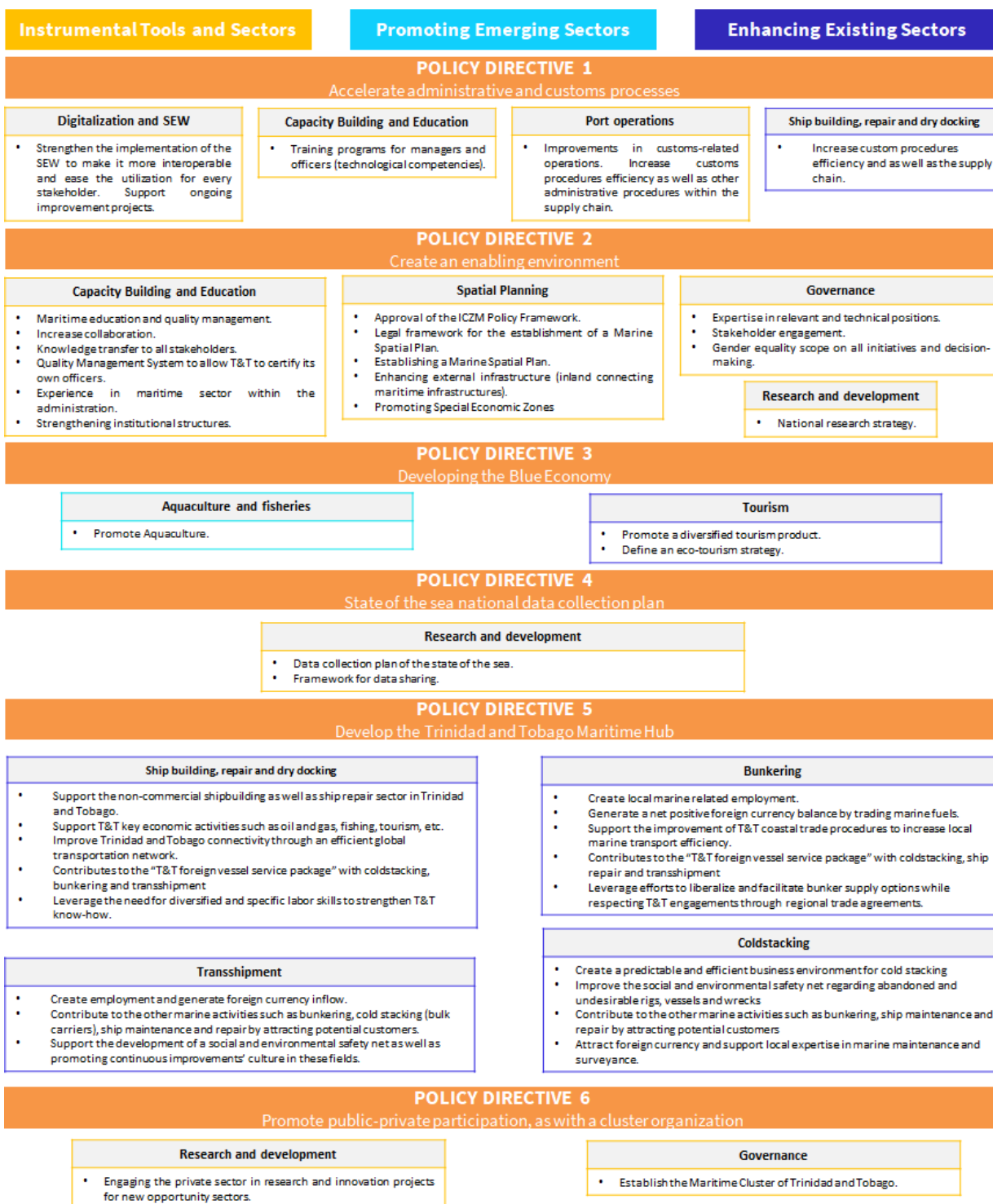
Strategic Objectives

- Increasing private investment in the maritime sector and Port Facilities (PPP projects).
- Dredging is needed in all ports and corrective measures to tackle barriers that wrecks pose.
- Port equipment renewal adapted to current international requirements (operative efficiency, energy efficiency, technology, etc.)
- Improving the connectivity of Trinidad and Tobago. Improving the berthing infrastructure and facilities to accommodate tourists and visitors.
- Improving the state of inland transportation network to allow for comfortable and fast flow of goods and persons.
- Pollution prevention and management of ballast water, vessel waste reception and atmospheric pollution and emission at ports for all vessels and yachts.
- Promote the dialogue between ports and the manufacturing industry to improve import/export opportunities of the country.
- Improvements in customs-related operations. Increase customs procedures efficiency as well as other administrative procedures within the supply chain.
- Improve Port-City relationships. For example, promote better Port-City relationships for the cruise and yachting sector.

- Port strategy focused on the client, based on the necessity of the industry.

As a summary Figure 33 depicts the strategic objectives set out in this section and the main relationships between policy directives.

Strategic Objectives and Policy Directives



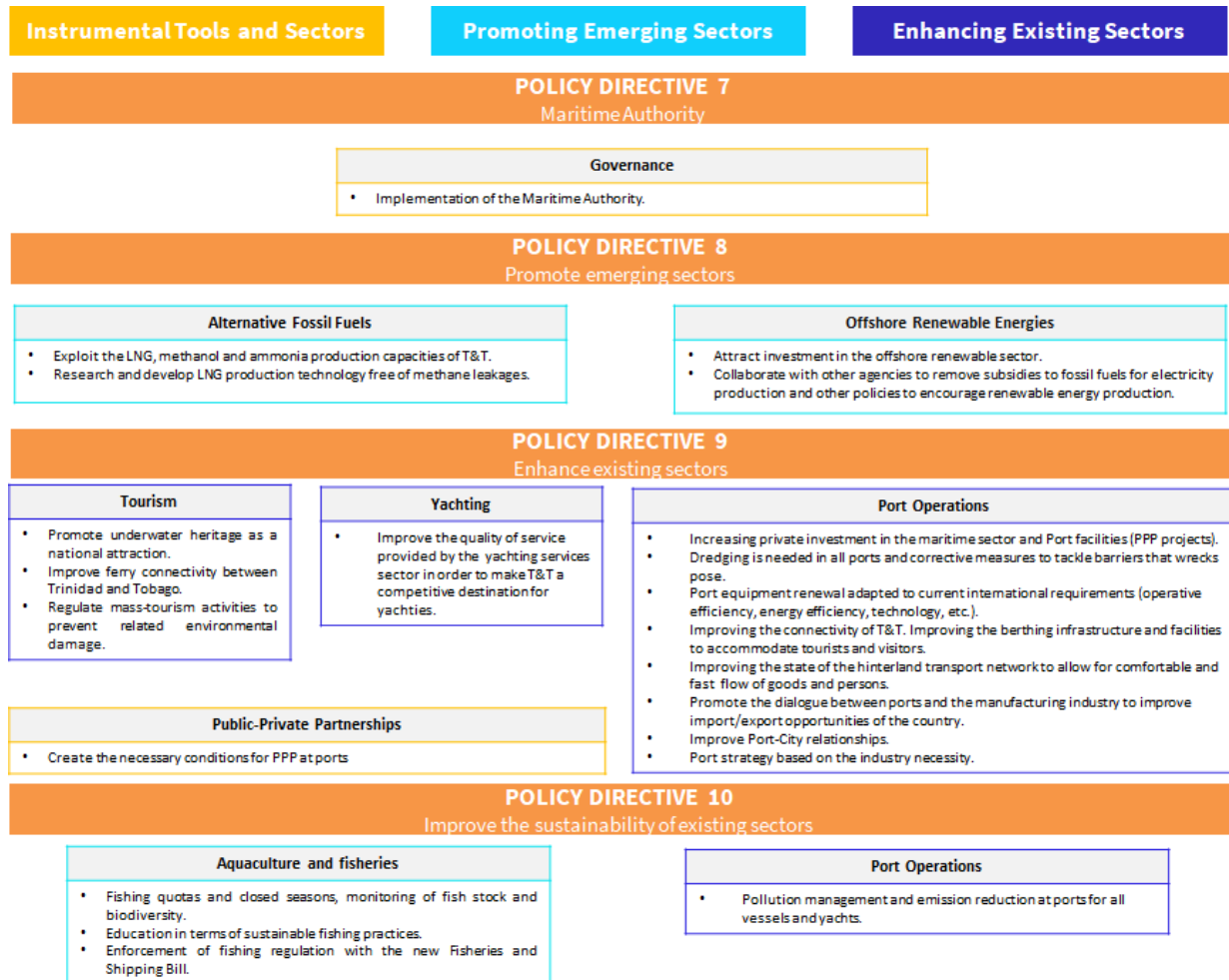


Figure 33. Relationship between Policy Statement and Strategic Objectives.

3.3.4 Existing Regulation

Finally, the following list gathers the most important legislation, plans, strategies and other currently approved regulations or in process of approval that have been raised during this analysis. These will be taken into account and the strategy will be also built on them in the next phase of the consultancy. Some of the legislation that is in Draft will tackle some of the concerns or issues raised during the consultation phase.

- Anti-Terrorism Act, 2005.
- Fisheries Act, 1916
 - This Act provides for the management of fishing by TTO fishing vessels in the Territorial Sea and inland waters. It makes provisions for implementation of a range of management measures including regulation of the fishing net characteristics, regulation of fishing times and fishing areas, regulation of the sizes of fish that may be caught, regulation of fishing with poisons and explosives, and regulation of fishing in prohibited areas.
- The Fisheries Management Bill (2020). Among others:
 - The Bill is intended to provide for long term sustainable fisheries in Trinidad and Tobago

Development of a National Maritime Policy and Strategy

- To regulate all fishing (artisanal, non-artisanal, commercial, recreational, TTO and foreign fishing vessels) and fishing-related activities (e.g., landing, processing, transshipment, in transit movement, trade, etc.) within the waters under the jurisdiction of TTO (fishery waters) and by TTO fishing vessels in areas beyond national jurisdiction.
- The Bill makes provision for a Fisheries Financial Board, a Fisheries Management Fund and strengthened fisheries monitoring, control, surveillance and enforcement.
- The Bill will make the registration of fishers and fish workers mandatory and provides for the maintenance of records and registers, including a Record of TTO Fishing Vessels and a Record of Fish Vendors.
- The Bill provides for the development of fisheries management plans, utilizing the best scientific information and local ecological knowledge available to inform decision-making. It establishes an authorisation/licensing/permitting system as a tool for executing management measures.
- The Bill will provide the legislative framework to enable Trinidad and Tobago to discharge its international obligations as a coastal, flag, port and market State. Once enacted it will repeal the 1916 Fisheries Act and the 1950 Control of Importation of Live Fish Act and is intended to amend several other pieces of national legislation for a strengthened fisheries management.
- It outlines prohibited fishing methods and fishing related activities.
- Consider the balance between economic incentives and sustainability of fisheries resources.
- **Draft Integrated Coastal Management Zones Policy Framework (2020).**
 - Maintaining and where necessary, enhancing the functional integrity of the coastal resource systems while enabling sustainable, economic development
- **Eco-tourism Draft Policy.**
- **The Maritime Pollution Prevention Bill (2021).**
 - Incorporates the provisions of the International Convention for the Prevention of Pollution from ships (MARPOL Convention). Prevention of pollution from ships under all Annexes of MARPOL will be covered.
 - Gives effect to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 which will help prevent the spread of potentially harmful aquatic organisms and pathogens in ships' ballast water.
 - Provides the framework for the regulation of anti-fouling paints used on ships and establishes a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems by incorporating the International Convention on the Control of Harmful Anti-fouling Systems on Ships.
 - Creates the framework for compensation for pollution damage in accordance with the 1992 Protocol to the Civil Liability Convention and the 1992 Protocol to the FUND Convention.
 - By incorporating the International Convention on Oil Pollution Preparedness, Response and Co-operation the Bill provides measures for dealing with marine oil pollution incidents nationally and in cooperation with other countries will be addressed.
 - The Bill also allows for measures to be taken on the high seas as may be necessary to prevent, mitigate or eliminate danger to its coastline or related interests from pollution

by oil or the threat thereof, following upon a maritime casualty through the Intervention Convention.

- The Bill also addresses prevention of pollution of the sea by dumping of waste and other harmful elements through the implementation of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Convention).
- **MOU among Ministry of Agriculture, Land and Fisheries, Tobago House of Assembly Ministry of Finance, Ministry of National Security, Ministry of Trade and Industry, Ministry of Works and Transport, for the Purpose of Collaboration in Regulating Fishing and Fishing-Related Activities and Relevant Trade, (August 19, 2019)**
- **National Environmental Policy of Trinidad and Tobago (2018).**
- **National Oil Spill Contingency Plan.**
- **National Protected Areas System Plan for Trinidad and Tobago (2018).**
- **Protection of Historic Wrecks Act (1994).**
- **Shipping Act 1987** gives effect to:
 - SOLAS Convention, 74 and SOLAS Protocol 78
 - The Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention 88)
 - Convention on Limitation of Liability for Maritime Claims
 - The International Convention on Load Lines
- **The Shipping Bill (2020).** Among others:
 - Establishment of the Maritime Authority of Trinidad and Tobago
 - Establishment of several Registries and its regulation: ships and offshore installations, seafarers, shipbuilders and shipbreakers, regulate marine training institutions and other marine related stakeholders.
 - Regulate the Standards of Training, Certification, and Watchkeeping for seafarers.
 - Establishment of the Chief Receiver of Wrecks. Also establishes that Trinidad and Tobago wrecked ships or offshore installations are removed and paid for by the owner or manager. Likewise, for foreign shipwrecks in T&T waters.
 - Regulating ship breaking or decommissioning of offshore installations via the Maritime Authority.
 - Chief Surveyor will be responsible for all matters relating to the safety, security and environmental protection of ships and offshore installations.
 - Establish a responsible unit within the Authority for operating and managing the Vessel Traffic Management System. To facilitate the safe navigation within T&T waters. They also require owners and operators of harbours or Ports to establish a Vessel Transport Management System (VTMS) within their limits (local VTMS).
 - Prohibit the operation of ships or aircrafts within a 500 m zone around offshore installations.
 - Seafarers' certification to be employed in T&T ships or offshore installations.
 - The Drogher Act is repealed

3.3.5 Best Practices

The aim is to create a baseline, to support future actions in Trinidad and Tobago. An analysis has been made of best practice within the IMO benchmark regulations and relevant international regulations. The use of best practices and the ensuing results in the ports aid the knowledge of the benefits of employing

certain measures in the different areas of study. One of the main objectives of analysing them is to apply them to the peculiarities of T&T ports.

The regulations have been analysed for each area shown and can be seen in the Annex in Table A3, here Table 9 summarizes them.

Table 9. Summary of international regulations and best practices.

Area		Regulation	Best Practice
Fishing		The Torremolinos Protocol and the STCW-F Convention	The ratification and implementation of the 2012 Cape Town Agreement in Latin America and the Caribbean
Maritime Policies	Transport	IMO provides its Member States with assistance in formulating and developing national maritime transport policies (NMTPs)	Development of national maritime transport policies
			Integrated maritime policy (UE)
			Implementing Port Community Systems
Maritime Industry			Best Practice in the structuring of the Maritime Industry
Maritime Spatial Planning		MSP global (IOC-UNESCO and European Commission)	Cross-border cooperation in Maritime Spatial Planning
Sustainable shipping		IMO and the Sustainable Development Goals	Port of Antwerp: The greenest ships are given the greatest incentive
Water Pollution		The International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention)	Ballast Water and Sediment Management
		MARPOL: International Convention on the Prevention of Pollution from Ships	Addressing Illegal Discharges in The Marine Environment
			Port Reception Facilities
Air quality		International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001	Prohibit and/or restrict the use of harmful anti-fouling systems on ships
		MARPOL Annex VI on 19 May 2005, the Marine Environment Protection Committee (MEPC)	Best Clean Air Practices for Port Operations
			Drayage Truck Best Practices to Improve Air Quality
Sustainable Terminals		The International Maritime Organization's (IMO) Global Industry Alliance to Support Low Carbon Shipping (GIA)	Production of Green Energy
			Air and Water quality

Once the various best practices and the benefits of putting them into practice have been analysed, and taking into account the specificities of T&T, the following points should be highlighted:

1. Establishment and strengthening of fisheries management mechanisms (for instance and not limited to closed seasons and quotas or closed areas) to control fishing seasons, for respecting the breeding cycles of the species, protection of critical fisheries habitats as well as protection of maritime infrastructure.
2. Implementing a holistic port environmental monitoring strategy. As an example, the Environmental Ship Index (ESI) assesses the quantities of NO_x, SO_x and CO₂ emitted by ships. Ports that have implemented it have increased their port calls considerably.
3. Waste reception facilities provide the services required by MARPOL, so that it is a feature that attracts ships to call at the port.
4. Increasing private participation in ports, with the aim of having higher budgets for innovation.
5. Port-wide planning practices can improve air quality at ports and in near-port communities.
6. Training of port workers to implement best practice to improve energy efficiency and reduce atmospheric emissions.
7. Green energy production: solar energy and wind energy.
8. Develop integrated maritime policies in close cooperation with national and regional maritime stakeholders.

The best practices are used as a basis for developing the actions of the strategy, taking as an example actions taken by other ports that can be used in T&T ports.

3.4 Policy Statements

Finally, the following policy statements have been derived. The following table (10) shows the proposed Policy Statements, its parent Policy Directives and the related Action Plans.

Table 10. Policy Statements. Each Policy Statement can be found under a parent Policy Directive, related Key Strategic Areas are listed below and Action Plans in bullet points.

Policy Directive 1	
Accelerate process re-engineering of customs processes that affect the cost of doing businesses along the logistics chain.	
Policy Statement 1.1	
To ensure the SEW is an interoperational, updatable and easily implementable tool. To reinforce the promotion of the tool and usable by all stakeholders.	
Digitalization, Single Economic Window	<ul style="list-style-type: none"> INS-08: Strengthening the implementation of the SEW.
Policy Statement 1.2	
Using IT solutions to update custom clearance processes to a more transparent and standardized process without compromising its safety and revenue protection. Reformulate protocols and SOP's to increase the rate of clearance of goods thereby reducing costs in the logistics chain.	

Defence, Safety and Security	<ul style="list-style-type: none"> INS-06: Improve custom clearance process.
<p>Policy Statement 1.3</p> <p>Removal and replacement of Drogher's licence and book to remove disincentives on current trade, particularly inter-island traffic, ease bureaucracy affecting the efficiency and user-friendliness of the maritime sector. Modernise tracking vessel movements via VTMS utilizing AIS and VHF or Radar systems.</p>	
<p>Policy Directive 2</p> <p>Create an enabling environment.</p>	
<p>Policy Statement 2.1</p> <p>To advance in gender equality in work and working conditions for equal opportunity conditions to access leadership roles in the maritime sector. To include gender perspective and equal participation and consultation in the development of strategies, plans and actions in the maritime sector.</p>	
<p>Policy Statement 2.2</p> <p>To create the necessary institutional capacity building supported by a competently skilled workforce to transfer the (local) knowledge into all aspects of maritime services.</p>	
Capacity Building	<ul style="list-style-type: none"> INS-01: Develop a Quality Management System to allow T&T to certify its own officers. INS-02: Capacity building and knowledge transfer programme for strengthening the maritime sector as a whole focused in the administration and relevant stakeholders. INS-03: Promote and enforce the use of local labour on board T&T flagged vessels.
<p>Policy Statement 2.3</p> <p>To effect comprehensive planning strategy relating to the maritime sector and its environment sustainability, with all users, stakeholders and industries. To effect the policy statements presented in the 2018 National Environmental Policy in particular those in 2.09 Coastal and Marine Area Management.</p>	
Spatial Planning	<ul style="list-style-type: none"> INS-13: Develop a Maritime Spatial Planning Strategy.
<p>Policy Statement 2.4</p> <p>To improve the safety at sea by expanding the monitoring capacity of vessels via VTMS and to make Trinidad and Tobago waters safer by removing wrecks and derelict vessels.</p>	
Defence, Safety and Security	<ul style="list-style-type: none"> INS-04: Review the Trinidad and Tobago Ship Registry. INS-05: Implement a Vessel Traffic and Management System. INS-07: Review and removal of wrecks and derelict vessels.
<p>Policy Directive 3</p> <p>Developing the Blue Economy to derive socio-economic benefits.</p>	
<p>Policy Statement 3.1</p> <p>To promote Aquaculture and Mariculture as an alternative source of fish production for improved food security and livelihoods and as an alternative economic activity, supported by the requisite policy and legislative framework.</p>	

Aquaculture and Fisheries	<ul style="list-style-type: none"> PES-01: Implementation of the Aquaculture Strategic Plan: A Framework for Sustainable Development in Trinidad and Tobago 2018-2023.
Policy Statement 3.2 To develop the Tourism sector in a comprehensive manner exploiting the natural resources and beauty of the islands, aligned with environmental sustainability and to create opportunities for community development. To create a distinguishable product from other islands of the Caribbean.	
Tourism	<ul style="list-style-type: none"> EES-11: Finalise the ecotourism plan for T&T. EES-12: Development of the project implementation plan for the protection and preservation of Underwater Cultural Heritage (UCH) sites.
Policy Directive 4 Develop capacity to monitor the state of the sea by implementation of a national data collection plan.	
Policy Statement 4.1 To finance and promote research of the state of the sea and develop a national public and easily accessible repository of state of the sea data (ecology, bathymetry, oceanography, biodiversity, pollution...), with continuous monitoring and updating of the state of the sea. To promote collaborative research and innovation to foster knowledge transfer and partnerships between academia and the industry.	
Research and Development	<ul style="list-style-type: none"> INS-11: Development and implementation of a national data collection plan of the state of the sea. INS-12: Promotion of a National Research and Innovation Strategy.
Policy Directive 5 Develop and promote Trinidad and Tobago as a Maritime Hub.	
Policy Statement 5.1 To provide business facilitation to SMEs in targeted emerging sectors; promote investment and financing. To market Trinidad and Tobago's potential as a maritime hub attracting foreign vessels with a well-structured service offering package (bunkering, cold stacking, ship building, repair and dry docking, and transshipment). To allow fair competition between companies within and seek collaboration between these sectors.	
Ship Building, Repair and Dry Docking.	<ul style="list-style-type: none"> EES-15: Support Shipyards' competitiveness improvements initiatives. EES-17: Investigate the potential of ship breaking and recycling for wrecks with local stakeholders. EES-18: Investigate the potential of ship building
Bunkering	<ul style="list-style-type: none"> EES-01: Develop the bunkering services in T&T especially for transiting vessels passing nearby T&T waters.
Coldstacking	<ul style="list-style-type: none"> EES-02: Improve cold stacking procedures and National protection measures in case of abuse or abandoned assets.
Maritime Transport and Transshipment	<ul style="list-style-type: none"> EES-13: Promote and improve transshipment activities. EES-14: To review and assess the feasibility of regional maritime transport of goods and persons.
Policy Directive 6 Promote public-private participation, such as with cluster organization.	

Policy Statement 6.1 To promote new forms of governance models for ports by virtue of improving its operation and seeking new forms of financing.	
Port Operation	<ul style="list-style-type: none"> EES-10: Port governance models.
Research and Development	<ul style="list-style-type: none"> INS-12: Promotion of a National Research and Innovation Strategy.
Policy Statement 6.2 To have a body to ensure the actual implementation of the maritime strategy and maritime innovation actions and projects, where both public and private parts are represented and can take part. Likewise, ensure stakeholder participation is a reality and to create a network of collaboration within the sector to exploit synergies.	
Governance	<ul style="list-style-type: none"> INS-10: Establish the Maritime Cluster of Trinidad and Tobago.
Policy Directive 7 Prioritise the Maritime Authority.	
Policy Statement 7.1 To ensure best practice in service quality, efficient management, compliance, safety, environment of the maritime and marine related activities in T&T.	
Governance	<ul style="list-style-type: none"> INS-09: Establish an independent Maritime Authority
Policy Directive 8 Promote emerging sectors.	
Policy Statement 8.1 To study, invest, prioritize resources and promote initiatives in emerging maritime sectors that can significantly contribute to efficiency increase, GHG emissions and pollution reduction and improvement of the global sustainability of Trinidad and Tobago.	
Offshore Renewable Energies	<ul style="list-style-type: none"> PES-02: Study the opportunity to promote offshore renewable energy production.
Alternative Fossil Fuels	<ul style="list-style-type: none"> PES-03: Evaluate the opportunity to better leverage economic impact and reduce environmental consequences of Natural Gas production.
Policy Directive 9 Enhance existing sectors.	
Policy Statement 9.1 To put in place and enforce more sustainable fishing practices.	
Fisheries	<ul style="list-style-type: none"> EES-03: Expand capacity to conduct coordinated, collaborative, and policy-directed Fisheries Scientific and Applied Research. EES-04: Enhance capacity for fisheries/maritime training for improved resource management, including establishment of fisheries training program fund for increased access. EES-05: Establish fisheries monitoring, control, surveillance and enforcement programme to support implementation of the Fisheries Management Bill. EES-06: Establish a Vessel Monitoring Systems for the fishing fleet of artisanal and non-artisanal vessels.

Policy Statement 9.2 To improve the instruments supporting the efficiency and operation of the yachting sector so that it can attract yachting-tourism and to rebuild the yachting sector.	
Yachting	<ul style="list-style-type: none"> EES-19: Implement labour market assessment for skills training for competency-based apprenticeship programs for the yachting industry. EES-21: Full implementation of harmonized form for arrival notification, customs and immigration requirements; Standardizing importing procedures for clearing and transit of yachting parts for service providers. EES-22: Develop a Roadmap to rebuild the local yachting sector.
Policy Statement 9.3 To improve the logistics chain efficiency and connectivity of Trinidad and Tobago. To create the conditions for the improvement of dependent industries.	
Port Operations	<ul style="list-style-type: none"> EES-08: Investments in port infrastructure and equipment to improve throughput, connectivity and pollution emissions and management. EES-09: Improve intermodality and connections between ports and the territory.
Ship Building, Repair and Dry Docking.	<ul style="list-style-type: none"> EES-15: Support Shipyards' competitiveness improvements initiatives.
Policy Directive 10 Improve sustainability of existing sectors.	
Policy Statement 10.1 To prioritize a sustainable vision and climate change abatement actions for existing sectors. To prioritize pollution management policies, strategies and actions in terms of, but not limited to, ballast water, vessel waste reception or emissions at ports.	
Ship Building, Repair and Dry Docking.	<ul style="list-style-type: none"> EES-16: Develop state guidelines and regulations to reduce the impact of industry on the environment.
Port Operations	<ul style="list-style-type: none"> EES-07: Developing an energy efficiency improvement plan.
Yachting	<ul style="list-style-type: none"> EES-20: Implement legislative requirement for more robust marina and boatyard environmental management practices based upon guidance given in the "Guidebook on Sustainable Environmental Practices for Marinas and Boatyards".

4 Action Plan

Based on the definition of the strategic priorities highlighted in the previous section, the next objective is to create a specific and concrete action plan. The objective of this section is to segment the main strategic directions into concrete actions that will allow the main stakeholders to carry out the implementation and subsequent monitoring of the maritime strategy. The actions include the main steps, monitoring indicators, potential risks and an approximate budget.

4.1 Regulation

Trinidad and Tobago is a party to the Revised Treaty of Chaguaramas and by virtue of Article 140 is obliged to co-operate in the development of maritime transport services in the Community. In particular, the (a) enhancing flag and port State control activities in the Region; (b) developing and providing expertise in the shipping industry, including the necessary services and infrastructure necessary for the growth of the shipping sector; (c) protecting the marine environment from the effects of vessel source pollution and in combating the effects of such pollution; and (d) taking any other action necessary for the sustainable development of the shipping sector. Developing a national maritime policy and strategy for the promotion of and sustainable development of the maritime industry is a key component towards fulfilling Article 140 of the Treaty.

Trinidad and Tobago Maritime Policy and Strategy and International Treaties

The nature of legislative, regulatory, administrative and policy measures that will be required by the Government of Trinidad and Tobago to implement a treaty will depend on several factors:

- Whether there is existing national legislation capable of adaptation or amendment or whether completely new legislation is needed.
- Whether the Country wishes to develop legislation solely for implementation of the international Convention/Protocol or also to cover obligations under other international or regional treaties.
- The legal tradition of the Country, e.g., common law or civil/criminal law, the mode of incorporation of treaties into national law.
- The extent of the flag, port, market, and coastal interests.

The national policy and strategy are therefore an integral part of the national regulatory framework, along with relevant policies, legislation, and institutional arrangements.

As it relates to the legislative framework, the maritime authority (to be established) should, in consultation with other stakeholders, assess the National Policy and Strategy and determine whether the measures being considered can be implemented through legislative or non-legislative action. The strategic and policy direction will also form the instructions which will be used by the legislative drafters to draft the applicable legislation.

As Trinidad and Tobago has a domestic fleet and is seeking to have a larger number of vessels engaged in international voyages there is a need to increase the focus on its flag State obligations which may include ensuring that its fleet remains competitive. This requires full implementation of the main IMO

Conventions, SOLAS, MARPOL, STCW, Loadlines, Tonnage, LLMC, COLREGs, and UNCLOS. Additionally, as a State which also has a significant number of foreign registered vessels operating in its waters there is also a need to give more significance to its coastal and port State obligations in the policy and ensuring that the legislative framework is in place to enforce the international conventions upon the ships that call at its ports, or which operate in its waters.

The nature of shipping in Trinidad and Tobago involves vessels to which the IMO instruments do not apply considering vessel size and trading area. These vessels and operations could be regulated by standards which have been developed specifically for the Caribbean. The Caribbean Cargo Ship Safety Code (CCSS Code) and the Code of Safety for Small Commercial Vessels (SCV Code) are standards for the safety of ships, certification of seafarers and protection of the marine environment for ships operating within the Caribbean Trading Area and to which IMO instruments are inapplicable. The CCSS Code provides a regional safety standard and pollution prevention for cargo ships, new and existing, of more than 24 metres length (L) and oil tankers and tankers irrespective of length which are less than 500GT engaged on voyages in the Caribbean Trading Area while the aim of this SCV Code is to prescribe standards of construction, and emergency equipment for small commercial vessels operating in the Caribbean Region. The Shipping Bill provides for the Minister to make regulations to give effect to both Codes.

The implementation of the National policy and strategy will therefore require changes in the legal framework whether through the amendment of existing laws or the development of new laws. In developing the legislative framework care should be taken to avoid complex legislation to avoid a delay in the passing of the legislation and difficulties obtaining wider stakeholder acceptance.

It is also important to avoid overlapping and duplication of the legislative framework. It is therefore critical that legislative assessments on policy and strategy are conducted by an interagency body which should also include the wider shipping industry and civil society.

Implementation of IMO and ILO Conventions

Acceding to the Conventions/Protocols without incorporating legislation is not encouraged as it will effectively amount to a breach of the Convention which requires state parties to undertake to give effect to the Convention. Additionally, the absence of legislation will prevent the state from taking any enforcement action to prevent emissions from ships in their ports and waters which are in contravention of the Conventions/Protocols.

Transforming an international legal instrument such as Protocol into national legislation is an exercise involving several steps. However, the principal steps include: Policy formulated in Ministry, Policy approved by Cabinet, Drafting Instructions to legislative drafter, Bill drafted – consultations – Bill re-drafted, Cabinet approves introduction, Bill published with Explanatory Note or Memorandum, Bill to legislature, Bill amended, if necessary, Bill enacted, Assent, publication, commencement, and Implementation. Careful consideration should first be given to whether legislation is needed to implement the Protocol or whether an administrative action such a Cabinet decision or ministerial directive would be sufficient. This may avoid having to engage the limited resources of the department responsible for drafting legislation and use Parliament's time to debate the legislation.

As part of the legislative process, it is therefore necessary to determine which provisions would not need to be addressed in legislation and those that may be left to policies and internal procedures having regard to the nature of the obligations posed by the provision.

Considering that there is draft legislation at an advanced stage implementing the primary IMO conventions, it is recommended that the focus is placed on having those pieces of legislation passed as quickly as possible. In this way, the work to amend the legislation can start to give effect to the amendments to the Conventions.

Trinidad and Tobago Maritime Policy and Strategy

A key component of achieving the objectives of the maritime policy and strategy of Trinidad and Tobago is giving full and complete effect to the international instruments (Conventions and Protocols) adopted by the International Maritime Organization and the International Labour Organization and which have been ratified by TTO. This will establish Trinidad and Tobago as a key maritime player globally and benefit from increased activities in the maritime sector while at the same time enabling the country to properly discharge its flag, port, market, and coastal State obligations to protect and preserve the marine environment and regulate maritime safety and security. As a member state of the IMO, implementation of the Conventions and Protocols whether through legislation, directives or other administrative measures will also be beneficial to the process of being audited by the IMO. Additionally, as a member of the Caribbean Memorandum on Port State Control (CMOU), giving effect to the relevant instruments of the CMOU will reduce the risk of substandard shipping in waters under the jurisdiction of Trinidad and Tobago and the potential for detention of Trinidad and Tobago vessels which augurs well for elevating the country's maritime profile.

The current maritime legislative framework is contained primarily in the Shipping Act 1987. The Act provides for, inter alia, the incorporation of the provisions of the SOLAS Convention, 74 and SOLAS Protocol 78, the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention 88), the Convention on Limitation of Liability for Maritime Claims 1976 and the International Convention on Load Lines 1966. The Act does not however reflect the amendments to those conventions and Protocols and does not adequately address the key concerns within the maritime sector particularly as it relates to marine pollution, compensation for marine pollution damage and seafarer welfare. The legislation that will give effect to international instruments which regulate such matters are the Shipping Bill 2020 and the Maritime Pollution Prevention Bill 2021.

Other related maritime legislation relates to the establishment of TTO maritime jurisdiction in accordance with UNCLOS.

It is also noted that the process of promulgating legislation in Trinidad and Tobago can be protracted, and this is a key weakness in the strengthening of the legislative framework for the maritime sector. This provides an opportunity for dedicated legislative drafters to be assigned to maritime legislation and for an in-house counsel within the Maritime Authority (to be established on the enactment of the new Shipping Act) who will monitor developments at the IMO and ILO and commence the process of amending the legislation once amendments are adopted at the international level. Legislative provisions for the timely implementation of instruments of a technical nature through incorporation by reference or delegated legislation can also be considered.

Trinidad and Tobago is a party to the United Nations Convention on the Law of the Sea, 1982 and the following mandatory and non-mandatory instruments of the IMO as listed below:

Mandatory IMO Conventions

- The International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS 1974);
- The Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS PROT 1988);
- The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, as amended (MARPOL 73/78);
- The Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978 relating thereto (MARPOL PROT 1997);
- The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW 1978);
- The International Convention on Load Lines, 1966 (LL 1966);
- The Protocol of 1988 relating to the International Convention on Load Lines, 1966 (LL PROT 1988);
- The International Convention on Tonnage Measurement of Ships, 1969 (TONNAGE 1969); and
- The Convention on the International Regulations for Preventing Collisions at Sea, 1972, as amended (COLREG 1972);

Non-Mandatory Instruments

- International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001
- The International Convention for the Control and Management of Ship's Ballast Water and Sediments (BWM) (2004)
- The International Convention on Civil Liability for Oil Pollution Damage (CLC) Protocol 1992
- Convention on Facilitation of International Maritime Traffic (FAL) 65
- International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, FUND Protocol 92
- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972
- International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) 1990
- Convention on Limitation of Liability for Maritime Claims (LLMC) 1976
- International Convention on Maritime Search and Rescue (SAR) 1979
- Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation 1988
- Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf 1988

Implementing Conventions and Protocols

A critical issue with the implementation of conventions and protocols is the time it takes for legislation to be promulgated. In the case of IMO mandatory conventions, the result has been that the State is unable to fulfil its obligations under the instruments and the enforcement required is impossible to achieve. This can also lead to a failure of IMO audits and the inability to produce acceptable ILO country reports which are mandatory for the maritime conventions.

Developments in the global maritime industry require a responsive legislative system to enact legislation within a reasonable time frame to give effect to international standards for shipping and maritime matters, including the prevention of pollution, standards of training and certification, maritime labour standards, and maritime safety and security. Unfortunately, much of the maritime legislation in Trinidad and Tobago is outdated or in draft. Like other countries in the Region, which are pursuing the development of their domestic maritime industries, Trinidad and Tobago will have to continue to develop and update domestic maritime laws to meet new international regulatory safety, security, and operational standards. It is therefore imperative to make maritime legislation a greater priority and to improve the time frame for producing legislation.

It is recommended that in drafting maritime legislation, which can be seen as technical, general provision is made in an Act with the power to make subsidiary legislation (regulations, orders, rules) and all detailed technical provisions should be contained in subsidiary legislation. The subsidiary legislation typically takes less time to be drafted and implemented. It is further recommended that legislative drafters be trained in maritime legislation and that an officer within the Maritime Authority (to be established under the new Shipping Act) be assigned to monitor developments at the IMO and ILO and prepare position papers or policy documents on matters which require legislative changes before they take effect for Trinidad and Tobago. This will assist in ensuring that the legislation remains current. It is also recommended that representatives of the maritime authority and other relevant government agencies participate in the meetings of Committees of the IMO and ILO sessions when the Instruments are being adopted or revised.

Having regard to the cross sectoral provisions in many of the more recent IMO and ILO the development of an interagency committee or National task force to allow for structured consultations between government agencies when developing drafting instructions or implementing a convention or protocol.

Strategic Objective	Recommended Action
Implementing the legislative, regulatory changes for the development of the maritime sector	Fast tracking the update of key legislation by negotiating for maritime legislation to be a high priority item.
Adherence to international maritime conventions and standards	Training of legislative drafters in maritime legislation.
	Engage legislative drafting consultants to supplement the work of the national drafters.
	Assigning an officer within the Maritime Authority to monitor IMO and ILO developments that require new maritime legislation to ensure their timely transposition into national law.
	Stakeholder consultations – structured stakeholder consultations for greater efficiency
	Increased stakeholder awareness and sensitivity including government agencies on maritime matters to foster greater understanding among all stakeholders of the issues and regulations that affect the maritime industry.

	<p>Greater use of subsidiary legislation. Technical directives that can be issued by the head of the Maritime administration.</p> <p>Participation in IMO/ILO Committee and Subcommittee Meetings</p>
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Recommendations for legislative development

It is noted that many of the legislative gaps identified in the Strategy are covered in the Shipping Bill which is in Parliament and is therefore at an advanced stage. Other gaps that relate to marine pollution, liability and compensation are expected to be significantly closed with the passage of the Marine Pollution Prevention Act.

The following are also recommended:

1. Accession to the Nairobi Wreck Removal Convention with provision for extending its application to the internal waters of Trinidad and Tobago and a regime requiring shipowners to have insurance or other financial security to cover the costs of wreck removal and providing Trinidad and Tobago with a right to direct action against insurers.
2. Accession to the Maritime Labour Convention and full implementation through legislation, collective agreements and with a focus on enforcement of its provisions through legislation and, port state control inspections.
3. Strengthening the regulation of the fishing sector through the effective implementation of the FAO Agreement on Port State Measures to prevent, deter, and eliminate illegal, unreported, and unregulated fishing (PSMA) with the passage of the Fisheries Management Bill and the Fisheries Monitoring, Control, Surveillance and Enforcement Regulations. This could be supplemented by inter-agency operating procedures for the exchange of information and the coordination of activities to effectively implement the PSMA.
4. It is recommended that legislation be introduced to govern the safe operation of yachts to include inspections and standards for safety and pollution prevention. This could be done by way of a regulation making provision in the Shipping Bill giving the Minister power to make regulations for such vessels. Incorporating the regulations, the Shipping Bill may be the most expedient option considering the advance stage of the Bill.

4.2 Instrumental Tools and Sectors

Capacity Building and Education

ACTION INS-01																					
Description		Develop a Quality Management System to allow T&T to certify its own officers.																			
Connections	T&T actions	Quality system (ISO 9000) (hold-up due to COVID-19).																			
	T&T strategies	-National Manpower Plan: Labour Skills Assessment-Maritime Services																			
Implementation steps		1. Unify the training of crews in universities, and adapt them to current legislative and technological requirements in order to be competitive. <ul style="list-style-type: none">Evaluating current training at universitiesStudy current crew requirements at the international levelAdapt training plans to market requirementsAllow quality sea time experience with the complicity of the industry, set-up agreements with the industry to train seafarers under real conditions. 2. Establish a commission of experts and stakeholders to evaluate the training of crews. <ul style="list-style-type: none">Analyse the appropriate national and international experts to set up a commission that can create quality standards. 3. Develop a procedure to evaluate the quality of crews with a series of accreditations that will allow them to accredit their qualifications at an international level.																			
Responsible		<ul style="list-style-type: none">Maritime Services Division (MOWT)																			
Promoters		<ul style="list-style-type: none">Ministry of EducationTrinidad and Tobago Seamen, Education, Employment, Association ContractorSeamen and Waterfront Workers Trade Union (SWWTU)National Training Agency (Maritime Advisory Committee)University of Trinidad and Tobago Maritime Campus																			
Time horizon		2030																			
Risk assessment	Risks	<ul style="list-style-type: none">High complexity in modifying education plans (very lengthy procedure and several years to implement)Numerous parties involved in the developmentLack of support for developmentNecessary research not being conductedSkilled/certified people leaving the system due to lack of opportunities.Not practical experience gained in the sea without the complicity of T&T maritime sector.																			
	Mitigation measures	<ul style="list-style-type: none">Develop plans in cooperation with education agencies to facilitate the process.Set up a commission of experts covering all sectors involved (political and academic).Resource allocation for training of seafarers at sea to gain sea time experience.																			
Monitoring indicators		<ul style="list-style-type: none">Crew rate of T&T originCrew quality indexNew education plan implemented																			
Budget		<1,000,000 USD																			
Expected impacts		<ul style="list-style-type: none">Improved training of T&T crewsImproved competitiveness of T&T's own crew and fleet.Unify training and create a link between universities and industry.Create maritime employment <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr></table>			Economic	Environmental	Social	+										-			
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ACTION INS-02					
Description		Capacity building and knowledge transfer programme for strengthening the maritime sector as a whole focused in the administration and relevant stakeholders			
Connections	T&T actions	-			
	T&T strategies	-			
Implementation steps		1. Identification of missing key competencies by sector and usage of key instruments (IT skills, SEW usage, customs, financing schemes such as PPP, sustainable fishing practices, eco-tourism practices, pollution management practices...).			
		2. Definition of key training programs per stakeholder agent.			
		3. Dissemination plan.			
		4. Engagement and training of stakeholders.			
		5. Resourcing institutions and training agencies			
Responsible		Maritime Service Division, Maritime Authority			
Promoters		All main stakeholders			
Time horizon		2023			
Risk assessment	Risks	<ul style="list-style-type: none">● Financing of the programme.● Low participation.● Disengagement from stakeholders.● Unappealing syllabus and material.● Not reaching all stakeholders.● Actual implementation of new skills and training.			
	Mitigation measures	<ul style="list-style-type: none">● Definition of specific dissemination plan● Compulsory training courses for public employees● Follow-up training to keep up to date skills.● Definition of a mid-term update training course.● Proactive engagement plan with stakeholders.● Workshop format for practical experience acquisition.			
Monitoring indicators		<ul style="list-style-type: none">● Completion rate.● Participation rate.● Follow-up monitoring of implementation of new skills in stakeholders (sustainable practices, etc.)			
Budget		<500,000 USD			
Expected impacts		<ul style="list-style-type: none">● Improving competitiveness of the maritime sector as a whole.● Implementation of sustainable best practices by stakeholders● Improving efficiency of customs and bureaucracy			
			Economic	Environmental	Social
		+			
		-			

ACTION INS-03		
Description	Promote and enforce the use of local labour on board T&T flagged vessels	
Connections	T&T actions	-
	T&T strategies	-
Implementation steps	<ol style="list-style-type: none"> 1. Strengthened the application of actual regulation to force shipowners to hire local mariners having the appropriate certification. 2. Implement the obligation for shipowners to demonstrate the lack of available resources with appropriate certification before hiring international crews. 3. Limit the duration of international crew contracts hire to three months. 4. Oblige the shipowners to demonstrate the lack of local appropriate labour upon foreign crew contract renewal. 5. Provide incentives for shipping companies. 	

Development of a National Maritime Policy and Strategy

Responsible		Maritime Service Division, Maritime Authority Ministry of National Security, Immigration Division																				
Promoters		Immigration Maritime Service Division, Maritime Authority SWWTU																				
Time horizon		2023																				
Risk assessment	Risks	<ul style="list-style-type: none">● Opposition from shipowners to avoid extra administration processes.● Incentives do not realise expected benefits.																				
	Mitigation measures	<ul style="list-style-type: none">● Implement clear and applicable procedures allowing shipowners to demonstrate the real lack of available and appropriately certified marine personnel at the time of hiring .																				
Monitoring indicators		<ul style="list-style-type: none">● Local seafarer employment rate.● Number of T&T seafarers employed on T&T flagged vessels.																				
Budget		<500,000 USD																				
Expected impacts		<ul style="list-style-type: none">● Improving competitiveness of the maritime sector as a whole.● Facilitate working opportunities to local seafarers and contribute to the development of a stronger local now-how.● Avoid foreign exchange outflow by paying international crew salaries. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td>+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+												-			
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Defence, Safety and Security

ACTION INS-04		
Description		Review the Trinidad and Tobago Ship Registry
Connections	T&T actions	-
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> 1. Reviewing the Ship Register regulations. 2. Propose measures for improvement: Incentives, Taxes Minimum country crew requirements 3. Study methods to incentivise the attractiveness of the Trinidad and Tobago Shipping Register. 4. Agree with the different operators on their needs to promote the national ship registry. 5. Adapt the register to the legislation in the field of maritime matters.
Responsible		<ul style="list-style-type: none"> • Ministry of Trade and Industry • Maritime Service Division, Maritime Authority
Promoters		<ul style="list-style-type: none"> • All main stakeholders
Time horizon		2025
Risk assessment	Risks	<ul style="list-style-type: none"> • Setting stringent requirements that will result in the loss of registered vessels • More competitive registers
	Mitigation measures	<ul style="list-style-type: none"> • Establish requirements and incentives jointly with stakeholders.
Monitoring indicators		<ul style="list-style-type: none"> • Index of new ships on the register
Budget		<500,000 USD
Expected impacts		<ul style="list-style-type: none"> • Improving the rate of national crewing on ships

	Economic	Environmental	Social
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ACTION INS-05		
Description		Implement a Vessel Traffic and Management System
Connections	T&T actions	Efforts already completed in implementing a VTMS
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none">Resume the actions towards the implementation of the Vessel Traffic and Management System (VTMS)Revise the information sharing protocols amongst marine stakeholders including other governmental agencies as well as with private stakeholdersReview the VMTS required function, especially for vessel traffic monitoring and recording to replace drogers licenseReview the T&T technological infrastructure capacity to select an appropriate VTMS System as well as implementing efficient working structure between stakeholdersUpdate cost estimation to purchase a VTMSEvaluate organisational changes necessary to operate and maintain a VTMSObtain financing and request proposal for a proven VTMSTrain personnel and establish Standard Operating ProceduresReview or implement mandatory point of calls and procedures for vessels sailing in T&T waters and update marine publications.
Responsible		<ul style="list-style-type: none">Trinidad and Tobago Coast GuardMinistry of Works and TransportationMaritime Authority
Promoters		<ul style="list-style-type: none">Trinidad and Tobago Coast GuardTrinidad and Tobago Customs and ExciseThe Shipping Association of Trinidad & TobagoTrinidad and Tobago Pilotage AssociationMajor port Administrations.
Time horizon		2025
Risk assessment	Risks	<ul style="list-style-type: none">Numerous stakeholders with divergent interest and security clearance might slow the process to determine the information sharing protocols.Cost overruns due to the complexity of the projectPersonnel competency to operate the VTMS.
	Mitigation measures	<ul style="list-style-type: none">Focus on necessary information sharing protocols (safety, security, pilotage, port State controls) to begin with and complete with other stakeholders laterRequest proposal for turnkey existing proven systems provided by proponents having a direct experience in VTMS development and maintenanceDevelop and implement a personnel training program.
Monitoring indicators		<ul style="list-style-type: none">Establishment of major protocolsCost evaluation and project financingRequest of proposalVTMS implementationProject performance review.
Budget		>3,000,000 USD

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Expected impacts	<ul style="list-style-type: none"> Better real-time marine traffic follow-up in T&T waters Improved risk assessment and labour planning for Port State Controls Better decision making in the event of major defence, safety and security. Single information window for marine stakeholders for better port activity planning (berths, stevedores, pilotage, labour etc) Information tools for Custom and Excise to optimize cargo clearance delays through optimal resource allocation. 		
		Economic	Environmental
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ACTION INS-06		
Description		Improve custom clearance process. Improvement of custom services especially for importers/exporters.
Connections	T&T actions	<ul style="list-style-type: none"> Strengthening the implementation of the SEW The New Shipping Bill.
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> Analyse the custom requirements of Trinidad and Tobago, analysing its strengths and weaknesses. Review cargo import/export processes and identify potential improvements to reduce delays, uncertainty while maintaining National Security. Pursue the implementation of automated/electronic custom procedures/forms/communication. Update Standard Operating Procedures accordingly and implement continuing education programs to update custom agents to actual procedures and recent changes. Analyse the opportunity to implement cargo preclearance procedures based on vessel cargo manifest to reduce clearance delays. Analyse the opportunity to implement a “trustee” program for importers/exporters representing a low risk based on their internal controls and best practice against potential criminal actions/smuggling. Develop an improvement plan for the identified weaknesses.
Responsible		<ul style="list-style-type: none"> Customs and Excise Division Ministry of Trade and Industry
Promoters		<ul style="list-style-type: none"> Customs and Excise Ministry of Trade and Industry Single Electronic Window Unit
Time horizon		2022 – Continuous
Risk assessment	Risks	<ul style="list-style-type: none"> National Security reasons used to slow down custom procedures improvement. Human resistance facing SOP changes and technology implementation. Continuous improvement culture will fade out after a couple of years.
	Mitigation measures	<ul style="list-style-type: none"> Strong support from the Ministry of Trade and Industry at all levels to keep the pressure on stakeholders. Developing and implementing a pertinent training program for custom agents or other stakeholders. Implement a staggered plan. Tackle one topic at a time (problem identification, solution development, field test, personnel training, review of benefits). Once completed, tackle next issues and so on.
Monitoring indicators		<ul style="list-style-type: none"> Average cargo delays metrics Illegal activities intercepted.
Budget		500,000 USD/year
Expected impacts		<ul style="list-style-type: none"> Improve T&T economic development through efficient trade Increase port container productivity by reducing the space required for customs. Facilitate the increase of productivity for the ship building/repair and yachting sectors Reduce the risk of criminal activities by focusing resources on higher risk importers/exporters. Improve competitiveness of T&T in the Caribbean region.

ACTION INS-08		
Description		Strengthening the implementation of the SEW
Connections	T&T actions	<ul style="list-style-type: none"> Capacity building and knowledge transfer program for strengthening the maritime sector as a whole focused on the administration and relevant stakeholders. Improve custom clearance process.
	T&T strategies	Ongoing strengthening of the SEW.
Implementation steps		<ol style="list-style-type: none"> Change Management and Communications. Continue with consultancy carried out for change management training and leadership. Continue with a stakeholder awareness campaign.

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		<div><div></div><div>2. SEW continuous technological upgrades. Continue with upgrades (electronic payments, usability by multiple agencies, ministries and users, improved interoperability).</div><div>3. Continued integration with other electronic systems, e.g. Port Community System</div><div>4. Bestow SEW Organizational Structure with more autonomy.</div><div>5. Capacity building and dissemination plan. IT skills training across departments and agencies and dissemination plans to all potential users.</div><div>6. Feedback plan. To allow reporting of malfunctions or improvements.</div></div>
Responsible		<div><div></div><div><ul style="list-style-type: none">GoRTTSEW UnitPIU</div></div>
Promoters		<div><div></div><div><ul style="list-style-type: none">Shipping AssociationTTO Ports including PATT and PLIPDECOMaritime Services DivisionCoast GuardCustoms and Excise DivisionMinistry of Trade and IndustryMinistry of FinanceMinistry of Planning and DevelopmentImmigration DivisionFisheries Division</div></div>
Time horizon		2025
Risk assessment	Risks	<div><div></div><div><ul style="list-style-type: none">Poor culture of change in the sectorSlow adaptation of the sectorSlow infrastructure changes in dependent sectors.</div></div>
	Mitigation measures	<div><div></div><div><ul style="list-style-type: none">Awareness-raising and information campaigns on the use of the SEW</div></div>
Monitoring indicators		<div><div></div><div><ul style="list-style-type: none">Ease of doing business metricsImport and export delay times</div></div>
Budget		<1,000,000 USD
Expected impacts		<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> 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Governance

ACTION INS-09		
Description	Establish an independent Maritime Authority	
Connections	T&T actions	<ul style="list-style-type: none"> The New Shipping Bill
	T&T strategies	-
Implementation steps	<ol style="list-style-type: none"> Implement appropriate legislation and implementation plan for the creation of the Maritime Authority (MA). Review governance structure to allow the MA to have the influence required to have T&T marine legislation updated on time according to IMO implementation schedule Ensure appropriate source of financing for the Maritime Authority and offer competitive working conditions to attract and keep talented individuals at all organisational levels. Review and update the Standard operating procedures (SOP) and optimise the processes whenever possible Train and communicate the updated SOPs to the marine personnel. 	
Responsible	<ul style="list-style-type: none"> Ministry of Works and Transportation 	
Promoters	<ul style="list-style-type: none"> Ministry of Trade and Industry Trinidad and Tobago Coast Guard The Shipping Association of Trinidad & Tobago 	

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		<ul style="list-style-type: none">Environmental Management Authority.
Time horizon		2026
Risk assessment	Risks	<ul style="list-style-type: none">Lack of political influence to make sure maritime legislation bills remain on the House of Representatives´ agendaInsufficient budget to attract enough talented individuals to properly cover the Maritime Authority
	Mitigation measures	<ul style="list-style-type: none">Create a Deputy Minister position within the Ministry of Works and Transportation. This Deputy Minister portfolio will be focused solely to implement the T&T marine policy and to oversee the Maritime Authority. Once elected, this Deputy Minister will sit on the Ministers Council as well as at the House of Representatives. This position will ensure that marine legislation follows its path and MA budget is sufficient.
Monitoring indicators		<ul style="list-style-type: none">Creation of a Deputy Minister positionCreation of a Maritime AuthorityImplementation of clear SOP as well as continuous improvements culture
Budget		>1,000,000 USD
Expected impacts		<ul style="list-style-type: none">Faster legislation modificationImproved contribution in the development of other aspects of the marine policy in terms of economic activity, environmental protection, marine safety and security, marine personnel training.Better monitoring of marine activities according to the legislation and the permits emitted by T&T (Port State controls, transshipment, bunkering, cold stacking, etc.)

ACTION INS-10		
Description	<p>Establish the Maritime Cluster of Trinidad and Tobago.</p> <p>Increase participation of stakeholders in maritime decision-making and collaboration within the sector.</p> <p>The Cluster should act as a leading organisation within the maritime sector and be a representative of all stakeholders in policy making and decision making. It will create a space where the public administrations and the private sector initiative will come together to dialog and promote the realization of maritime actions and innovation initiatives.</p> <p>The aim is to create a body to ensure the actual implementation of maritime strategy actions where both public and private parts are represented. Likewise, ensure stakeholder participation is a reality and to create a network of collaboration within the sector to exploit synergies.</p>	
Connections	T&T actions	<ul style="list-style-type: none"> Promotion of a National Research and Innovation Strategy.
	T&T strategies	-
Implementation steps	<ol style="list-style-type: none"> Ensure that upon implementation of the Cluster it has the power to participate in the development of sectoral strategies and policies. Allocate a public budget to fund the cluster during the first years of operation. Define a framework protocol of best practice in public consultation to ensure engagement of stakeholders in a fluid manner in decision-making on matters relating to the maritime sector. Make use of stakeholder know-how in future decision-making. Define a framework protocol for consulting and including gender scope in decision making. Define a framework to foster collaboration within partners of the sector and create the necessary conditions for partnerships and joint ventures. Aim to generate new business opportunities from collaboration and innovation and knowledge transfer. 	
Responsible	Maritime Authority, Maritime Services Division	

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Promoters		Maritime Authority, Maritime Services Division and stakeholder of the private sector.																		
Time horizon		2023																		
Risk assessment	Risks	<ul style="list-style-type: none">Stakeholder disengagement.																		
	Mitigation measures	<ul style="list-style-type: none">Proactive and leading role of the Cluster in engaging stakeholders in decision-making.Ensure a working proposal/feedback mechanism to take into account stakeholder proposals.Promoted by the Government of Trinidad and Tobago but being a partner like the rest of the private companies associates. The																		
Monitoring indicators		<ul style="list-style-type: none">Internal monitoring indicatorsNational private investment in innovation.Stakeholders engagedProjects/actions carried out under the promotion of the Cluster.																		
Budget		<1,000,000 USD/year																		
Expected impacts		<ul style="list-style-type: none">Increase in the implementation of maritime actions.Increased partnerships and joint ventures within the sector.New industry opportunitiesBetter know-how and knowledge transfer between stakeholders in the sector <table><tr><td></td><th>Economic</th><th>Environmental</th><th>Social</th></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-			
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Research and Development

ACTION INS-11		
Description		Development and implementation of a national data collection plan of the state of the sea
Connections	T&T actions	<ul style="list-style-type: none"> Expand capacity to conduct Sustainable Fisheries Applied Research.
	T&T strategies	<ul style="list-style-type: none"> State of the Marine Environment (IMA)
Implementation steps		<ol style="list-style-type: none"> Development of a data access and sharing policy aligned with relevant national legislation. Establishing a MOU with the Central Statistical Office (CSO) to research and develop data repository on various sub-sectors of the Maritime Sector. Definition of areas to be covered and responsible. Evaluation of currently available data and data gaps of each area. Definition of a data collection plan and long-term monitoring strategy. Creation of a framework for the sharing of data. Definition of a public platform to host all data related to the sea. Implementation of the data collection and monitoring implementation. Development of the public database platform. Dissemination of available data and public platform among Ministries, other agencies and potentially benefited stakeholders.
Responsible		GoRTT/Interministerial: Central Statistical Office, Ministry of Works and Transportation, Maritime Service Division, Maritime Authority, Ministry of Planning and Development.
Promoters		<ul style="list-style-type: none"> Central Statistical Office Ministry of Works and Transportation, Maritime Service Division Environmental Management Authority Institute of Marine Affairs

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		<ul style="list-style-type: none">• University of Trinidad and Tobago Maritime Campus• The University of the West Indies• Ministry of Agriculture, Land and Fisheries - Fisheries Division• Caribbean Fisheries Training and Development Institute																		
Time horizon		2024																		
Risk assessment	Risks	<ul style="list-style-type: none">• Underfinancing.• Low technical skills for the development of the plan.• Disengagement from areas where there is currently no data.• No continuity of the program.																		
	Mitigation measures	<ul style="list-style-type: none">• Public resources must be allocated to this initiative.• Memorandum of Understanding between different involved agencies and organizations, including the Central Statistical Office, highlighting responsibilities and long-term implication.• Publication of data to a public platform and dissemination between the administration for the better understanding and development of policies and measures.																		
Monitoring indicators		<ul style="list-style-type: none">• Identification of main/priority data gaps metrics.• Number of organizations involved in data collection.• Funding for data collection field work.• State of the public accessible database.																		
Budget		>1,000,000 USD																		
Expected impacts		<div><ul style="list-style-type: none">• Increased knowledge of the state of the sea.• Ability to control and monitor marine resources.• Maritime pollution control• Monitoring and analysis of the impact of the different activities developed in the marine/maritime environment.• Better decision-making in terms of policies or actions to take by the administration.</div> <table><tr><td></td><th>Economic</th><th>Environmental</th><th>Social</th></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-			
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ACTION INS-12		
Description	Promotion of a National Research and Innovation Strategy. Trinidad and Tobago has the natural marine resources to produce related-research. The aim is to close the gap within research and development for the marine environment, and generate new Blue Economy innovative opportunities. In parallel, it seeks to close the gap between the industry and the research environments.	
Connections	T&T actions	<ul style="list-style-type: none"> Increase collaboration within the sector through the Maritime Authority
	T&T strategies	-
Implementation steps	<ol style="list-style-type: none"> Coordinate with other ministries for the development of a National Research and Innovation Strategy inclusive of maritime-related areas. Identification of missing gaps in research in the marine environment. Identification of innovation research to support Blue Economy opportunities, that would result in new sustainable industry opportunities. Create a framework for the engagement and collaboration of private resources in innovation and research (e.g. through Joint Ventures), and also to foster global collaboration with international partners (institutions/academia/innovation firms) in knowledge transfer actions to exchange best practices, innovation and foster potential international joint ventures. Identify legal barriers to technology transfer and create a framework for technology and knowledge transfer to the industry. Invest in a national knowledge centre for academia, researchers work with innovation businesses/ industry to enable knowledge and technology transfer. 	

Development of a National Maritime Policy and Strategy

Responsible		GoRTT/Interministerial: Ministry of Education, Ministry of Works and Transportation, Maritime Service Division, Maritime Authority, Ministry of Planning and Development.																								
Promoters		Public Sector: <ul style="list-style-type: none">Ministry of EducationMaritime AuthorityMinistry of Works and Transportation, Maritime Service DivisionEnvironmental Management AuthorityInstitute of Marine AffairsUniversity of Trinidad and Tobago Maritime CampusMinistry of Agriculture, Land and Fisheries - Fisheries DivisionCaribbean Fisheries Training and Development Institute Private sector: <ul style="list-style-type: none">UWIFinancial Institutions																								
Time horizon		2023																								
Risk assessment	Risks	<ul style="list-style-type: none">Resource allocation to support research.																								
	Mitigation measures	<ul style="list-style-type: none">Public resources must be allocated to this initiative.Seek private capital participation through Joint Ventures to promote new research and innovation lines.																								
Monitoring indicators		<ul style="list-style-type: none">Financing R&D indicators.Number of scientific/research projects financed within the scope of the strategy.Number of privately funded initiatives on innovation of the maritime sector.Innovation/research projects per maritime sub-sector.Adoption of new technologies in mature sectors.Metrics on foreign investors in R&D projects.																								
Budget		<100,000 USD																								
Expected impacts		<ul style="list-style-type: none">Development of innovative industry opportunities, potentially new employment opportunities.Opening the door to new types of collaboration in the industry.Diversification of the economy in the long-term. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="3">-</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-									
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Spatial Planning

ACTION INS-13		
Description		Develop a Maritime Spatial Planning Strategy
Connections	T&T actions	-
	T&T strategies	<ul style="list-style-type: none"> Integrated Coastal Zone Management Strategy National Protected Areas National Spatial Development Strategy for Trinidad and Tobago
Implementation steps		<ol style="list-style-type: none"> Establishing the legislative fit of Maritime Spatial Planning Strategy. Establish the objectives of the Maritime Spatial Planning Strategy. T&T shall establish procedural measures to contribute to the established objectives taking into account relevant activities and uses in marine waters. <p>In doing so, T&T shall:</p> <ul style="list-style-type: none"> take into account land-sea interactions; take into account environmental, economic and social aspects, as well as safety and security aspects

Development of a National Maritime Policy and Strategy

		<ul style="list-style-type: none">● aim to promote coherence between MSP and the resulting plan(s) and other processes, such as integrated coastal management or equivalent formal or informal practices● ensure the involvement of stakeholders● organise the use of the best available data● promote cooperation with third countries <p>4. MSPs should be reviewed by an expert committee assessing the integration of all stakeholders.</p>																				
Responsible		Inter-ministerial: <ul style="list-style-type: none">● Ministry of Planning and Development● Maritime Service Division (MWOT)● Maritime Authority● ICZM																				
Promoters		<ul style="list-style-type: none">● Ministry of Planning and Development● ICZM● Ministry of Trade and Industry● Trinidad and Tobago Coast Guard● The Shipping Association of Trinidad & Tobago● Environmental Management Authority.● Trinidad and Tobago Pilotage Association● Major port Administrations.● Institute of Marine Affairs● Tobago House of Assembly.																				
Time horizon		2030																				
Risk assessment	Risks	<ul style="list-style-type: none">● Complexity in integrating the different objectives of the maritime sector (several stakeholders with incompatible objectives).● Need to keep the strategy continuously updated																				
	Mitigation measures	<ul style="list-style-type: none">● Strong support from different ministries and different industries at all levels to maintain pressure on stakeholders to have common and compatible objectives.● Develop preliminary steps to test the benefits of a unified and common strategy.																				
Monitoring indicators		<ul style="list-style-type: none">● Finalization of the Maritime Spatial Planning Strategy.● Stakeholders involved in the definition of the strategy.● Application of the Maritime Spatial Planning Strategy.● Dissemination and public consultation.																				
Budget		500,000-1,000,000 USD																				
Expected impacts		<ul style="list-style-type: none">● Support for the amendment of regulations.● Achievement of economic, environmental, social, safety and security objectives and in a short time frame due to the distribution of efforts among the different actors.● Development and promotion of the blue economy <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td>+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+												-			
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4.3 Promoting Emerging Sectors

Aquaculture

ACTION PES-01		
Description	Implementation of the Aquaculture Strategic Plan: A Framework for Sustainable Development in Trinidad and Tobago 2018-2023	
Connections	T&T actions	-

Development of a National Maritime Policy and Strategy

	T&T strategies	<ul style="list-style-type: none">● Stakeholder consultations and work previously completed to produce the Aquaculture Strategic Plan: 2018-2023● Sustainable Blue Economy for Trinidad and Tobago report● CRFM Caribbean Community Common Fisheries Policy
Implementation steps		<ul style="list-style-type: none">● Determine required policy and legislation to guide the development and regulation of the sector● Designate or form body responsible for implementation of strategic plan● Identify any gaps in strategic plan such as training needs for industry/farmers or areas requiring research collaboration; include within plan as appropriate● Determine how the strategic plan intersects with the Development of the Mariculture Industry in Trinidad and Tobago project being implemented by IMA and make required adjustments/develop plan for collaboration on areas of overlap● Hire project manager and other required personnel● Develop a work plan to prioritize and implement the 7 recommendations with corresponding action items. The recommendations from the aquaculture strategy are listed here:<ul style="list-style-type: none">○ Build capacity and scale in the industry; strengthen existing training and extension for knowledge and skills development including technical, marketing, and business management.○ Support new entrants to the sector; create an open access online platform where entrants can access reports, share experiences, as well as communicate with each other freely.○ Facilitate national discourse on aquaculture for development and diversification; develop research on existing and alternative high value species that could be cultured locally; development of commercial scale growing systems for novel species; provision of expert advice to improve environmental and business performance.○ Impress on the need to grow production, value, and employment in the sector; utilize existing public electronics as well as social media to get messages to stakeholders; increase processing and value-added components to all phases of production.○ Develop the sector in compliance with environmental and health laws with the confidence of stakeholders; include participatory approaches in planning and implementation and monitoring of socio-economic sustainability.○ Foster knowledge, innovation, and technology transfer to take advantage of opportunities for growth and better business management systems; support best husbandry and disease management practices.○ Streamline an efficient licensing and funding system that provides greater business certainty to applicants and more transparency to the general public.○ Provide certification of quality aquaculture production systems and products; collect detailed information on existing and new projects to be able to analyse data and evaluate through standardized methods and utilizing best management practices.○ Develop marine aquaculture planning activities to allow for sea ranching or cage culture production, identify additional potential species for consideration, shrimp, shellfish, groupers, snappers○ Collaborate, communicate, and connect all stakeholders in public and private sectors; reduce overlapping and duplication of activities between industry, scientific, and development bodies; organize a national aquaculture symposium● Complete evaluation and determine required actions for sustainability and further growth

Development of a National Maritime Policy and Strategy

Responsible		<ul style="list-style-type: none">GoRTT/inter-ministerial: MALF, MTI, IMA, THA.																				
Promoters		<ul style="list-style-type: none">GoRTT/inter-ministerial: MALF, MTI, IMAAquaculture industry/farmersBodies conducting research on aquaculture																				
Time horizon		<ul style="list-style-type: none">2023-2026 (1-5 years)																				
Risk assessment	Risks	<ul style="list-style-type: none">Reluctance on part of industry to work with Government																				
	Mitigation measures	<ul style="list-style-type: none">Participatory approaches that provide venues for stakeholder inputCommitment to collaboration with industry stakeholders/farmersTransparency in implementation of strategic plan																				
Monitoring indicators		<ul style="list-style-type: none">Increased communication and collaboration between stakeholdersIncreased understanding of required frameworks and needs for growth of the sector and corresponding actionsDevelopment and implementation of accepted work planFormation of aquaculture industry groupFormation of national aquaculture hubDevelopment of reports to support the sector (best practices, etc.)Promotional materials produced and disseminatedTraining programs delivered and numbers of participants with improved skillsNumbers of new entrants to the sectorIncreased revenue from sectorRelevant data collected and managed in accessible platform for dissemination																				
Budget		200,000-500,000 USD																				
Expected impacts		<ul style="list-style-type: none">Improved environment to support growth of sectorIncreased collaboration between stakeholdersIndustry/farmers with improved skillsGrowth of sector and increased revenues, including through value additionIncreased employment opportunitiesIncreased sustainability of the sector <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td>+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+												-			
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Offshore Renewable Energies

ACTION PES-02		
Description		Study the opportunity to promote offshore renewable energy production
Connections	T&T actions	Promotion of a National Research Strategy
	T&T strategies	GoRTT National Energy Policy Green Paper
Implementation steps		<ol style="list-style-type: none"> Evaluate the offshore renewable energy production potential for different sites. Estimate the cost/benefits for T&T including GHG reduction, impact on household electricity bills and opportunity cost of reduction of fossil fuelled electrical plants. Develop a bankable business case. Study any regulatory or legislative barriers that hamper the investment in the offshore renewable energy industry.

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Responsible		Ministry of Energy and Ministry of Planning and Development																				
Promoters		<ul style="list-style-type: none">Ministry of Trade and Industry.Ministry of Works and Transportation.Invest TT.Trinidad and Tobago Coast Guard.Environmental Management Authority.NewGe.University of the West Indies.University of Trinidad and Tobago.																				
Time horizon		2028																				
Risk assessment	Risks	<ul style="list-style-type: none">Demonstration that there are no short-term economic benefits for T&T population.Lack of population buy-in considering the potential negative impact on household electric bills.																				
	Mitigation measures	<ul style="list-style-type: none">Consider all economical aspects while studying the T&T national benefits for Offshore Wind Power including revenues from the Carbon Market.Promote the importance for T&T to contribute to GHG reduction.																				
Monitoring indicators		<ul style="list-style-type: none">International funding agencies supporting T&T actions to study and implement actions towards cleaner energy production.Results of this opportunity to study to move forward.Private entities interested in a T&T offshore project.																				
Budget		500,000-1,000,000 USD																				
Expected impacts		<ul style="list-style-type: none">Reduction of the T&T GHG emission for local energy consumption.Allocate local gas production towards more lucrative, higher economical impact activities for T&T than electric production.Increase the environmental and social benefits from gas production activities.Demo for attracting private investment in this industry. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="2">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>				Economic	Environmental	Social	+							-						
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Alternative Fossil Fuels

ACTION PES-03		
Description		Evaluate the opportunity to better leverage economic impact and reduce environmental consequences of Natural Gas production
Connections	T&T actions	Promotion of a National Research Strategy
	T&T strategies	GoRTT National Energy Policy Green Paper
Implementation steps		<ol style="list-style-type: none"> Compare the options to use natural gas production (LNG exports, Local electric production, LNG fuel for vessels, natural gas as energy input in industrial processes (metallurgy) or chemical processes (ammonia, urea)) Identify the best option, or a mix of options to improve economic impact for T&T, reduce GHG emissions and mitigate risks in case of market shifts in the pertinent sectors Select appropriate goals and identify actions to be taken to reach them.
Responsible		Ministry of Trade and Industry
Promoters		Ministry of Trade and Industry and private sector relevant stakeholders.
Time horizon		2030

Risk assessment	Risks	<ul style="list-style-type: none">Inability to implement the best option, or a combination of options identified to improve impact.Complexity in selecting objectives and actions to achieve them.
	Mitigation measures	Conduct the evaluation in a progressive manner, identifying objectives and actions at each stage of the study, so that implementation is staggered, and impacts can be measured in a more controlled manner.
Monitoring indicators		<ul style="list-style-type: none">Improve the economic impact of gas production indexEnvironmental and social benefits index
Budget		<500,000 USD
Expected impacts		<ul style="list-style-type: none">To develop a clear understanding of maximising potential options for T&T regarding its natural gas productionTo implement a coherent action plan with the buy-in of a maximum of stakeholders including industries, energy sector, population and the political levels.Increase the environmental and social benefits from gas production activitiesImprove the economical impact of gas production activities for T&T.

4.4 Enhancing Existing Sectors

Bunkering

ACTION EES-01		
Description	Develop the bunkering services in T&T especially for transiting vessels passing nearby T&T waters	
Connections	T&T actions	-
	T&T strategies	-
Implementation steps	<ol style="list-style-type: none"> Replace droghers licence by a more efficient vessel traffic management system such as VTMS using VHF vessel reporting features. Review the control system to prevent potential fiscal fraud regarding marine fuel business. Evaluate the feasibility to liberalise the supply of marine fuels directly to international sources (Texas, Venezuela etc) in line with T&T Trade Agreements obligations Perform a market study including (potential market, market trends in terms of products, infrastructure required, competing environment and their potential reaction, local permits) Implement winning conditions to support the development of bunkering. 	
Responsible	<ul style="list-style-type: none"> Ministry of Trade and Industry 	
Promoters	<ul style="list-style-type: none"> Ministry of Trade and Industry Invest TT Ministry of Works and Transportation Ministry of Energy and Energy Industries Trinidad and Tobago Coast Guard Trinidad and Tobago Customs and Excise The Shipping Association of Trinidad & Tobago Environmental Management Authority Energy Chamber of Trinidad and Tobago T&T Ports 	

Development of a National Maritime Policy and Strategy

Time horizon		2030																					
Risk assessment	Risks	<ul style="list-style-type: none">● Resistance from stakeholders holding a quasi-monopolistic position in marine fuel imports in T&T● Environmental risks to using T&T waters as a large scale marine “gas station”● Complexity of the topic and the number of stakeholders involved in bunkering● Change in governmental practices to monitor vessel traffic in T&T waters for Taxes and Excises purposes.																					
	Mitigation measures	<ul style="list-style-type: none">● Perform robust a study on the real potential for bunkering in T&T including an evaluation of the National risks and benefits as well as the regulation/procedures improvement to facilitate the development of this economic activity● Develop an Environmental Safety net (including a compensation fund in case of pollution) funded from bunkering sales● Involve all parties at an early stage of the project and consider their challenges in the study/implementation process● Develop appropriate taxes control measures if need be.																					
Monitoring indicators		<ul style="list-style-type: none">● Study results on the potential market and the National risks and benefits● Implementation of a regulatory framework facilitating the bunkering business while implementing an Environmental safety net● Sales of bunkers to international vessels● T&T taxes and duty income● Job created																					
Budget		500,000 USD																					
Expected impacts		<ul style="list-style-type: none">● Contributes to the “T&T foreign vessel service package” with coldstacking, ship repair and transshipment● Incoming foreign currency and job creation for T&T● Support the financing of a marine pollution compensation fund as part of National Environmental Safety Net actions● Could eventually add locally produced LNG as fuel for vessels if the demand increases overtime● Could maybe support the efforts to resume oil refining activities in T&T. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-						
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Coldstacking

ACTION EES-02		
Description		Improve cold stacking procedures and National protection measures in case of abuse or abandoned assets
Connections	T&T actions	<ul style="list-style-type: none"> Invest TT - Maritime Investment Guide for the Gulf of Paria
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> Review the permit process and seek improvements Review the robustness of legislation regarding companies’ liabilities in terms of cold stacked marine assets Implement legislation change to allow governmental efficient empowering actions regarding abandoned, problematic or environmentally controversial cold stacked assets Insure a privately financed compensation fund (from cold stacking fees based on GRT for example up to a certain fund limit) to cover governmental costs as well as environmental/social impacts.
Responsible		<ul style="list-style-type: none"> Ministry of Works and Transportation Ministry of Trade and Industry
Promoters		<ul style="list-style-type: none"> Ministry of Trade and Industry Invest TT Trinidad and Tobago Coast Guard

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		<ul style="list-style-type: none">• Trinidad and Tobago Customs and Excise• The Shipping Association of Trinidad & Tobago• Environmental Management Authority.																		
Time horizon		2030																		
Risk assessment	Risks	<ul style="list-style-type: none">• Pressure from private sector not to finance a social/environmental safety net in case of problems with cold stacked marine assets or slow non- responsive companies• Local social and environmental concerns regarding the associated risks in expanding cold stacking activities in the Gulf of Paria																		
	Mitigation measures	<ul style="list-style-type: none">• Promote the benefits of responsible coldstackers to protect T&T against substandard ones• Limit the space/number of marine units that could be cold stacked at once• Develop a thorough social and environmental safety net funded by the private cold stacking industry.																		
Monitoring indicators		<ul style="list-style-type: none">• Optimised cold stacking procedures• Implementation of a social and environmental safety net and reduction of actual incidents• Increase in cold stacking State revenues• Job creation and positive impact on ship maintenance business																		
Budget		200,000 USD																		
Expected impacts		<ul style="list-style-type: none">• Contributes to the “T&T foreign vessel service package” with bunkering, ship repair and transshipment• Incoming foreign currency and job creation for T&T• Support the financing of a marine pollution compensation fund as part of National Environmental Safety Net actions. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-			
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Fisheries

ACTION EES-03		
Description	Expand capacity to conduct coordinated, collaborative, and policy-directed Fisheries Scientific and Applied Research	
Connections	T&T actions	<ul style="list-style-type: none"> Fisheries Management Bill (no. 2) 2020 Enhance resourcing of fisheries data collection programs Enhance resourcing of applied and scientific research capacity Enhance cooperative engagement among stakeholders (government ministries, education and research institutes, private sector, etc.) Enhance collaboration between research institutes and the private sector to find solutions to industry challenges Research topics which emerged from the situational analysis: <ul style="list-style-type: none"> Need for enhancement and resourcing of local research capacity Bycatch issues and their environmental impacts Environmental and resource depletion from ghost nets and need for removal Illegal fishing Effective fishing subsidies Enhancements to monitoring and enforcement of regulations Marine Protected Areas Open access regime Reduction of by-catch and discards Gaps in fisheries and coastal legislation Need for more and more accurate data
	T&T strategies	Strengthened fisheries conservation and management aligned to the precautionary, participatory, and ecosystem approaches to management for long-term sustainability of the respective resources, taking into consideration the ecological and socio-economic impacts of climate change.

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Implementation steps		<ul style="list-style-type: none">● Build off existing MOU between IMA and UTT to increase resourcing of applied fisheries research for the purpose of innovation and problem solving for industry partners;<ul style="list-style-type: none">○ consider collaborative research opportunities with relevant UWI campuses and units within the region.● Increase resourcing of, and collaboration between, University of Trinidad and Tobago, University of West Indies, and the Institute of Marine Affairs in the areas of sustainable fisheries research.<ul style="list-style-type: none">○ Ensure complementarity of relevant training programs offered by these institutions and additionally by the Caribbean Fisheries Training and Development Institute.● Conduct an analysis of gaps in fisheries data for possible data gathering initiatives● Enhance mechanisms for collaboration between research institutes and industry● Identify funding mechanisms to augment applied research capacity● Define research priorities and focus including short and long-term goals● Develop mechanism for results of research to inform the content of management plans and to assist with the development of feasible management measures.● Strengthen collaboration with Regional Fisheries Bodies such as the CRFM and Western Central Atlantic Fishery Commission, as well as Regional Fisheries Management Organizations such as the ICCAT to facilitate assessment of the status of fish stocks and any relevant fisheries research.● Develop, implement, and keep updated a national fisheries and aquaculture research agenda, identifying and prioritizing research topics as well as possible implementing research institutions and sources of funding.
Responsible		<ul style="list-style-type: none">● Government of Trinidad and Tobago<ul style="list-style-type: none">● Ministry of Agriculture, Land and Fisheries – Fisheries Division● Ministry Planning and Development● Ministry of Education● Tobago House of Assembly (THA), Division of Food Production, Forestry and Fisheries, Department of Marine Resources and Fisheries● Post-secondary and training institutes<ul style="list-style-type: none">● University of Trinidad and Tobago – Maritime Campus● University of West Indies - St. Augustine campus● Institute of Marine Affairs● Caribbean Fisheries Training and Development Institute● Regional Fisheries Bodies and Fisheries Management Organizations<ul style="list-style-type: none">● CRFM● WECAFC● ICCAT
Promoters		<ul style="list-style-type: none">● Post-secondary and training institutes<ul style="list-style-type: none">○ University of Trinidad and Tobago – Maritime Campus○ University of West Indies - St. Augustine campus○ Caribbean Fisheries Training and Development Institute● Industry/Stakeholders● Government
Time horizon		2022-2025 (1-5 years)
Risk assessment	Risks	<ul style="list-style-type: none">● Lack of buy-in from industry and other stakeholders● Strength of existing silos● Lack of support for development● Necessary research not being conducted/questions answered● Limited personnel resources
	Mitigation measures	<ul style="list-style-type: none">● Communications and promotion of need for enhanced collaboration by promoters● Active engagement with a broad spectrum of industry● Stakeholder advisory committee to guide relevant research and ensure participation● Promotion and communication of goals and potential benefits/opportunities● Inclusion of multiple organizations to ensure relevant personnel involved

Development of a National Maritime Policy and Strategy

Monitoring indicators	<ul style="list-style-type: none">● Increased participation of stakeholders● Number of research projects undertaken and availability of research results● Bi-annual review and publication of reports● Performance metrics (publications/number of applied projects/funding sourced)● Research projects undertaken● Data sets gathered related to identified gaps● Number of highly qualified personnel (HQP) trained● Number of fisheries management plans developed and implemented● Number of policy-directed research projects implemented● Fisheries management measures implemented which include ecological, social, and economical implications																		
Budget	500,000-1,000,000 USD																		
Expected impacts	<ul style="list-style-type: none">● Accurate information and data available to respond to various issues within the sector and to assist decision-making● Improved access to current and relevant data and information● Improved fisheries conservation through implementation of effective measures arising from research results/findings● Improve economic and social aspects as these fisheries research areas are currently very inadequate.																		
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ACTION EES-04		
Description		Enhance capacity for fisheries/maritime training for improved resource management, including establishment of fisheries training program fund for increased access.
Connections	T&T actions	<ul style="list-style-type: none"> Fisheries Management Bill Ongoing training within sector Draft Fisheries Management Bill National Spatial Development Strategy for Trinidad and Tobago Sustainable Blue Economy for Trinidad and Tobago report Capacity building and knowledge transfer program for strengthening the maritime sector as a whole focused on the administration and relevant stakeholders.
	T&T strategies	Develop and implement a stakeholder training programme on sustainable fishing practices, basic maritime skills required for registration as a fisher, value addition, and small business development and marketing in the fisheries sub-sector.
Implementation steps		<p>Assessment:</p> <ul style="list-style-type: none"> Complete inventory of available training and training institutions Determine impediments to delivery, access to, and uptake of available training Complete a needs and gap analysis of training (content and modes of delivery) Determine courses to be adapted and developed including: <ul style="list-style-type: none"> Seaman Class (offered at CFTDI) Fishing gear Personal Survival Techniques (offered at CFTDI) Medical First Aid (offered at CFTDI) Oil spill response Safe removal and disposal of ghost nets Determine instructor skills to be developed for delivery of training Assess potential strategies for keeping trainees within fisheries sector once training is completed <p>Training:</p>

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		<ul style="list-style-type: none">● Develop a plan for promotion of training, including approaches for addressing cultural/sectoral reservations around fisheries training/topics● Develop/enhance curriculum● Develop/train teaching resources● Conduct training of trainers where necessary● Pilot delivery of selected courses● Develop/enhance online delivery for specific courses to reach broader audience <p>Training Fund:</p> <ul style="list-style-type: none">● Prioritize training needs (specific courses)● Determine required training costs including equipment needs● Identify potential sources of funding and develop plan for sustainability● Allocate specific amount of funding per year to be made available for funding applicants● Define criteria for candidates to access funds● Develop payment scheme (including accommodations for low income trainees)																		
Responsible		<ul style="list-style-type: none">● Government (including relevant ministries and bodies)● Caribbean Fisheries Training & Development Institute● Other training and post-secondary institutions as appropriate/relevant																		
Promoters		<ul style="list-style-type: none">● Industry● Government● Caribbean Fisheries Training & Development Institute● Conservation groups																		
Time horizon		2022-2025 (1-3 years)																		
Risk assessment	Risks	<ul style="list-style-type: none">● Lack of interest on part of fishers/harvesters● Inability to locate/sustain resources to support training fund																		
	Mitigation measures	<ul style="list-style-type: none">● Development of promotional strategy, including promotional materials and communication around benefits of training● Training curriculum to address identified cultural/sectoral reservations around training● Consider the feasibility of training relevant staff/persons in accessing resources to support training funds (e.g., tracking funding opportunities, proposal writing, etc.)																		
Monitoring indicators		<ul style="list-style-type: none">● Input from stakeholders on training needs, gaps, and challenges● Identification of needs● Development of plans to address needs● Course metrics including enrolment, completion, student satisfaction survey results● Increase in numbers of trained persons working in sector.																		
Budget		<ul style="list-style-type: none">● Assessment and development of training plan/training: Approximately USD\$150,000● Establishment of training fund: Approximately USD\$50,000																		
Expected impacts		<ul style="list-style-type: none">● Increased number of trained fisheries personnel● Decrease in occupational health and safety reports● Increase in awareness of sustainable fishing and environmental impacts <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-			
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ACTION EES-05																							
Description		Establish fisheries monitoring, control, surveillance and enforcement programme to support implementation of the Fisheries Management Bill.																					
Connections	T&T actions	<ul style="list-style-type: none">Fisheries Monitoring, Control, Surveillance and Enforcement regime, including the Fisheries Inspectorate.Links to international compliance concerns.Improved linkages to international standards.																					
	T&T Strategies	<ul style="list-style-type: none">Strengthen fisheries monitoring, control, surveillance, and enforcement systems.																					
Implementation steps		<ol style="list-style-type: none">Conduct needs assessment for resources and training, and develop plan of action for meeting needsRecruit and train personnel.Review the current state or enforcement of the quotas and closed season.Establish policies and standards.																					
Responsible		<ul style="list-style-type: none">Ministry of Agriculture, Land, and Fisheries<ul style="list-style-type: none">Fisheries DivisionDivision of Food Production, Forestry and FisheriesDepartment of Marine Resources and Fisheries																					
Promoters		<ul style="list-style-type: none">GovernmentIndustryRegional Fisheries Management Organizations																					
Time horizon		<ul style="list-style-type: none">Some actions to be developed/planned prior to adoption of new legislation, with others to immediately following legislationDevelopment time/plan = 1 year																					
Risk assessment	Risks	<ul style="list-style-type: none">Failure to enact legislationResourcing issuesStakeholder support																					
	Mitigation measures	<ul style="list-style-type: none">Communication around economic and environmental importance of monitoring and surveillance to support commitment and buy-in																					
Monitoring indicators		<ul style="list-style-type: none">Passing of legislationDevelopment of plan, training, and policies/standards with commitment and support from Government and key stakeholdersEstablished program that meets needs and is accepted/implemented																					
Budget		<ul style="list-style-type: none">Subject to needs assessment and requirements around development and delivery of training																					
Expected impacts		<ul style="list-style-type: none">Improved fisheries management through better complianceCompliance with international standards and obligations as a coastal, flag, port, and market State leading to improved international reputation with economic benefitSupport border control, national security, and maritime security both nationally and regionally <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-						
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ACTION EES-06		
Description		Establish a Vessel Monitoring Systems for the fishing fleet of artisanal and non-artisanal vessels
Connections	T&T actions	<ul style="list-style-type: none"> ● Ongoing monitoring and surveillance efforts ● Ongoing efforts to mitigate conflict ● Links to international compliance concerns and international standards for vessel monitoring by other national law enforcement agencies, as well as regional and international intelligence entities ● Compliance with flag State responsibilities with respect to monitoring of fishing vessels ● Draft Fisheries Management Bill ● CRFM Second Strategic Plan (2013-2021)
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> 1. Select system/technology appropriate for artisanal and non-artisanal fleets, with consideration for required functionality and cost. 2. Procure equipment 3. Establish formal tri-partite agreement between VMS service chosen, vessel owner, and MALF for sharing of data and information 4. Establish information sharing requirements to support fisheries related monitoring activities 5. Establish fisheries monitoring centre (FMC) (potentially in collaboration with TTO Coast Guard) 6. Establish system for collection, storage, analysis, reporting, and dissemination of data 7. Pilot system with non-artisanal vessels
Responsible		<ul style="list-style-type: none"> ● Ministry of Agriculture, Land, and Fisheries, Fisheries Division (MALF)
Promoters		<ul style="list-style-type: none"> ● Government ● Industry ● Regional Fisheries Management Organizations
Time horizon		<ul style="list-style-type: none"> ● Three years after Fisheries Management Bill has passed
Risk assessment	Risks	<ul style="list-style-type: none"> ● Lack of buy-in from stakeholders ● Potential for technology chosen to be inappropriate
	Mitigation measures	<ul style="list-style-type: none"> ● Promotion and communication regarding benefits of adoption to State and to vessel operators in terms of safety and business management ● Research conducted around benefits and disadvantages of various available technologies and input requested from numerous sources as to most appropriate technology for context
Monitoring indicators		<ul style="list-style-type: none"> ● System adopted and in use ● Effective use of information ● Number and percentage of vessels monitored ● Number of electronic logbook entries submitted
Budget		Dependent on technology chosen, level of monitoring, and on cost-sharing agreements, if any
Expected impacts		<ul style="list-style-type: none"> ● Improved safety at sea ● Compliance with fisheries management conservation and management measures ● Enhanced data to support decision-making and improvement in fulfilling reporting obligations of the State under several international agreements ● Sustainable fishing practices ● Improved monitoring of activities of fishing vessels

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Port Operations

ACTION EES-07		
Description		Develop an energy efficiency improvement plan
Connections	T&T actions	<ul style="list-style-type: none">Investments in port infrastructure and equipment to improve throughput, connectivity and polluting emissions and management.
	T&T strategies	-
Implementation steps		1. Analyse the energy requirements of the port, analysing its strengths and weaknesses. 2. Develop an improvement plan for the identified weaknesses. 3. Identify public and private financing mechanisms in order to carry out the improvement plan in a disaggregated manner in the form of specific projects. 4. Establish a scaled energy efficiency mechanism so that the port has its own implementation mechanisms as it acquires a better position in terms of efficiency.
Responsible		Ministry of Energy, Ministry of Works and Transport.
Promoters		<ul style="list-style-type: none">Ministry of Trade and Industry.The Shipping Association of Trinidad & Tobago.Environmental Management Authority.TTO Ports including Port Authority of Trinidad and Tobago and the Port of Point Lisas.University of Trinidad and Tobago.
Time horizon		2030
Risk assessment	Risks	<ul style="list-style-type: none">High dependence on private funding for start-up and implementation.High initial investment with a long-term return on investment plan.
	Mitigation measures	<ul style="list-style-type: none">Implement a staggered plan, so that it can be developed by independent parties, in accordance with the investment they can afford.
Monitoring indicators		<ul style="list-style-type: none">Development of the planPlan implementation (partial or full)Monitoring of the measures to control their impact
Budget		<1,000,000 USD
Expected impacts		<div><div><div><div></div></div><div><div></div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></di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ACTION EES-08																					
Description		Investments in port infrastructure and equipment to improve throughput, connectivity and pollution emissions and management.																			
Connections	T&T actions	<ul style="list-style-type: none">Port governance models																			
	T&T strategies	-																			
Implementation steps		<ol style="list-style-type: none">Analyse the custom requirements of port infrastructures of Trinidad and Tobago for each Port in particular.Analyse its strengths and weaknesses. Including external infrastructure and the Port-City relationship in the scope, and also stress pollution management (ballast water, waste...).Analysis of incentives for compliance with emissions.Analysis of concessions, debt or equity models.Develop an improvement plan for the identified weaknesses.Identify public and private financing mechanisms in order to carry out the improvement plan in a disaggregated manner in the form of specific projects.Implement necessary actions such as, but not limited to, dredging, new berths for alternative fuels, waste and ballast water reception facilities, etc.																			
Responsible		<ul style="list-style-type: none">TTO Ports including PATT and PLIPDECOMaritime Services Division (MOWT)																			
Promoters		<ul style="list-style-type: none">Ministry of Trade and Industry																			
Time horizon		2023																			
Risk assessment	Risks	<ul style="list-style-type: none">Port infrastructures adaptation to the coast environmentEnvironmental impact studiesFinancing issues.Volumes inconsistent with investment.																			
	Mitigation measures	<ul style="list-style-type: none">Implement a staggered plan, so that it can be developed by independent parties, in accordance with the investment they can afford.																			
Monitoring indicators		<ul style="list-style-type: none">Development and completion of the plan.Plan implementation (partial or full).Monitoring of the measures to control their impact.Throughput improvement per invested monetary unit.Emission/pollution reduction per invested monetary unit.																			
Budget		20,000,000-50,000,000 USD																			
Expected impacts		<ul style="list-style-type: none">Increase port infrastructures to guarantee port vessel callsImprove competitiveness of T&T ports in the Caribbean region considering the expected ship size dimensions of vessels calling to the country <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>			Economic	Environmental	Social	+										-			
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ACTION EES-09		
Description		Improve intermodality and connections between ports and the territory
Connections	T&T actions	<ul style="list-style-type: none"> Investments in port infrastructure and equipment to improve throughput, connectivity and pollution emissions and management.
	T&T strategies	
Implementation steps		<ol style="list-style-type: none"> Analyse the Port-city- territory infrastructure connections for movement of people and goods. Develop an improvement plan for the identified weaknesses. Identify stakeholders involved in flow of goods and passengers (transport public operators, logistic operators, manufacturers ,etc.) to further analyse their needs in terms of connectivity with ports public and private financing mechanisms in order to carry out the improvement plan in a disaggregated manner in the form of specific projects.

Development of a National Maritime Policy and Strategy

		4. Develop necessary actions (improve capacity of infrastructures, digitalize port gates, promotion of shared services, railway connections, etc.) 5. Analyse the potential impacts on port labor and develop a plan in collaboration with SWWTU to facilitate the implementation of the aforementioned measures.																		
Responsible		<ul style="list-style-type: none">TTO Ports including Port Authority of Trinidad and Tobago and the Port of Point Lisas																		
Promoters		<ul style="list-style-type: none">Ministry of Trade and IndustryMaritime Authority																		
Time horizon		2025																		
Risk assessment	Risks	<ul style="list-style-type: none">Port infrastructures adaption to the coastal environmentEnvironmental impact studiesFinancing																		
	Mitigation measures	<ul style="list-style-type: none">Implement a staggered plan, so that it can be developed by independent parties, in accordance with the investment they can afford.																		
Monitoring indicators		<ul style="list-style-type: none">Development of the plan.Plan implementation (partial or full).Monitoring of the measures to control their impact																		
Budget		10,000,000-20,000,000 USD																		
Expected impacts		<div><ul style="list-style-type: none">Increase competitiveness of TTO manufacturer to exportIncrease competitiveness of TTO importersIncrease public and private transport accessibility to the port for Trinidadians and Tobagonians and touristsImprove competitiveness of TTO ports in the Caribbean region<table><tr><td></td><th>Economic</th><th>Environmental</th><th>Social</th></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table></div>		Economic	Environmental	Social	+										-			
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ACTION EES-10		
Description		Port governance models
Connections	T&T actions	-
	T&T strategies	Privatization of the Port of Port of Spain.
Implementation steps		1. Analyse future business models of ports and study public private partnerships. 2. Develop an improvement plan considering new business and governance models, with special attention to the Port-City relationship, for each port in particular. 3. Identify public and private financing mechanisms in order to carry out the improvement plan in a disaggregated manner in the form of specific projects. 4. Analyse the potential impacts on port labour and, if needed, develop a plan in collaboration with SWWTU to facilitate the implementation of the aforementioned measures.
Responsible		TTO Port Authority, Maritime Authority
Promoters		Port Authority of Trinidad and Tobago (POS, and the Port of Point Lisas...) Ministry of Trade and Industry
Time horizon		2023
Risk assessment	Risks	<ul style="list-style-type: none"> Many bureaucratic procedures that can delay implementation. Agreements with trade unions for relocation of port staff.
	Mitigation measures	<ul style="list-style-type: none"> Communication plan to disseminate the benefits of PPP to the business case in question.

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Monitoring indicators	<ul style="list-style-type: none">• Development of the plan.• Plan implementation (partial or full).• Monitoring of the measures to control their impact.• Private capital share in ports.
Budget	<500,000 USD
Expected impacts	<ul style="list-style-type: none">• Increase port infrastructures to guarantee port vessel calls.• Improve competitiveness of TTO ports in the Caribbean region considering the expected ship size dimensions of vessels calling to the country.

Tourism

ACTION EES-11		
Description	Finalise the Eco-tourism plan for T&T <ul style="list-style-type: none"> Roll out the implementation plan for the protected area management program for the preservation of key eco sites. Liaise with tourism promotion agencies to package and market eco product offerings. 	
Connections	T&T actions	<ul style="list-style-type: none"> Alignment with the Revised National Tourism Plan (2020-2030) Update of eco-tourism development plan for Trinidad and Tobago (2012)
	T&T strategies	<ul style="list-style-type: none"> Future attraction by eco tourists to T&T will depend on effective implementation of an eco tourism strategy and updated regulations for protection by enforcement.
Implementation steps	Management Plans should be prepared for each Protected Area before the preparation of Ecotourism Development and Management Plans. Protected Area Management Plans should address: <ul style="list-style-type: none"> User fee system that pays into site upkeep Training of community/ caretaker/tour operators in conservation and Certification The International Ecotourism Society TIES Facilities & services Regulation of activities/fees Visitor and ecotourism capacity management 	
Responsible	Inter-ministerial: <ul style="list-style-type: none"> Ministry of Tourism, Culture and the Arts Maritime Services Division (MOWT) Fisheries Division (MALF) EMA (MOP) CDA THA 	
Promoters	<ul style="list-style-type: none"> Eco-tourist tour companies Community NGOs Tourism agencies Travel agents Cruise ship agents Forestry Division, Ministry of Agriculture, Land and Fisheries 	
Time horizon	2030	
Risks	<ul style="list-style-type: none"> Lack of funding to undertake critical implementation of high priority activities 	

Development of a National Maritime Policy and Strategy

Risk assessment	Mitigation measures	<ul style="list-style-type: none">Seek additional resources from: Green Fund, GEF Project (Small Grants Prog.) PPP (community-based) Investment																								
Monitoring indicators		<ul style="list-style-type: none">Potential for low-impact, community-based eco-tourismLevel of communication and collaboration between stakeholdersCooperation among stakeholders to implement actionsDevelopment of reports to support the sectorPromotional materials produced and disseminatedTraining programs delivered																								
Budget		< 100,000 USD																								
Expected impacts		<div><ul style="list-style-type: none">Ecotourism impacts on the income of rural communities.Number of certified tour operators.Number of people trained in conservation.<table><tr><th></th><th>Economic</th><th>Environmental</th><th>Social</th></tr><tr><th>+</th><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><th>-</th><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table></div>		Economic	Environmental	Social	+												-							
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ACTION EES-12		
Description		Development of the project implementation plan for the protection and preservation of Underwater Cultural Heritage (UCH) sites
Connections	T&T actions	<ul style="list-style-type: none"> Ratification of the UNESCO Convention for the protection of underwater cultural heritage. Protection of Wrecks Act #13 of 1994. The Act seeks to secure the protection of wrecks in the territorial waters of Trinidad and Tobago. Review work of Committee established on June 24th 1997
	T&T strategies	<ul style="list-style-type: none"> National Tourism plan and National Trust program
Implementation steps		<ul style="list-style-type: none"> Project design site assessment: Assisted by Underwater archaeologists obtaining inventory, documentation and evaluation of UCH archaeological sites including shipwrecks, cargo and lost or abandoned natural objects. Funding from donor agencies and PPP arrangements. Training: Promote responsible visitor access through training of tour operators and shipwreck diving courses for various groups; <ul style="list-style-type: none"> Conservation and site management understand the transformation processes of submerged archaeological contexts
Responsible		<ul style="list-style-type: none"> Establish an inter-agency Advisory group with key stakeholders reporting to Minister Ministry of Works and Transport (MSD); Ministry of Planning (National Trust); Ministry of Tourism, Culture and the Arts (TTL); Tobago House of Assembly (THA), Division of Tourism, Culture and Transportation (TTAL) Training institutions- UWI, UTT, tourism related Tech. Voc. programs

Development of a National Maritime Policy and Strategy

Promoters		<ul style="list-style-type: none">● Dive Tourism businesses● Tourism promotion agents● Conservation NGOs																					
Time horizon		2023 (1-2 years)																					
Risk assessment	Risks	<ul style="list-style-type: none">● Low sustainable environmental conservation of UCHs due to lack of experts and irresponsible exploitation, lack of legal protective systems;● Lack of commitment to fully implement the provisions under the UNESCO Convention for the protection of underwater cultural heritage in recommended time frame;● Insufficient inter-departmental cooperation to effectively implement the actions;● Lack of enforcement to prevent pillage of submerged archaeological sites;																					
	Mitigation measures	<ul style="list-style-type: none">● Communication on benefits of implementation for applicable government departments and stakeholders● Best practices expertise and training sought from The Underwater Archaeology Centre of Catalonia and UNESCO.																					
Monitoring indicators		<ul style="list-style-type: none">● Confirmation of changes to respective legislations.● Confirmation of SOP's for Site management and conservation of UCH sites;● Number of dive tourists to sites and User fee collection● SOP's firmly established and communicated across relevant stakeholders and personnel responsible for implementing SOP's.																					
Budget		<300,000 USD																					
Expected impacts		<ul style="list-style-type: none">● Meet expectations of UNESCO convention for UCHs● Increased satisfaction of visiting divers to UCH sites;● Better recognition as a dive tourism destination● Ability to monitor UCH sites using devices for detection and exploration of the seabed● More efficient and timely enforcement of laws for protection of UCH sites for wrecks. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-						
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Maritime Transport and Transshipment

ACTION EES-13		
Description		Promote and improve transshipment activities
Connections	T&T actions	<ul style="list-style-type: none"> • Strengthening the implementation of the SEW
	T&T strategies	<ul style="list-style-type: none"> • Invest TT - Maritime Investment Guide for the Gulf of Paria
Implementation steps		<ol style="list-style-type: none"> 1. Review governmental processes to facilitate emissions permits. 2. Promote transshipment activities and guide promoters through the governmental process. 3. Develop the social and environmental safety net and determine transshipment contribution. 4. Maintain a tight environmental surveillance to avoid cargo loss and control the impact on marine environment.

Development of a National Maritime Policy and Strategy

		5. Review legislation to ensure the Ministry of Works and Transportation and the Environmental Management Authority have the necessary leverages for law enforcement.
Responsible		<ul style="list-style-type: none">Ministry of Trade and IndustryMaritime Service Division, Ministry of Works and Transportation
Promoters		<ul style="list-style-type: none">Ministry of Works and TransportationInvest TTTrinidad and Tobago Coast GuardTrinidad and Tobago Customs and ExciseThe Shipping Association of Trinidad & TobagoEnvironmental Management Authority.
Time horizon		2030
Risk assessment	Risks	<ul style="list-style-type: none">Resistance from the private sector to contribute to a rehabilitation fund.T&T population concerns about potential pollution problems.
	Mitigation measures	<ul style="list-style-type: none">Determine the private fund contribution based on an activity risk assessment and limit the fund to a certain amount.Create a semi-independent compensation fund management organisation to ensure appropriate use of financial resources.Demonstrate that the updated legislation combined with a privately financed safety net provides the T&T government sufficient tools to intervene in case of problems and compensate for losses and rehabilitation cost free of charge for the State.Implementation of a Ballast Water Management plan inclusive of ballast water transfer records from ships coming into T&T waters to load cargo in keeping with guidelines from the BWM Convention.
Monitoring indicators		<ul style="list-style-type: none">Annual income generated by transshipment.Tonnage transhipped.Job creation.Reduction of pollution and innocent cargo residues spill overs.Creation and funding of the Environmental and Social Compensation Fund.
Budget		500,000 USD
Expected impacts		<ul style="list-style-type: none">Contributes to the “T&T foreign vessel service package” with bunkering, ship repair and cold stacking.Incoming foreign currency and job creation for T&T.Support the financing of a marine pollution compensation fund as part of National Environmental Safety Net actions.Increase cargo handling revenues without adding infrastructures.Contribution to the reduction of GHG by allowing larger vessels to carry solid bulk on long distance.

ACTION EES-14

Description		To review and assess the feasibility of regional maritime transport of goods and persons
Connections	T&T actions	-
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> Carry out a study on the challenges and weakness in terms of costs and capacity of movements of goods and persons of the region. Assess the economic feasibility of promoting the establishment of regional shipping lines for the transport of goods and persons from a regional perspective, that would result in a reduction of maritime transport costs within the region. Consult with supranational organizations, neighbouring states, potential investors and operators their interest in opening up regional businesses. Study the current legislative, normative, fiscal, etc. context and requirements for the development of such initiatives. Develop an action plan for Trinidad and Tobago initiate and foster the development of a regional shipping sector.

Development of a National Maritime Policy and Strategy

Responsible		<ul style="list-style-type: none">Ministry of Trade and IndustryMaritime Service Division, Ministry of Works and Transportation																		
Promoters		<ul style="list-style-type: none">Ministry of Works and Transportation.The Shipping Association of Trinidad & Tobago.Ministry of Trade and Industry.																		
Time horizon		2023 (approximately 1 year)																		
Risk assessment	Risks	<ul style="list-style-type: none">No market for regional shipping.																		
	Mitigation measures	<ul style="list-style-type: none">The feasibility study will be substantially based on consultation with																		
Monitoring indicators		<ul style="list-style-type: none">Development of the action plan.Consultation with stakeholders.Stated potential investment in regional shipping.Completion of the assessment study.																		
Budget		200,000 USD																		
Expected impacts		<ul style="list-style-type: none">Developing the maritime transport in the Caribbean region as a whole at more competitive prices.Diversifying the economy.Developing trade in the region. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-			
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Ship Building, Repair and Dry Docking

ACTION EES-15		
Description		Support Shipyards' competitiveness improvements initiatives
Connections	T&T actions	<ul style="list-style-type: none"> Improve custom clearance process. Strengthening the implementation of the SEW. Increase collaboration within the sector through the Maritime Authority.
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> Support Shipyard modernisation actions when based on a robust business case. Support through financing major shipyards assets investments technology implementation, labour training programs. Improve efficiency of Custom procedures by reducing delays, for example. Improve connectivity to ensure rapid trading of all the necessary materials and resources to carry out and sustain the ship repair and ship building industry over time. Promote the use of Special Economic Zones to ensure the rapid flow of materials necessary for the industry and reduce the cashflow burden on shipyards.
Responsible		<ul style="list-style-type: none"> Ministry of Trade and Industry
Promoters		<ul style="list-style-type: none"> Shipping Association of Trinidad and Tobago Caribbean Dockyard and Engineering Services Limited Maritime Preservation Ltd. Inter Isle Construction and Fabrication Services Ltd.
Time horizon		2030

Development of a National Maritime Policy and Strategy

Risk assessment	Risks	<ul style="list-style-type: none">• Low business growth despite the efforts in supporting shipyards modernisation and capacity building.• Resistance to implement faster procedures from custom for security reasons• Relative complexity to distinguish between local jobs and exports in the case where the shipyard has a Special Economic Zone certification for tax equity.																		
	Mitigation measures	<ul style="list-style-type: none">• Make sure supporting measures are backed-up by credible business case and adjust support according to performance indicators• Involved Customs in updating procedures and align properly security objectives according to relative risk.																		
Monitoring indicators		<ul style="list-style-type: none">• Connectivity index• Increase in offer (increase in services offered)• Increase in demand																		
Budget		>1,000,000 USD																		
Expected impacts		<ul style="list-style-type: none">• Diversification of the maritime economy• Increased shipyard labour force and develop local know-how• Contributes to the “T&T foreign vessel service package” with bunkering, coldstacking and transshipment.• Inflow of foreign currency <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-			
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ACTION EES-16		
Description		Develop state guidelines and regulations to reduce the impact of industry on the environment.
Connections	T&T actions	<ul style="list-style-type: none"> Investments in port infrastructure and equipment to improve throughput, connectivity and pollution emissions and management.
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> Analysing the environmental impact of industry in T&T including a study on international best practice. Create a plan of measures for the reduction of pollutant emissions in all areas (water, atmospheric...). Implementation of the plan for repair and construction yards. Monitoring of the pollutant factors arising from the development of the industry.
Responsible		<ul style="list-style-type: none"> Ministry of Trade and Industry Maritime Authority
Promoters		<ul style="list-style-type: none"> Shipping Association of Trinidad and Tobago Caribbean Dockyard and Engineering Services Limited Maritime Preservation Ltd. Inter Isle Construction and Fabrication Services Ltd. Environmental Management Authority
Time horizon		2025
Risk assessment	Risks	<ul style="list-style-type: none"> Monitoring of all activities in the industry is complicated. High economic cost of implementing the plan to reduce the environmental impact of shipyards.

Development of a National Maritime Policy and Strategy

		<ul style="list-style-type: none">Reluctant private sector in participating in this initiative.																				
	Mitigation measures	<ul style="list-style-type: none">Develop plans for specific activities developed and gradually implement them, checking their impact.Analyse the environmental and social benefits of developing an activity free of polluting emissions.Make use of international conventions or best practices and possibly complement with fiscal measures.Use of environmentally friendly products such as paints, antifoulants...																				
Monitoring indicators		<ul style="list-style-type: none">Establishment of the emission reduction plan.Pollutant reduction rate.																				
Budget		<500,000 USD																				
Expected impacts		<ul style="list-style-type: none">Reducing the environmental impacts of industry.Allowing informed decisions on the sector. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td>+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+												-			
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ACTION EES-17		
Description	Investigate the potential of ship breaking and recycling for wrecks with local stakeholders	
Connections	T&T actions	Improving the use of infrastructures Diversify industrial activity
	T&T strategies	-
Implementation steps	<ol style="list-style-type: none"> Analyse the market for the breaking and recycling of wrecked ships with local stakeholders. Verify that the ship building and ship repair industry and its auxiliary industry has the capacity to carry out this activity. Ensure that environmental and waste management requirements can be implemented. 	
Responsible	<ul style="list-style-type: none"> Ministry of Trade and Industry Maritime Authority 	
Promoters	<ul style="list-style-type: none"> Shipping Association of Trinidad and Tobago Caribbean Dockyard and Engineering Services Limited Maritime Preservation Ltd. Inter Isle Construction and Fabrication Services Ltd. Environmental Management Authority T&T scrap iron dealers Association 	
Time horizon	2025	
Risk assessment	Risks	<ul style="list-style-type: none"> The monitoring of all activities in the industry is complicated. Training of workers in a new work activity is complicated. Environmental problems, due to the high requirements of carrying out this industrial activity.

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	Mitigation measures	<ul style="list-style-type: none">• Develop plans for specific activities developed and gradually implement them, checking their impact.• Analyse the environmental and social benefits of developing an activity free of polluting emissions.
Monitoring indicators		<ul style="list-style-type: none">• Rate of uncontrolled waste from industrial activity.• Level of employment generated• Rate of exploitation of the facilities
Budget	<500,000 USD	
Expected impacts		<ul style="list-style-type: none">• Diversifying the sector• Exploiting existing infrastructure and labour force for new industrial activities

ACTION EES-18		
Description	Investigate the potential of ship building The action refers to (small crafts, non-commercial)	
Connections	T&T actions	Diversify industrial activity
	T&T strategies	-
Implementation steps	<ol style="list-style-type: none"> Market study assessment and state of the ship building sector in Trinidad and Tobago of small non-commercial crafts. Assessment of the T&T ship building size, potentiality and synergies with ship maintenance and repair sector. Evaluation of the regional ship building sector and niche market for Trinidad and Tobago. Validation of interest of potential investors. Verify that the ship building industry and its auxiliary industry has the capacity to carry out this activity. Implementation plan and definition of allocation of funds to support current the ship building expand. 	
Responsible	<ul style="list-style-type: none"> Ministry of Trade and Industry Maritime Authority 	
Promoters	<ul style="list-style-type: none"> Shipping Association of Trinidad and Tobago Caribbean Dockyard and Engineering Services Limited Maritime Preservation Ltd. Inter Isle Construction and Fabrication Services Ltd. Yachting sector. 	
Time horizon	2025	
Risk assessment	Risks	<ul style="list-style-type: none"> Low interest or low rate of return of the sector.

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	Mitigation measures	<ul style="list-style-type: none">• Check with private investors its interest in the sector.• Assess the synergies of having a strong ship building, and repair and maintenance sector.• Promotion of already existing ship building niche market of T&T.																		
Monitoring indicators		<ul style="list-style-type: none">• GDP contribution of the sector• Potential private investors																		
Budget		<500,000 USD																		
Expected impacts		<ul style="list-style-type: none">• Diversifying the sector• Exploiting existing infrastructure and labour force for new industrial activities <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-			
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Yachting

ACTION EES-19		
Description	Implement labour market assessment for skills training for competency-based apprenticeship programs for the yachting industry. Repairs and maintenance by long-stay transient yachts account for the majority of servicing to the yachting industry. Providing services by formally trained and certified personnel will further enhance the attractiveness for international clientele. A formal apprenticeship program will improve human resource capacity for T&T citizens who are currently working, or seeking to join this industry. Education and training programs can be modelled from standard requirements of existing certifying bodies such as the American Boat and Yacht Council (ABYC), or other similar standards.	
Connections	T&T actions	<ul style="list-style-type: none"> Capacity building and knowledge transfer program for strengthening the maritime sector as a whole focused on the administration and relevant stakeholders. Develop a Quality Management System to allow T&T to certify its own officers.
	T&T strategies	-
Implementation steps	<ul style="list-style-type: none"> Assess interest from government to proceed with implementing skills and needs assessment for the yachting service industry Establish Committee of representatives from applicable government departments Secure funding (applicable Government departments) Labour market and skills needs assessment Draft education curriculum 	
Responsible	<ul style="list-style-type: none"> Government of Trinidad and Tobago <ul style="list-style-type: none"> Ministry of Trade and Industry Ministry of Education (Tertiary Education Division), MIC Institute of Technology (MIC-IT), National Training Agency YSATT Relevant post-secondary education institutions 	
Promoters	<ul style="list-style-type: none"> Government of Trinidad and Tobago <ul style="list-style-type: none"> Ministry of Trade and Industry Ministry of Education (Tertiary Education Division), MIC Institute of Technology (MIC-IT), National Training Agency Ministry of Education (Secondary) Other post-secondary institutions Industry/Stakeholders <ul style="list-style-type: none"> YSATT, YTEEP 	

Development of a National Maritime Policy and Strategy

Time horizon		2026 <ul style="list-style-type: none">6 months: Labour market / skills needs assessment1 year: draft curriculum1-2 years: implement informal training program targeted towards incumbent workforce3-5 years: implement vocational training leading to industry-recognised certifications.																		
Risk assessment	Risks	<ul style="list-style-type: none">Lack of development support from Government<ul style="list-style-type: none">Interest and / or fundsLack of interest from targeted groups: incumbent entrants currently working in the industry and prospective new entrantsInsufficient scope off stakeholder inputsInsufficient content of applicable stakeholder questions																		
	Mitigation measures	<ul style="list-style-type: none">Proposal and research and to applicable T&T government departments for skills and certification programs for persons working in the yachting industry.Promotion and communication on goals and potential benefits/opportunitiesInclusion of multiple organizations to ensure relevant personnel involved																		
Monitoring indicators		<ul style="list-style-type: none">Concept approval to proceed with labour market skills / needs assessmentExtensive stakeholder participationValidation of labour market skills / needs assessmentDraft curriculum development for comprehensive education programNumbers of incumbents and new persons formally trained in the industrySatisfaction survey results from industry stakeholders<ul style="list-style-type: none">Educators, students, companies, clientsImpact in attracting higher profile and volume of yachts																		
Budget		<ul style="list-style-type: none">Labour market / skills needs assessment - 50,000 USDDraft curriculum development for comprehensive education program - 200,000 USD																		
Expected impacts		<ul style="list-style-type: none">Formally educated, skilled, and certified workforceIncreased volume of yachts requiring more sophisticated service from certified persons. <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-			
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ACTION EES-20

Description		<p>Implement legislative requirement for more robust marina and boatyard environmental management practices based upon guidance given in the “Guidebook on Sustainable Environmental Practices for Marinas and Boatyards”</p> <p>The Guidebook is an excellent resource to offer guidance and best practices in sustainable management of sources of pollutants. The Guidebook references tangential legislation required by the Environmental Management Authority (EMA). However, given the present day consciousness of sustainable and environmental management practices, legislation should be expanded to include applicable sections of the Guidebook. Legislating all or parts of the document can achieve a considerable step forward in sustainable environmental management in the industry.</p>
Connections	T&T actions	<ul style="list-style-type: none"> Investments in port infrastructure and equipment to improve throughput, connectivity and pollution emissions and management.
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> Concept proposed to applicable government departments with authority to enact legislation Communications campaign on the benefits of sustainable and responsible environmental management practices directed towards applicable stakeholders Stakeholder consultation from all parties that legislation would impact Next steps in legislative process

Development of a National Maritime Policy and Strategy

Responsible		<ul style="list-style-type: none">Applicable government departments with authority to enact legislation																								
Promoters		<ul style="list-style-type: none">Applicable government departments<ul style="list-style-type: none">IMA, EMA, TTGCYSATTOther stakeholders that have an interest in promoting environmental stewardship																								
Time horizon		2023-2025 <ul style="list-style-type: none">Initiate concept within 1 year. Timelines for implementation dependent upon legislative process																								
Risk assessment	Risks	<ul style="list-style-type: none">Government not interested in pursuing best practice in legislation.Poor support from stakeholders if additional costs could be incurred.Cost of implementing for the private sector.Lack of cooperation necessary for governmental inter-agency approach (i.e., EMA, IMA, MOWT, TTGC, and others as applicable.Failure to enact legislation																								
	Mitigation measures	<ul style="list-style-type: none">Link initiative to other Trinidad and Tobago environmental initiativesCommunications campaign on the benefits of sustainable and responsible environmental management practices directed towards applicable stakeholders																								
Monitoring indicators		<ul style="list-style-type: none">Passing of legislationDevelopment of plan with support from Government and key stakeholders<ul style="list-style-type: none">Legislation passedCompliance on enhanced environmental management practices for new and expanding marinas / boatyards, and existing marinas / boatyards																								
Budget		Internal (<500,000 USD)																								
Expected impacts		<ul style="list-style-type: none">Reduced negative environmental impactsIncreased stakeholder awareness of the benefits of sustainable and responsible environment management practices <table><tr><td></td><td>Economic</td><td>Environmental</td><td>Social</td></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="3">-</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-									
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ACTION EES-21

Description		Full implementation of harmonized form for arrival notification, customs and immigration requirements; Standardizing importing procedures for clearing and transit of yachting parts for service providers.
Connections	T&T actions	Improve custom clearance process Strengthen the implementation of the SEW. Create an independent Maritime Authority
	T&T strategies	Strengthening the SEW
Implementation steps		<ol style="list-style-type: none"> Prioritize this action which is also a recommendation of Yachting Policy document. Inter-departmental adoption and implementation of Harmonised form and Standards of Performance (SOP's). A recommendation is made to consult with the Min of National Security for approval to be given to yachts for an extended stay of, for example, 6 months. Develop an implementation plan for the roll-out of the harmonized arrival notification form.
Responsible		<ul style="list-style-type: none"> Applicable government departments <ul style="list-style-type: none"> Customs and Excise, Immigration, Ministry Trade and Industry, TTGC

Development of a National Maritime Policy and Strategy

Promoters		<ul style="list-style-type: none">● Applicable government departments<ul style="list-style-type: none">○ Customs and Excise, Immigration, Ministry Trade and Industry, TTGC● YSAAT● Yachting service providers● Port Operators● Other private members clubs																					
Time horizon		2023 (6 months – 1 year)																					
Risk assessment	Risks	<ul style="list-style-type: none">● Lack of commitment to fully implement in recommended time frame● Legislative changes fail to come into effect● Insufficient inter-departmental cooperation to effectively implement the actions																					
	Mitigation measures	<ul style="list-style-type: none">● Communication on benefits of implementation for applicable government departments and stakeholders																					
Monitoring indicators		<ul style="list-style-type: none">● Confirmation of changes to respective legislations. Policy document indicates changes affected by August 2017.● Confirmation that SOP's are established.● Adoption and use of Single Harmonized Form● SOP's firmly established and communicated across relevant stakeholders and personnel responsible for implementing SOP's.● Visitor satisfaction survey.																					
Budget		Internal (<1,000,000 USD)																					
Expected impacts		<ul style="list-style-type: none">● Increased satisfaction of visiting yacht owners and representatives● More efficient and timely flow of imported parts required by the yachting service industry <table><tr><td></td><th>Economic</th><th>Environmental</th><th>Social</th></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-						
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ACTION EES-22

Description		Develop a Roadmap to rebuild the local yachting sector
Connections	T&T actions	Trinidad and Tobago Yachting Policy (2017-2021).
	T&T strategies	-
Implementation steps		<ol style="list-style-type: none"> Update the yachting strategic action plan (2017-2021) in consultation with the sector, inclusive of lessons learned from the COVID-19 and to take advantage of the global halt to rebuild a more sustainable sector and added value to the society. Carry out a competitive regional analysis and a marketing development plan. Develop yachting legislation by taking as a reference the UK Yachting Code, to govern the safe operation of yachts to include inspections and standards for safety and pollution prevention. This could be done by way of a regulation making provision in the Shipping Bill, which may be the most expedient option considering the advance stage of the Bill. Develop an implementation plan of the roadmap, inclusive of financial aid, to rebuild the sector.
Responsible		Ministry of Trade and Industry
Promoters		<ul style="list-style-type: none"> Ministry Trade and Industry YSAAT Yachting service providers Port Operators Other private members clubs

Development of a National Maritime Policy and Strategy

Time horizon		2023 (6 months – 1 year)																					
Risk assessment	Risks	<ul style="list-style-type: none">Not consulting with the sector given the imperious necessity to rebuild the sector.																					
	Mitigation measures	<ul style="list-style-type: none">Consultation with the sector to jointly update the yachting strategic action plans.Utilizing lessons learned and uncompleted action from the 2017-2021 Yachting Policy to develop the new policy and strategy.																					
Monitoring indicators		<ul style="list-style-type: none">Yacht arrivals by origin.Visitor yachts from new markets.Visitor satisfaction surveysExpenditure per visit.Environmental indicators (e.g. monitoring on waste management at marinas).																					
Budget		200,000 USD																					
Expected impacts		<ul style="list-style-type: none">Increased satisfaction of visiting yacht owners and representativesMore efficient and timely flow of imported parts required by the yachting service industry <table><tr><td></td><th>Economic</th><th>Environmental</th><th>Social</th></tr><tr><td rowspan="3">+</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td rowspan="2">-</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>		Economic	Environmental	Social	+										-						
	Economic	Environmental	Social																				
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4.5 Action Plan summary and Implementation Framework

This section presents a summary of the action plan. First, figures 34 and 35 classify the action plans according to the tools and resources they have an impact on. Second, it presents a summary table of the timeframe in the form of a horizon table (see Figure 36).

Further on, section 4.5.1 presents the Monitoring and Evaluation log frame that is proposed for the implementation phase of the Maritime Policy and Strategy. The document flows to section 4.5.2 where a summary matrix of the Action Plans is laid out, grouped by sub-sectors the reader can have a quick look to grasp the main objective, indicators, timeline, stakeholder responsible and budget set to each plan.

Finally, section 4.5.3 proposes a governance model to ensure the implementation of the Maritime Policy and Strategy.

		Institutional Strengthening	Legislative/Regulatory	Capacity Building and Education	Research Innovation and Development	Horizon
Instrumental Tools and Sectors	Capacity Building and Education		INS-03: Promote and enforce the use of local labour on board T&T flagged vessels	INS-02: Capacity building and knowledge transfer program for strengthening the maritime sector as a whole focused in the administration and relevant stakeholders INS-01: Develop a Quality Management System to allow T&T to certify its own officers.		H-2025 H-2030
	Defence, Safety and Security	INS-05: Implement a Vessel Traffic Management System	INS-04: Review the Trinidad and Tobago Ship Registry INS-06: Improve custom clearance process INS-07: Review and removal of wrecks and derelict vessels			H-2025 H-2025 H-2025
	Digitalization and SEW			INS-08: Strengthening the implementation of the SEW	INS-08: Strengthening the implementation of the SEW	
	Governance	INS-09: Establish an independent Maritime Authority INS-10: Establish the Maritime Cluster of Trinidad and Tobago	INS-09: Establish an independent Maritime Authority			H-2025 H-2025
	Research and development				INS-11: Development and implementation of a national data collection plan of the state of the sea INS-12: Promotion of a National Research Strategy	H-2025 H-2025
	Spatial Planning		INS-13: Develop a Maritime Spatial Planning Strategy			
Promoting emerging sectors	Aquaculture and fisheries	PES-01: Implementation of the Aquaculture Strategic Plan: A Framework for Sustainable Development in Trinidad and Tobago 2018-2023				H-2025
	Offshore Renewable Energies				PES-02: Study the opportunity to promote offshore renewable energy production	H-2030
	Alternative Fossil Fuels				PES-03: Evaluate the opportunity to better leverage economic impact and reduce environmental consequences of National Gas production	H-2030

Figure 34. Action plans under tools and resources.

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Enhancing Existing Sectors		Institutional Strengthening	Legislative/Regulatory	Capacity Building and Education	Research Innovation and Development	Horizon
	Bunkering	EES-01: Develop the bunkering services in T&T especially for transiting vessels passing nearby T&T waters				H-2030
	Coldstacking		EES-02: Improve cold stacking procedures and National protection measures in case of abuse or abandoned assets			H-2030
	Fisheries	EES-06: Establish a Vessel Monitoring System for medium/large fishing vessels	EES-05: Establish fisheries monitoring, control, surveillance and enforcement programme to support implementation of Fisheries Management Bill	EES-04: Enhance capacity for fisheries/maritime training including establishment of fisheries training program fund for increased access	EES-03: Expand capacity to conduct Sustainable Fisheries Applied Research	H-2025
	Port operations	EES-07: Develop an energy efficiency improvement plan EES-08: Investments in port infrastructure and equipment to improve throughput, connectivity and pollution emissions and management. EES-10: Port governance models. EES-09: Improve intermodality and connections between ports and the territory.				H-2030 H-2025
	Tourism	EES-12: Development of the project implementation plan for the protection and preservation of Underwater Cultural Heritage (UCH) sites	EES-11: Finalise the Eco-tourism plan			H-2025/H-2030
	Maritime Transport and Transshipment	EES-13: Promote and improve transshipment activities			EES-14: To review and assess the feasibility of regional maritime transport of goods and persons	H-2030
	Ship Building, Repair and Dry Docking	EES-15: Support Shipyards's competitiveness improvements initiatives	EES-16: Develop state guidelines and regulations to reduce the impact of industry on the environment.		EES-17: Investigate the potential of ship breaking and recycling for wrecks with local stakeholders. EES-18: Investigate the potential of ship building	H-2030/H-2025/ H-2025
	Yachting	EES-22: Develop a Roadmap to rebuild the local yachting sector.	EES-20: Implement legislative requirement for more robust marina and boatyard environmental management practices based upon guidance given in the "Guidebook on Sustainable Environmental Practices for Marinas and Boatyards" EES-21: Full implementation of harmonized form for arrival notification, customs and immigration requirements; Standardizing importing procedures for clearing and transit of yachting parts for service providers.	EES-19: Implement labour market assessment for skills training for competency based apprenticeship programs for the yachting industry.		H-2025/H-2025/ H-2030 H-2025

Figure 35. Action plans under tools and resources. Figure 34 continued.

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		Horizon 2021-2025	Horizon 2026-2030
Instrumental Tools and Sectors	Capacity Building and Education	INS-02: Capacity building and knowledge transfer program for strengthening the maritime sector as a whole focused in the administration and relevant stakeholders INS-03: Promote and enforce the use of local labour on board T&T flagged vessels INS-04: Review the Trinidad and Tobago Ship Registry INS-05: Implement a Vessel Traffic Management System INS-06: Improve custom clearance process INS-07: Review and removal of wrecks and derelict vessels INS-08: Strengthening the implementation of the SEW INS-09: Establish an independent Maritime Authority INS-10: Establish the Maritime Cluster of Trinidad and Tobago INS-11: Development and implementation of a national data collection plan of the state of the sea INS-12: Promotion of a National Research Strategy INS-13: Develop a Maritime Spatial Planning Strategy	INS-01: Develop a Quality Management System to allow T&T to certify its own officers.
	Defence, Safety and Security		
	Digitalization and SEW		INS-09: Establish an independent Maritime Authority
	Governance		
	Research and development		INS-13: Develop a Maritime Spatial Planning Strategy
	Spatial Planning		
Promoting Emerging Sectors	Aquaculture and fisheries	PES-01: Implementation of the Aquaculture Strategic Plan: A Framework for Sustainable Development in Trinidad and Tobago 2018-2023	
	Offshore Renewable Energies	PES-02: Study the opportunity to promote offshore renewable energy production	PES-02: Study the opportunity to promote offshore renewable energy production
Enhancing Existing Sectors	Alternative Fossil Fuels		PES-03: Evaluate the opportunity to better leverage economic impact and reduce environmental consequences of National Gas production
	Bunkering		EES-01: Develop the bunkering services in T&T especially for transiting vessels passing nearby T&T waters
	Coldstacking		EES-02: Improve cold stacking procedures and National protection measures in case of abuse or abandoned assets
	Fisheries	EES-03: Expand capacity to conduct Sustainable Fisheries Applied Research EES-04: Enhance capacity for fisheries/maritime training including establishment of fisheries training program fund for increased access EES-05: Establish fisheries monitoring, control, surveillance and enforcement programme to support implementation of Fisheries Management Bill EES-06: Establish a Vessel Monitoring System for medium/large fishing vessels	
	Port Operations	EES-08: Investments in port infrastructure and equipment to improve throughput, connectivity and pollution emissions and management. EES-09: Improve intermodality and connections between ports and the territory. EES-10: Port governance models.	EES-07: Develop an energy efficiency improvement plan
	Tourism	EES-12: Development of the project implementation plan for the protection and preservation of Underwater Cultural Heritage (UCH) sites	EES-11: Finalise the Eco-tourism plan
	Maritime Transport and Transshipment	EES-13: Promote and improve transshipment activities EES-14: To review and assess the feasibility of regional maritime transport of goods and persons	EES-13: Promote and improve transshipment activities
	Ship Building, Repair and Dry Docking	EES-16: Develop state guidelines and regulations to reduce the impact of industry on the environment. EES-17: Investigate the potential of ship breaking and recycling for wrecks with local stakeholders. EES-18: Investigate the potential of ship building EES-20: Implement legislative requirement for more robust marina and boatyard environmental management practices based upon guidance given in the "Guidebook on Sustainable Environmental Practices for Marinas and Boatyards"	EES-15: Support Shipyards's competitiveness improvements initiatives
	Yachting	EES-21: Full implementation of harmonized form for arrival notification, customs and immigration requirements; Standardizing importing procedures for clearing and transit of yachting parts for service providers. EES-22: Develop a Roadmap to rebuild the local yachting sector.	EES-19: Implement labour market assessment for skills training for competency based apprenticeship programs for the yachting industry.

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Figure 36. Horizon table 2025 and 2030 table for action plans.

4.5.1 Monitoring and Evaluation log frame

Monitoring and Evaluation (M&E) is the process of systematic gathering of information and assessment of it in order to determine whether progress is being made towards pre-specified goals and objectives, it is an integral part of the project cycle and of good management practice.

Monitoring systems provide managers and other stakeholders with regular information on progress relative to targets and outcomes. Evaluation is used to investigate and analyse why targets are or are not being achieved. It looks at the cause and effect of situations and trends which are recorded within monitoring.

For this Maritime Policy and Strategy two levels can be distinguished. In a hierarchical manner, first, the Policy and Strategy implementation level and, second, the detailed Action Plan level.

At a sector level monitoring and evaluation, in this case the monitoring and evaluation of the Maritime Policy and Strategy, can:

- Improve project and programme design through the feedback provided from mid-term, terminal and ex post evaluations
- Inform and influence sector and country assistance strategy through analysis of the outcomes and impact of interventions, and the strengths and weaknesses of their implementation, enabling governments and organisations to develop a knowledge base of the types of interventions that are successful
- Provide the evidential basis for building consensus between stakeholders

At project level monitoring and evaluation, in this case at an Action Plan implementation level, can:

- Provide regular feedback on project performance and show any need for mid-course corrections
- Identify problems early and propose solutions
- Monitor access to project services and outcomes by the target population
- Evaluate achievement of project objectives
- Measure the impact of the project on various indicators (including those relating to project objectives and other areas of concern)
- Incorporate stakeholder views and promote participation, ownership and accountability

Due to the fact that actions are distributed across multiple Ministries and Institutions, a comprehensive M&E plan is not feasible at this time. However, a model has been suggested using a Project Implementation Unit model.

Since an M&E log framework plan can only work with an established unit charged with the management of the programme of planned and executed related projects, a Programme Coordinating Unit (PCU) is proposed as the responsible body to project management the implementation plan. A Governance Model is presented further on in section 4.5.3. While not all projects can be completed by one ministry the PCU will be charged with determining which projects will be accepted using a criterion such as: economic relevance, feasibility, effectiveness, impact to society and the environment, efficiency, associated risks and sustainability; and how it will link to the rest of the maritime sub-sectors (e.g. fisheries, tourism, yachting, etc.).

The following section (4.5.2) exhibits the summary action plan matrix, that can be used for building detailed M&E log frames for each project (i.e. Action Plan) by future PIU (Project Implementation Unit) in

charge of its implementation. In the event of a donor funded programme M&E must be specified accordingly to each Action Plan by PIU.

Table 11 sets out the basic M&E log frame system for at the Maritime Policy and Strategy level.

Table 11. Maritime Policy and Strategy M&E log frame.

PROJECT GOAL	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
The ultimate goal of the maritime Strategy is to foster the growth of an international class sector competing at the global level; enabled with efficient institutions, updated legislation, educated labour in an innovative environment.	<p>The implementation of the Strategy and action plan is to be championed by a programme coordinating unit (PCU) with adequate institutional support.</p> <ul style="list-style-type: none"> Establishment of the PCU. Establishment of PIU for each sub-sector. Rate of forecasted, on-going, and completed Action Plans; Stakeholder Policy and Strategy awareness, satisfaction and buy-in. Stakeholder's stated and revealed interests in developing the actions in the strategy. 	<ul style="list-style-type: none"> Reporting of PIU to the governing body (PCU). Validation with the sector. 	<ol style="list-style-type: none"> Buy-in and engagement of Ministries and Stakeholders. Buy-in of the general public.
OUTCOMES	EFFECTIVENESS INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Implementation of Action Plans	<p>The programme evaluation parameters are to be defined by the PIU under the directive of the public private initiative (council or cluster) and the designated government institution.</p> <p>Economical</p> <ul style="list-style-type: none"> Increase in investment in maritime and related sectors; Increase in profitability via sales local and export; Ease of doing business international metrics. <p>Environmental</p> <ul style="list-style-type: none"> Emission and pollution rates decrease; State of marine biodiversity health Environmental polices/measures applied <p>Social</p> <ul style="list-style-type: none"> Increase in employment in maritime and related sectors; 	<p>The PIU will be required to define methods, and sources of data for obtaining and evaluating objectives.</p> <p>It is suggested an overall indicator to be used. This can be the growth or increase in exports, production and investment in a sample group of participating Companies over a 3-4 year period.</p> <p>Report on systems and guideline for collection of key indicators. For each type of activity identify indicators.</p> <ul style="list-style-type: none"> For consultancy assignments indicators to be used include sign off by stakeholders in agreement or satisfied. 	<ol style="list-style-type: none"> The Action Plan is decomposed into a set of logically-related projects which are seen as not only necessary, but also sufficient for achievement of defined programme goal. The Plan objectives are consistent with the achievement of defined economic performance parameter (to be defined at start of project.) Initiatives for upgrading the infrastructure and enabling environment are developed in a manner and timeframe adequate to positively impact on the PPI objectives. The PIU activities are funded jointly by public/private sector funding in a manner consistent with the costs required to generate sustainable development among the targeted stakeholders.

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			<ol style="list-style-type: none"> 5. No negative impact on the sector from natural disasters and/or social or other hazards. 6. All major programme stakeholders support the objectives and contribute towards the achievement of the Maritime sector objectives.
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4.5.2 Action Plan Summary Matrix

This section contains the Action Plan Summary Matrix (table 12). Each action plan (objective) is classified vertically by maritime sub-sector, and horizontally it is characterized by indicators, timeline, stakeholder responsible and budget.

Table 12. Action Plan Summary Matrix.

Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
Capacity Building and Education	Action Plan INS-01				
	Develop a Quality Management System to allow T&T to certify its own officers.	<ul style="list-style-type: none"> • Crew rate of T&T origin • Crew quality index • New education plan implemented 	2030	<ul style="list-style-type: none"> • MOWT 	<1,000,000 USD
	Action Plan INS-02				
	Capacity building and knowledge transfer programme for strengthening the maritime sector as a whole focused in the administration and relevant stakeholders	<ul style="list-style-type: none"> • Completion rate. • Participation rate. • Follow-up monitoring of implementation of new skills in stakeholders (sustainable practices, etc.) 	2023	<ul style="list-style-type: none"> • Maritime Service Division (MOWT) Maritime Authority 	<500,000 USD
	Action Plan INS-03				
	Promote and enforce the use of local labour on board T&T flagged vessels	<ul style="list-style-type: none"> • Local seafarer employment rate. • Number of T&T seafarers employed on T&T flagged vessels. 	2023	<ul style="list-style-type: none"> • Maritime Service Division, Maritime Authority • Immigration 	<500,000 USD
Defence,	Action Plan INS-04				

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
	Review the Trinidad and Tobago Ship Registry	<ul style="list-style-type: none"> Index of new ships on the register 	2025	<ul style="list-style-type: none"> Ministry of Trade and Industry Maritime Service Division, Maritime Authority 	<500,000 USD
	Action Plan INS-05				
	Implement a Vessel Traffic and Management System	<ul style="list-style-type: none"> Establishment of major protocols Cost evaluation and project financing Request of proposal VTMS implementation Project performance review. 	2025	<ul style="list-style-type: none"> Trinidad and Tobago Coast Guard Ministry of Works and Transportation Trinidad and Tobago Customs and Excise The Shipping Association of Trinidad & Tobago Trinidad and Tobago Pilotage Association Major port Administrations. 	>3,000,000 USD
	Action Plan INS-06				
	<p>Improve custom clearance process.</p> <p>Improvement of custom services especially for importers/exporters.</p>	<ul style="list-style-type: none"> Average cargo delays metrics Illegal activities intercepted. 	2022-Continuous	<ul style="list-style-type: none"> Customs and Excise Division Ministry of Trade and Industry 	500,000 USD/year
	Action Plan INS-07				
	Review and removal of wrecks and derelict vessels	<ul style="list-style-type: none"> Number of wrecks and derelict vessels. Wrecks removed from the bottom of the sea. 	2025	<ul style="list-style-type: none"> Maritime Authority 	>5,000,000 USD
Digitalization, Single Economic	Action Plan INS-08				
	Strengthening the implementation of the SEW	<ul style="list-style-type: none"> Ease of doing business metrics Import and export delay times 	2025	<ul style="list-style-type: none"> GoRTT SEW Unit PIU 	<1,000,000 USD

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
Governance	Action Plan INS-09				
	Establish an independent Maritime Authority	<ul style="list-style-type: none"> • Creation of a Deputy Minister position • Creation of a Maritime Authority • Implementation of clear SOP as well as continuous improvements culture 	2026	<ul style="list-style-type: none"> • Ministry of Works and Transportation 	>1,000,000 USD
	Action Plan INS-10				
	Establish the Maritime Cluster of Trinidad and Tobago.	<ul style="list-style-type: none"> • Internal monitoring indicators • National private investment in innovation. • Stakeholders engaged • Projects/actions carried out under the promotion of the Cluster. 	2023	<ul style="list-style-type: none"> • Maritime Authority • Maritime Services Division (MOWT) 	<1,000,000 USD/year
Research and Development	Action Plan INS-11				
	Development and implementation of a national data collection plan of the state of the sea	<ul style="list-style-type: none"> • Identification of main/priority data gaps metrics. • Number of organizations involved in data collection. • Funding for data collection field work. • State of the public accessible database. 	2024	<ul style="list-style-type: none"> • GoRTT/Interministerial: Ministry of Works and Transportation, Maritime Service Division, Maritime Authority, Ministry of Planning and Development. 	>1,000,000 USD
	Action Plan INS-12				
	Promotion of a National Research Strategy.	<ul style="list-style-type: none"> • Financing R&D indicators. • Number of scientific/research projects financed within the scope of the strategy. 	2023	<ul style="list-style-type: none"> • GORTT/Interministerial: <ul style="list-style-type: none"> ◦ Ministry of Works and Transportation, Maritime Service Division, 	<100,000 USD

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
		<ul style="list-style-type: none"> Number of privately funded initiatives on innovation of the maritime sector. Innovation/research projects per maritime sub-sector. Adoption of new technologies in mature sectors. 		<ul style="list-style-type: none"> Maritime Authority, Ministry of Planning and Development. 	
Spatial Planning	Action Plan INS-13				
	Develop a Maritime Spatial Planning Strategy	<ul style="list-style-type: none"> Finalization of the Maritime Spatial Planning Strategy. Stakeholders involved in the definition of the strategy. Application of the Maritime Spatial Planning Strategy. Dissemination and public consultation. 	2030	<ul style="list-style-type: none"> Inter-ministerial: <ul style="list-style-type: none"> Ministry of Planning and Development Maritime Service Division (MWOT) Maritime Authority ICZM 	500,000-1,000,000 USD
Aquaculture	Action Plan PES-01				
	Implementation of the Aquaculture Strategic Plan: A Framework for Sustainable Development in Trinidad and Tobago 2018-2023	<ul style="list-style-type: none"> Increased communication and collaboration between stakeholders Increased understanding of required frameworks and needs for growth of the sector and corresponding actions Development and implementation of accepted work plan Formation of aquaculture industry group Formation of national aquaculture hub Development of reports to support the sector (best practices, etc.) 	2023-2026 (1-5 years)	<ul style="list-style-type: none"> GoRTT/inter-ministerial: <ul style="list-style-type: none"> MALF MTI IMA 	200,000-500,000 USD

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
		<ul style="list-style-type: none"> Promotional materials produced and disseminated Training programs delivered and numbers of participants with improved skills Numbers of new entrants to the sector Increased revenue from sector Relevant data collected and managed in accessible platform for dissemination 			
Offshore Renewable Energies	Action Plan PES-02				
	Study the opportunity to promote offshore renewable energy production	<ul style="list-style-type: none"> International funding agencies supporting T&T actions to study and implement actions towards cleaner energy production. Results of this opportunity to study to move forward. Private entities interested in a T&T offshore project. 	2028	<ul style="list-style-type: none"> Ministry of Energy Ministry of Planning and Development 	500,000-1,000,000 USD
Alternative Fossil Fuels	Action Plan PES-03				
	Evaluate the opportunity to better leverage economic impact and reduce environmental consequences of Natural Gas production	<ul style="list-style-type: none"> Improve the economic impact of gas production index Environmental and social benefits index 	2030	<ul style="list-style-type: none"> Ministry of Trade and Industry 	<500,000 USD
Bunkering	Action Plan EES-01				
	Develop the bunkering services in T&T especially for transiting	<ul style="list-style-type: none"> Study results on the potential market and the National risks and benefits 	2030	<ul style="list-style-type: none"> Ministry of Trade and Industry 	500,000 USD

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
	vessels passing nearby T&T waters	<ul style="list-style-type: none"> Implementation of a regulatory framework facilitating the bunkering business while implementing an Environmental safety net Sales of bunkers to international vessels T&T taxes and duty income Job created 			
Coldstacking	Action Plan EES-02				
	Improve cold stacking procedures and National protection measures in case of abuse or abandoned assets	<ul style="list-style-type: none"> Optimised cold stacking procedures Implementation of a social and environmental safety net and reduction of actual incidents Increase in cold stacking State revenues Job creation and positive impact on ship maintenance business 	2030	<ul style="list-style-type: none"> Ministry of Works and Transportation Ministry of Trade and Industry 	200,000 USD
Fisheries	Action Plan EES-03				
	Expand capacity to conduct coordinated, collaborative, and policy-directed Fisheries Scientific and Applied Research	<ul style="list-style-type: none"> Increased participation of stakeholders Number of research projects undertaken and availability of research results Bi-annual review and publication of reports Performance metrics (publications/number of applied projects/funding sourced) Research projects undertaken 	2022-2025 (1-5 years)	<ul style="list-style-type: none"> Government of Trinidad and Tobago <ul style="list-style-type: none"> Ministry of Agriculture, Land and Fisheries – Fisheries Division Ministry Planning and Development Ministry of Education Tobago House of Assembly (THA), Division of Food Production, Forestry and Fisheries, Department of 	500,000-1,000,000 USD

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
		<ul style="list-style-type: none"> • Data sets gathered related to identified gaps • Number of highly qualified personnel (HQP) trained • Number of fisheries management plans developed and implemented • Number of policy-directed research projects implemented • Fisheries management measures implemented which include ecological, social, and economical implications 		Marine Resources and Fisheries <ul style="list-style-type: none"> • Post-secondary and training institutes <ul style="list-style-type: none"> ◦ University of Trinidad and Tobago – Maritime Campus ◦ University of West Indies - St. Augustine campus ◦ Institute of Marine Affairs ◦ Caribbean Fisheries Training and Development Institute • Regional Fisheries Bodies and Fisheries Management Organizations <ul style="list-style-type: none"> ◦ CRFM ◦ WECAFC ◦ ICCAT 	
Action Plan EES-04					
	Enhance capacity for fisheries/maritime training for improved resource management, including establishment of fisheries training program fund for increased access.	<ul style="list-style-type: none"> • Input from stakeholders on training needs, gaps, and challenges • Identification of needs • Development of plans to address needs • Course metrics including enrolment, completion, student satisfaction survey results • Increase in numbers of trained persons working in sector. 	2022-2025 (1-3 years)	<ul style="list-style-type: none"> • Government (including relevant ministries and bodies) • Caribbean Fisheries Training & Development Institute • Other training and post-secondary institutions as appropriate/relevant 	<ul style="list-style-type: none"> • Assessment and development of training plan/training: Approximately USD\$150,000 • Establishment of training fund: Approximately USD\$50,000
Action Plan EES-05					
	Establish fisheries monitoring, control, surveillance and	<ul style="list-style-type: none"> • Passing of legislation • Development of plan, training, and policies/standards with 	<ul style="list-style-type: none"> • Some actions to be developed/planned 	<ul style="list-style-type: none"> • Ministry of Agriculture, Land, and Fisheries <ul style="list-style-type: none"> ◦ Fisheries Division 	Subject to needs assessment and requirements around

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
	enforcement programme to support implementation of the Fisheries Management Bill.	commitment and support from Government and key stakeholders <ul style="list-style-type: none"> Established program that meets needs and is accepted/implemented 	prior to adoption of new legislation, with others to immediately following legislation <ul style="list-style-type: none"> Development time/plan = 1 year 	<ul style="list-style-type: none"> Division of Food Production, Forestry and Fisheries Department of Marine Resources and Fisheries 	development and delivery of training
	Action Plan EES-06				
	Establish a Vessel Monitoring Systems for the fishing fleet of artisanal and non-artisanal vessels	<ul style="list-style-type: none"> System adopted and in use Effective use of information Number and percentage of vessels monitored Number of electronic logbook entries submitted 	Three years after Fisheries Management Bill has passed	<ul style="list-style-type: none"> Ministry of Agriculture, Land, and Fisheries Fisheries Division (MALF) 	Dependent on technology chosen, level of monitoring, and on cost-sharing agreements, if any
Port Operations	Action Plan EES-07				
	Developing an energy efficiency improvement plan	<ul style="list-style-type: none"> Development of the plan Plan implementation (partial or full) Monitoring of the measures to control their impact 	2030	<ul style="list-style-type: none"> Ministry of Energy Ministry of Works and Transport 	<1,000,000 USD
	Action Plan EES-08				
	Investments in port infrastructure and equipment to improve throughput, connectivity and pollution emissions and management.	<ul style="list-style-type: none"> Development and completion of the plan. Plan implementation (partial or full). Monitoring of the measures to control their impact. Throughput improvement per invested monetary unit. Emission/pollution reduction per invested monetary unit. 	2023	<ul style="list-style-type: none"> TTO Ports including PATT and PLIPDECO Maritime Services Division (MOWT) 	20,000,000-50,000,000 USD

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
	Action Plan EES-09				
	Improve intermodality and connections between ports and the territory	<ul style="list-style-type: none"> Development of the plan. Plan implementation (partial or full). Monitoring of the measures to control their impact 	2025	<ul style="list-style-type: none"> TTO Ports including Port Authority of Trinidad and Tobago and the Port of Point Lisas 	10,000,000-20,000,000 USD
	Action Plan EES-10				
	Port governance models	<ul style="list-style-type: none"> Development of the plan. Plan implementation (partial or full). Monitoring of the measures to control their impact. Private capital share in ports. 	2023	<ul style="list-style-type: none"> TTO Port Authority Maritime Authority 	<500,000 USD
Tourism	Action Plan EES-11				
	Finalise the ecotourism plan for T&T	<ul style="list-style-type: none"> Potential for low-impact, community-based eco-tourism Level of communication and collaboration between stakeholders Cooperation among stakeholders to implement actions Development of reports to support the sector Promotional materials produced and disseminated Training programs delivered 	2030	<ul style="list-style-type: none"> Inter-ministerial: <ul style="list-style-type: none"> Maritime Services Division (MOWT) Fisheries Division (MALF) EMA (MOP) Ministry of Tourism, Culture and the Arts CDA 	< 100,000 USD
	Action Plan EES-12				

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
	Development of the project implementation plan for the protection and preservation of Underwater Cultural Heritage (UCH) sites	<ul style="list-style-type: none"> Confirmation of changes to respective legislations. Confirmation of SOP's for Site management and conservation of UCH sites; Number of dive tourists to sites and User fee collection SOP's firmly established and communicated across relevant stakeholders and personnel responsible for implementing SOP's. 	2023 (1-2 years)	<ul style="list-style-type: none"> Establish an inter-agency Advisory group with key stakeholders reporting to Minister Ministry of Works and Transport (MSD); Ministry of Planning (National Trust); Ministry of Tourism, Culture and the Arts (TTL, TTAL); Training institutions- UWI, UTT, tourism related Tech. Voc. programs 	<300,000 USD
Maritime Transport and Transshipment	Action Plan EES-13				
	Promote and improve transshipment activities	<ul style="list-style-type: none"> Annual income generated by transshipment. Tonnage transhipped. Job creation. Reduction of pollution and innocent cargo residues spill overs. Creation and funding of the Environmental and Social Compensation Fund. 	2030	<ul style="list-style-type: none"> Ministry of Trade and Industry Maritime Service Division, Ministry of Works and Transportation 	500,000 USD
	Action Plan EES-14				
	To review and assess the feasibility of regional maritime transport of goods and persons	<ul style="list-style-type: none"> Development of the action plan. Consultation with stakeholders. Stated potential investment in regional shipping. Completion of the assessment study. 	2023	<ul style="list-style-type: none"> 200,000 USD 	
Shipping	Action Plan EES-15				

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
	Support Shipyards' competitiveness improvements initiatives	<ul style="list-style-type: none"> Connectivity index Increase in offer (increase in services offered) Increase in demand 	2030	<ul style="list-style-type: none"> Ministry of Trade and Industry 	>1,000,000 USD
	Action Plan EES-16				
	Develop state guidelines and regulations to reduce the impact of industry on the environment	<ul style="list-style-type: none"> Establishment of the emission reduction plan. Pollutant reduction rate. 	2025	<ul style="list-style-type: none"> Ministry of Trade and Industry Maritime Authority 	<500,000 USD
	Action Plan EES-17				
	Investigate the potential of ship breaking and recycling for wrecks with local stakeholders	<ul style="list-style-type: none"> Rate of uncontrolled waste from industrial activity. Level of employment generated Rate of exploitation of the facilities 	2025	<ul style="list-style-type: none"> Rate of uncontrolled waste from industrial activity. Level of employment generated Rate of exploitation of the facilities 	<500,000 USD
	Action Plan EES-18				
	Implement labour market assessment for skills training for competency-based apprenticeship programs for the yachting industry.	<ul style="list-style-type: none"> Concept approval to proceed with labour market skills / needs assessment Extensive stakeholder participation Validation of labour market skills / needs assessment Draft curriculum development for comprehensive education program Numbers of incumbents and new persons formally trained in the industry Satisfaction survey results from industry stakeholders 	2026 <ul style="list-style-type: none"> 6 months: Labour market / skills needs assessment 1 year: draft curriculum 1-2 years: implement informal training program targeted towards incumbent workforce 3-5 years: implement vocational training leading to industry-recognised certifications. 	<ul style="list-style-type: none"> Government of Trinidad and Tobago Ministry of Trade and Industry Ministry of Education (Tertiary Education Division), MIC Institute of Technology (MIC-IT), National Training Agency YSATT Relevant post-secondary education institutions 	<ul style="list-style-type: none"> Labour market / skills needs assessment - 50,000 USD Draft curriculum development for comprehensive education program - 200,000 USD

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
		(educators, students, companies, clients) ● Impact in attracting higher profile and volume of yachts			
	Action Plan EES-19				
	Investigate the potential of ship building	● GDP contribution of the sector ● Potential private investors	2025	● Ministry of Trade and Industry ● Maritime Authority	● <500,000 USD
Yachting	Action Plan EES-20				
	Implement legislative requirement for more robust marina and boatyard environmental management practices based upon guidance given in the “Guidebook on Sustainable Environmental Practices for Marinas and Boatyards”	● Passing of legislation ● Development of plan with support from Government and key stakeholders ● Legislation passed ● Compliance on enhanced environmental management practices for new and expanding marinas / boatyards, and existing marinas / boatyards	2023-2025 Initiate concept within 1 year. Timelines for implementation dependent upon legislative process	● Applicable government departments with authority to enact legislation	Internal (<500,000 USD)
	Action Plan EES-21				
	Full implementation of harmonized form for arrival notification, customs and immigration requirements; Standardizing importing procedures for clearing and transit of yachting parts for service providers.	● Confirmation of changes to respective legislations. Policy document indicates changes affected by August 2017. ● Confirmation that SOP's are established. ● Adoption and use of Single Harmonized Form ● SOP's firmly established and communicated across relevant stakeholders and personnel responsible for implementing SOP's.	2023 (6 months – 1 year)	● Applicable government departments ● Customs and Excise, Immigration, Ministry Trade and Industry, TTGC	Internal (<1,000,000 USD)

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Sector	Objective	Indicators	Timeline	Stakeholder Responsible	Budget
	Action Plan EES-22				
	Develop a Roadmap to rebuild the local yachting sector	<ul style="list-style-type: none"> • Yacht arrivals by origin. • Visitor yachts from new markets. • Visitor satisfaction surveys • Expenditure per visit. • Environmental indicators (e.g. monitoring on waste management at marinas). 	2023	<ul style="list-style-type: none"> • Ministry of Trade and Industry 	200,000 USD

4.5.3 Governance Model

This section sets out a proposal on the Governance Model of the Maritime Strategy, it responds to how to implement the strategy, who is responsible for ensuring its implementation and mediate between stakeholders in rising conflicts of interest.

The proposed governing body would be the Maritime Authority or, failing its creation, the Maritime Services Division of the Ministry of Works and Transport, which would be endorsed by the Government of Trinidad and Tobago and THA and have sufficient independence to undertake this responsibility. Its aim is to ensure the implementation of the Strategy. The governing body is commanded with the task of articulating the actual implementation of this Policy and Strategy and that is done in two fronts.

1. Consult and dialogue with the sector, that is involved stakeholders, before and during the implementation phase to better understand the particularities of each sector and consequences and resolve potential conflicts between stakeholders and affected parties.
2. And to monitor, coordinate and give support to the executing branch, that would be those competent bodies for each sub-sector, in general the Government of Trinidad and Tobago and its ministries and other competent bodies.

Moreover, it is commissioned to mediate and resolve conflicts between stakeholders. The Policy response to resolve conflicts between different interests during the implementation of the strategy and action plan will involve the principles of project management. Conflict among various stakeholders in a specific project is resolved in keeping with principles of project management. Conflict resolution techniques are incorporated and utilized by certified project managers as is the standard operating procedure.

As stated in section 4.5.1, a Programme Coordinating Unit (PCU) would be the materialization of the Governing Body in charge of ensuring the implementation of the Policy and Strategy. Likewise, a Project Implementation Unit (PIU) is needed in charge of the implementation and monitoring and evaluation of the proposed Actions, the PIU would ideally fall in the executing branch of each responsible sub-sector.

A diagram summarizing the governance model is presented below in Figure 37.

Governance Model

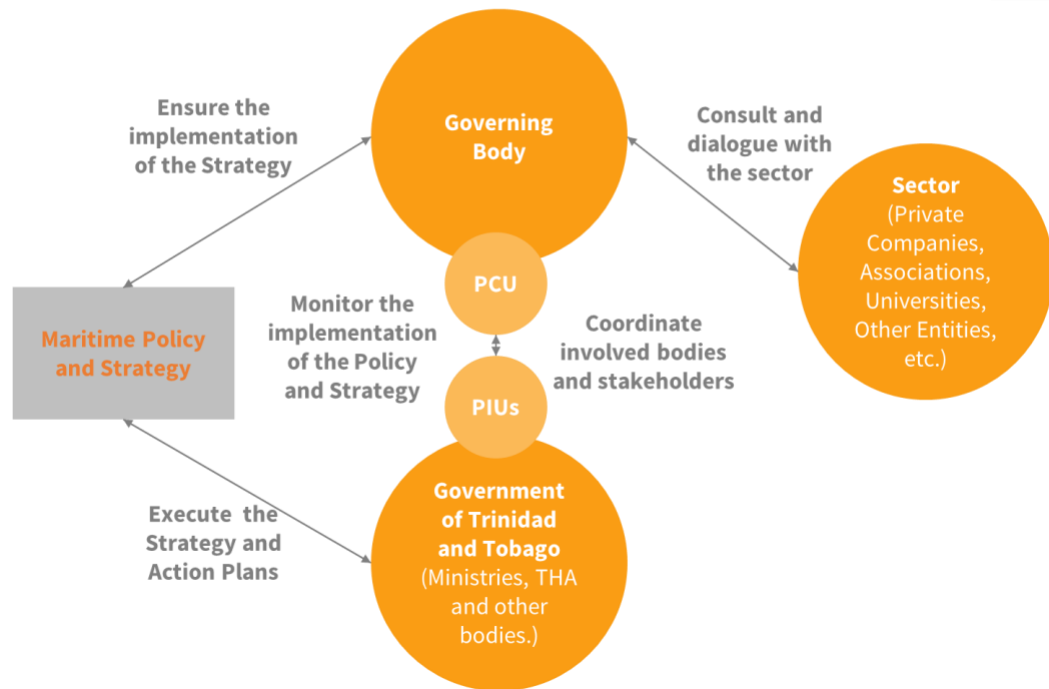


Figure 37. Proposed governance model for the implementation of the Maritime Strategy.

ANNEX 1 – Stakeholder Consultation Log

During the gap analysis phase (2) a total of 42 interviews were carried out. All identified stakeholders were contacted and interviewed. The completed meetings log can be found in the following table (A1).

Table A1. Meeting carried out with the stakeholders.

Date	Time	Organization	Representative/s	Position
Thursday 4th February 2021	9:00AM-10:00AM	Ministry of Works and Transport	Mrs. Sonia Francis Yearwood	Permanent Secretary
		Ministry of Trade and Industry	Mrs. A. Alleyne-Ovid	Permanent Secretary
Friday 5th February 2021	9:00AM-10:00AM	Ministry of Works and Transport, Maritime Services Division	Mr Ronald Alfred	Director MSD,
		Brent Williams (Legal); Francis Weekes; Garnet Best;	Richmond Basant	Administrator For Pollution
			Ms. Natasha Isaac	Supt. Mercantile Marine
		Ministry of Works	Mrs. Sonia Francis Yearwood	MOWT
Monday 8th February 2021	9:00AM-10:00AM	Ministry of Trade and Industry	Mr Rupert Ramharack	Proj Admin Bus Trans Unit
		Ministry of Trade and Industry	Abigail Edwards	Business Facilitator
Monday 8th February 2021	3:00PM-4:00PM	Ministry of Sport and Community Dev.	Dr. Donna-Mae Knights	Policy Coordinator
		Ministry of Sport and Community Dev.	Mr. Kevon Swan	Director of Legal Services
		Pilots Association of Trinidad and Tobago	Kurt Duncan	Pilot
Tuesday 9th February 2021	10:30AM-11:30AM	Pilots Association of Trinidad and Tobago	John Paul Pantin	Pilot
		Pilots Association of Trinidad and Tobago	Marc De Verteuil	Pilot
		Pilots Association of Trinidad and Tobago	Kriston Hackett	Pilot
Tuesday 9th February 2021	1:00PM-2:00PM	Trinidad and Tobago Seamen, Education, Employment, Association Contractor	Mr. David Stanley McLeod	Founder/President

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		Trinidad and Tobago Seamen, Education, Employment, Association Contractor	Oding Quao	Assistant to President
		Trinidad and Tobago Seamen, Education, Employment, Association Contractor	Wallace Edwards	Committee Member
		Trinidad and Tobago Seamen, Education, Employment, Association Contractor	Wilbert Philip	Committee Member
Wednesday 10th February 2021	10:30AM-11:30AM	Ministry of Tourism, Culture and the Arts	Mrs. Satie Jamraj – Marimuthu	Dir. Research and Planning (Ag)
		Tourism Trinidad Limited	Mrs. Shakila Medina	Transportation Coordinator (Sea)
		Ministry of Tourism, Culture and the Arts	Mrs. Simone Medina-Williams	Senior Research Officer (Ag)
		Ministry of Tourism, Culture and the Arts	Edward C. Lee Tang	Tourism Coordinator
Wednesday 10th February 2021	1:00PM-2:00PM	Shipping Association of Trinidad and Tobago	Captain Rawle Baddaloo	Consultant
		Shipping Association of Trinidad and Tobago	REPRESENTATIVE	Members Assistant
Wednesday 10th February 2021	2:30PM-3:30PM	Institute of Marine Affairs	Dr. Rahanna Juman	Director (A.g.)
Thursday 11th February 2021	9:00AM-10:00AM	Point Lisas Industrial Port Development. Co Limited	Shelly Balkissoon	Marketing Manager
		Point Lisas Industrial Port Development. Co Limited	Deoraj Mahase	Junior Manager Planning
Thursday 11th February 2021	10:30AM-11:30AM	Environmental Management Authority	Mr. Hayden Romano	Managing Director/CEO
		Environmental Management Authority	Xiomara Chin	Strategy & Research Cor
		Environmental Management Authority	Ms. Nisha Ramsahai	Strategy & Research Cor
		Environmental Management Authority	Ms. Marcia Tinto	Snr Environ. Educ. Offer
		Environmental Management Authority	Ms. Nadia Gour	Environmental Programme Officer (II)
		Environmental Management Authority	Ms. Marlene Scott	Librarian
Friday 12th February 2021	8:30AM-9:30AM	Ministry of Agriculture - Fisheries Division	Mrs Nerissa Lucky -	Director of Fisheries

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		Ministry of Agriculture - Fisheries Division	Ms. Elizabeth Mohammed	Senior Fisheries Officer
		Ministry of Agriculture - Fisheries Division	Ms Sarika Maharaj	Interim Coordinator (Fisheries Inspectorate)
Friday 12th February 2021	10:30AM-11:30AM	Port Authority of Trinidad and Tobago	Mr. Ricky Seepersad	
		Port Authority of Trinidad and Tobago	Mr. Anil Ramdial	Manager, Strategic Planning
		Port Authority of Trinidad and Tobago	Mr. Andy Ali	Acting Management Analyst, Office of the GM/CEO
Friday 12th February 2021	1:00PM-2:00PM	T&T Industrial Fishing Association	Mr. Ian Maharaj	Vice President
Monday 15th February 2021	9:00AM-10:00AM	UNIV OF T&T Maritime Campus	Captain Sukhjot Singh	Assistant Professor (Programme Lead)
		UNIV OF T&T Maritime Campus	Stephen Nanan	
		UNIV OF T&T Maritime Campus	Vivian Rambarath	
		UNIV OF T&T Maritime Campus	Adrian Beharry	Board Member
Monday 15th February 2021	1:00PM-2:00PM	Yacht Services Association of Trinidad & Tobago	Mr. Jesse James	Board Member
		Yacht Services Association of Trinidad & Tobago	Dennis Moseley Goodwood Marine	Goodwood Marine
		Yacht Services Association of Trinidad & Tobago	Sueann LeeLoy	Admin
Monday 15th February 2021	2:30PM-3:30PM	T&T All Tobago Fisherfolk Organization	Mr. Curtis Douglas	Vice President
Tuesday 16th February 2021	9:00AM-10:00AM	THA Division of Tourism, Culture and Transportation	Mr Nigel Wilson	Domestic Transport Marketing Officer
Tuesday 16th February 2021	10:30AM-11:30AM	T & T Chamber: Crews Inn Marina	Natasha Fournillier	Chief Executive Officer
		T & T Chamber: CHAG Term	Marvin Manswell	
Tuesday 16th February	1:00PM-2:00PM	T & T Manufacturer's Association	Mr. Christian George	Lead-Ease Do. Bus Unit
		T & T Manufacturer's Association	Ms. Janele Spencer	Infrastructure Committee

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Tuesday 16th February 2021	2:30PM-3:30PM	Invest TT	Mr. Sekou Alleyne	President
Wednesday 17th February 2021	9:00AM-10:00AM	The Energy Chamber	Dr. Thackwray Driver	President and CEO
		The Energy Chamber	M. Scipio	Operations for Atlantic LNG
		The Energy Chamber	Priya Maharaj	
		Fishermen and Friends of the Sea	Gary Aboud	President
Wednesday 17th February 2021	10:30AM-11:30AM	Fishermen and Friends of the Sea	Alex Ramdass	Legal Expert
Wednesday 17th February 2021	1:00PM-2:00PM	Customs and Excise Division	Ms. Delva Gosine	Acting Collector
		Customs and Excise Division	Officer in Compliance	
		Customs and Excise Division	Mr Leslie Hewitt	Acting Assistant Comptroller
Wednesday 17th February 2021	2:30PM-3:30PM	Chaguaramas Development Authority	Mr. Michael Forde	HSE Officer/Facilities Coordinator
		Chaguaramas Development Authority	Mr. Jason Pantin	HSE Officer
Thursday 18th February 2021	9:00AM-10:00AM	Caribbean Fisheries Training & Development Institute	Captain Kirton Huggins	Manager (Curriculum and Training)
		Caribbean Fisheries Training & Development Institute	Mr. K. Slinger	Manager Fish Processing Unit
		Caribbean Fisheries Training & Development Institute	Mr. N. Wint	Registrar
Thursday 18th February 2021	10:30AM-11:30AM	Maritime Preservation Ltd.	Mr Michael Burke	Managing Director
		Maritime Preservation Ltd.	Joel Sahadeosingh	Project Coordinator
		Maritime Preservation Ltd.	Pratiksha Parsan	Operations / Purchasing
		Inter Isle Construction and Fabrication Limited	Mr. Sean O'Connor	
		Inter Isle Construction and Fabrication Limited	Capt Melvin Gloss	
Thursday 18th February 2021	1:00PM-2:00PM	Inter Isle Construction and Fabrication Limited	Mr. Alphonsous Jeffers	Financial Controller

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Thursday 18th February 2021	2:30PM-3:30PM	Caribbean Dockyard and Engineering Services Limited	Mr. Wayne Beharry	Chief Operations Officer
		Caribbean Dockyard and Engineering Services Limited	Mr. Andrew McCracken	HR Manager
		Caribbean Dockyard and Engineering Services Limited	Mr. Andre Vieira	Commercial Manager
Friday 19th February 2021	9:00AM-10:00AM	Seamen and Waterfront Workers Trade Union (SWWTU)	Mr. Michael Anneisette	General Secretary
		Seamen and Waterfront Workers Trade Union (SWWTU)	Ms. Nyree Alfonso	Legal Expert
Friday 19th February 2021	10:30AM -11:30AM	Ministry of National Security - T&T Coast Guard	Commander A Jasper	(Commanding Officer(Ag))
		Ministry of National Security - T&T Coast Guard	Lt Cdr A Isaac (Executive Officer)	(Executive Officer)
		Ministry of National Security - T&T Coast Guard	Lt Cdr R Fredricks	(Commander Logistics)
		Ministry of National Security - T&T Coast Guard	Lt Cdr A Hector	Commander Operations/Port Security
		Ministry of National Security - T&T Coast Guard	Lt Cdr K Paris	(Commander Engineering)
		Ministry of National Security - T&T Coast Guard	Lt Cdr S Marshall	(Commander Personnel)
Friday 19th February 2021	1:00PM-2:00PM	Ministry of Finance	Kwesi Callender	Project Support Officer
Monday 22nd February 2021	9:00AM-10:00AM	National Training Agency (Maritime Advisory Comm)	Ms. Lara Maharaj	Manager
		National Training Agency (Maritime Advisory Comm)	Mrs. Bibi Shanaz Isahak	Sector Development Specialist
Monday 22nd February 2021	1:00PM-2:00PM	Trinidad and Tobago United Fishers	Mr. Joslyn Lee Quay	President
Monday 22nd February 2021	2:30PM-3:30PM	NIDCO	Devon Rampersad	NIDCO
Tuesday 23rd February 2021	9:00AM-10:00AM	T&T Yacht Club	Mr. Kirk Agard	Manager

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Tuesday 23rd February 2021	1:00PM-2:00PM	Ministry of Trade and Industry (TTBizLink Unit - Single Electronic Window)	Mr Neshan Singh	Project Admtr (TTBizLink Ut)
Tuesday 23rd February 2021	2:30PM-3:30PM	Ministry of Energy and Energy Industries	Mr. Craig Boodoo	Snr. Petroleum Engineer
Thursday 25th February 2021	1:00PM-2:00PM	Ventrin Petroleum Company Limited (Bunkering)	Ms. Natalia Winston	Bunker trader
		Ventrin Petroleum Company Limited (Bunkering)	Mr. Jeffery Sookram	Sales Rep
Friday 26th February 2021	9:00AM-10:00AM	Stingrae Caribbean Limited (Seafood Processing)	Mr. Wendell Raeburn	President
Wednesday 3rd March 2021	10:30AM -11:30AM	Paria Fuel Trading Company Limited	Mr. Collin Piper	Terminal Operations Manager
		Paria Fuel Trading Company Limited	Mr. Arnold Soogrim	Procurement
Thursday 4th March 2021	10:00AM-11:00AM	Special Economic Zones MTI - Policy & Strategy Dir.	Mr. Irfan Hosein	Business Reform Specialist
Thursday 4th March 2021	1:00PM-2:00PM	International Maritime Organization (IMO)	Mr Colin Young	IMO Regional Maritime Adviser, Caribbean
Friday 5th March 2021	11:00AM -12:00AM	Port Authority of Trinidad and Tobago	MsTrudy Gill-Conlon	General Manager/ (Ag.)
Friday 16th April 2021	11:00AM -12:00AM	Immigration Division of Trinidad and Tobago	Mr. Derek Craigwell	Chief Immigration Officer/ (Ag.)
			Mr. Elston Baird	Assistant Chief Immigration Officer/ (Ag.)
Tuesday 27th April, 2021	9:00AM -10:00AM	National Energy Corporation of Trinidad and Tobago Limited	Michelle Scipio-Hosang	Manager, Operating Assets – National Energy
			Terrence Boodoosingh	Team Lead – La Brea Operations
			Wendy Seow	General Manager of LABIDCO and VP-Port and Estate Management
Tuesday 27th April, 2021	3:00PM - 4:00PM	Inter-American Development Bank	Krista Lucenti	Senior Trade Specialist
Friday 30th April, 2021	10:00AM - 11:00AM	UNESCO Trinidad and Tobago National Commision	Dennis Francis	Chairman
Tuesday 18th May, 2021	10:00AM - 11:00AM	Aquaculture Unit, Fisheries Division, Ministry of Agriculture, Land and Fisheries	Harnarine Lala	Fisheries Officer
			Nadia Ramphal	Fisheries Officer

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ANNEX 2 – Gap Analysis

The conclusions of the gap analysis are found in the following table (A2).

Table A2. Main issues and challenges found in the gap analysis.

	Involved stakeholders	Main issues and challenges
Agencies and other public bodies	<p>Ministry of Works and Transport, Maritime Service Division;</p> <p>Ministry of Trade and Industry;</p> <p>Ministry of Finance, Customs and Excise Division;</p> <p>Port Authority of Trinidad and Tobago (PATT);</p> <p>Ministry of National Security - T&T Coast Guard;</p> <p>Ministry of Agriculture, Fisheries Division.</p>	<ul style="list-style-type: none"> T&T should have a standalone maritime authority. Customs and other administrative procedures delay downstream activities. It affects T&T competitiveness in all sectors. Faster custom clearing procedures are a must for both air and sea ports to be competitive. <ul style="list-style-type: none"> Delays in clearing critical parts imported for vessel repairs. . Other countries in the region have streamlined practices to ensure minimal delay for incoming vessel parts. Delays on VAT reimbursements are hard on the company cash flow and reduce its competitiveness. Container clearance increased from 72 to 96h (if it is detained +360h). Delays in servicing can be a deterrent for visiting vessels. Some administrative procedures are archaic. Drogher license and logbook causes costly delays, inefficient ship moves making T&T uncompetitive for companies. The Single Harmonized Form that includes international standardized Pre-Arrival Notification can help facilitate interoperability between agencies (MSD, Coast Guard, Customs & Immigration), thus enabling more efficiency in arrival and clearance procedures for visiting vessels. Government and other administrations lack expertise and resources to cope with maritime-related processes, which in turn delays such processes. The need for the current procedures for pre-arrival notifications and follow-up action to be aligned with the Port State Measures Agreement to facilitate compliance with the respective international obligation.
Legislation	<p>Ministry of Trade and Industry,</p> <p>Ministry of Works and Transport, Maritime Service Division;</p> <p>Ministry of National Security;</p> <p>Ministry of Agriculture, Fisheries Division;</p>	<ul style="list-style-type: none"> Collaboration. Improve collaboration between national agencies and stakeholders and within the Country region. <ul style="list-style-type: none"> Need for establishing standardized collaboration procedures and information sharing with the Coast Guard and other agencies. Regional opportunity between Trinidad, Guyana and Suriname within the oil sector. Ease of free movement of equipment within Region operating as between these three markets (it should be working as one oil field) to promote newer and more efficient opportunities. Cost of doing business uncompetitive due delayed VAT reimbursements for re-exported equipment. There are VAT problems when importing equipment, e.g., delay to get VAT reimbursed, which generates a cash flow issue. Special economic zone status could be used for the import/export and other operations. Derelict vessels. Concerning issue on the abandonment of vessels. Need a framework to prevent new wrecks and dispose of recently abandoned vessels. <ul style="list-style-type: none"> Wrecks are a threat and limit the potential of port/coastal development. Clarity on who is responsible for their treatment. There is a need for risk mitigation via insurance coverage for wreck removal with a more robust administrative framework via the

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		<p>Chief Harbour Master Office provided for in the new Shipping Bill 2020.</p> <ul style="list-style-type: none"> ○ Consideration may also be given to requiring shipowners to have insurance or other financial security to cover the costs of wreck removal and providing Trinidad and Tobago with a right of direct action against insurers. ● Environmental. Need national legislation and regulation on ship source pollution and waste management. <ul style="list-style-type: none"> ○ Concerns raised by stakeholders included commercial bilge water disposal and spills in areas jointly utilized by commercial maritime vessels and the yachting sector. Some ships calling in ports have environmental issues. ○ Regulations of pollution (land and water source). Control and management of ship generated waste. Improve yacht waste reception facilities. ○ National legislation on pollution needs to align with international law such as MARPOL. This would allow enforcement of the convention. ○ MARPOL (all annexes), Ballast Water Management, Anti-fouling would be provided for in the Marine Pollution Prevention Bill 2021. It is in Draft and should be completed, consulted on and sent to the Cabinet and to Parliament this year. ○ Translocation of invasive alien species primarily via ballast water and hull-fouling. ● Fishing. Regulate several aspects affecting the economic and environmental sustainability of the T & T fishing sector. <ul style="list-style-type: none"> ○ Need training on net making and management of monofilament nets; law to gradually increase mesh size but instead size has got smaller. ○ Tighter control on the importation and sale of shrimp. ○ Address illegal fishing. International fishing in T&T waters (Taiwanese ships). ○ To enable the conduct of due diligence checks for involvement in IUU fishing to inform the decision whether or not to register a vessel to be used for fishing. ● Safety and security. Lack of local legislation required to apply the International Maritime Organization Conventions to T&T, and need for regulation and monitoring of vessels. This affects the State's ability to enforce the conventions, for example through Port State Control. <ul style="list-style-type: none"> ○ The mandatory IMO conventions of SOLAS, STCW, LOADLINE, Tonnage, COLREG and MARPOL have been accepted by T&T. ○ With the passage of the new Shipping Bill and increased capacity for Port State Control Inspections by officers under the Maritime Authority (then established under the new Shipping Act) the implementation and enforcement of the IMO Conventions will be enhanced. Having the new Shipping Act promulgated is therefore critical to ensuring vessel compliance with the international conventions to which Trinidad and Tobago is a Party. ○ Concern on safety and registration of boats. There is a need for a registration system for local and international vessels. Fishing and
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		<p>pleasure nautical activities do not have a framework or adequate control. A more robust implementation via upgraded institutional and administrative frameworks in the form of the Maritime Authority should make a difference (provided for in the new Shipping Bill 2020).</p> <ul style="list-style-type: none"> ○ The need to strengthen national legislation governing the registration of ships for alignment with the requirements for a genuine link between the State and its flagged vessels (in particular fishing vessels) under the United Nations Convention on the Law of the Sea - Article 91 - Nationality of Ships ○ Also, regulation of no-wake zones and regulate rental of pleasure boats, currently rented to unfamiliar persons that generate accident situations. ● Single Electronic Window has long-term potential with many processes still to be automated. However, implementation is challenging due to the many agencies that are involved in the process. Internal resistance to adopt electronic tools. Some of it due to lack of basic IT skills. It does not seem that the SOP's are clearly communicated to the agents. Need for more training and capacity building. ● Maritime policy should lead in new strategies that are currently being implemented (Custom reforms, New Port community system, etc.). Implement ICZM Policy and Marine Spatial Plan.
Spatial planning	<p>Institute of Marine Affairs;</p> <p>Ministry of Planning and Development;</p> <p>CDA.</p>	<ul style="list-style-type: none"> ● Conflict between recreational and industrial activities in Ports. ● Larger facilities for recreational boats (on hold because of pandemics). Space is limited but demand is there. ● Need access to national fisheries compounds and ice facilities.
Public awareness and education	<p>Ministry of Education;</p> <p>Ministry of Works and Transport, Maritime Service Division;</p> <p>Ministry of Agriculture, Fisheries Division;</p> <p>Caribbean Fisheries;</p> <p>Customs & Excise.</p>	<ul style="list-style-type: none"> ● More public information on Ports (calls, tides, weather, ships...). ● More fishing training with focus on environmental impacts of fishing. Data collection on fish stock. ● National education institutions. Promote local marine careers. Update legislation for maritime education and Quality Management System to allow T&T to certify its own officers. Governmentt facilitation for placement of cadets on vessels working in TTO Waters. Employment opportunities as a result of maritime development. More safety at sea training. ● Need for more training to modernize custom operations and support the SEW (often lack of IT literacy). Minimal requirements to become a customs agent must be set to ensure correct and efficient development of customs processes. ● Increased collaboration within T&T in training would make all organizations better equipped to address economic and sustainability aspects of fisheries and marine industries.
Research, Innovation and Development	<p>Environmental Management Authority,</p> <p>Institute of Marine Affairs,</p> <p>University of Trinidad and Tobago.</p>	<ul style="list-style-type: none"> ● Environmental. There is the lack of sufficient biological data on species and community distribution, for example the deep-sea ecosystems or the habitats of marine migratory species. More monitoring on pollution. Public invest in research and data collection. ● All Tobago Fisherfolk Assoc needs: looking at new technology to support industry development (e.g., phone, GPS, fish finders) and need fish drying capacity, better fuel stations, better ice facilities. ● VTMS system approved but not implemented for economic issues. The coast guard could benefit from this technology to monitor vessels in T&T waters.
Other policies (Tax,	NIDCO,	<ul style="list-style-type: none"> ● Investment in port infrastructure for accommodating larger and more vessels. Currently damaged berths make logistic operations inefficient. New

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financing, public Budget)	Ministry of Finance, Invest TT.	<p>marina in Tobago and new dock to accommodate ferries and cruises and provide better services.</p> <ul style="list-style-type: none"> ○ Efficiency and productivity are low (waiting time, handling, customs...) due to old equipment and due to the scarcity of resources available. For example, trucks only operate from Monday to Friday, and on weekends container vessels are waiting. ○ Need capital investment for addressing port electrification and other environmental issues. <ul style="list-style-type: none"> ● Invest in addressing issues with external transportation infrastructure for several sectors (road transportation network). It has an impact on the cold chain for fish, accessibility to port facilities (of trucks due to traffic congestion or inadequate road state) ● Need for a tax system to respect navigation rules and implement regulation for no-wake zones. There are no quotas for local fishers or foreign fishing vessels. The current legislation on Special Economic Zones has a high risk of tax evasion. T&T is not competitive within the region in terms of SEZ incentives. ● Promote contract local seafarers. Currently foreign employees can be brought in for 20 days without a work permit, so there is no fair competition and there is a demand to be able to protect Trinidad and Tobago workers. ● Potential for PPP but not familiar with them (NIDCO). ● For many companies it is paramount to access financing at a reasonable interest rate to invest in their activities. Local banks present elevated rates and they propose there should be commitment by the T&T Government to help or finance these projects.
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ANNEX 3 – Best Practices

For each area, each practice that can be applied to T&T has been explained, with proposed solutions as well as their results. Table A3 explains each of them.

Table A3. Best Practices description.

Area	Best Practices	Description
Fishing	The ratification and implementation of the 2012 Cape Town Agreement in Latin America and the Caribbean	Enhancing fishing vessel safety to save lives. Battle against Illegal, Unreported and Unregulated (IUU) fishing.
Maritime transport Policies	Development of national maritime transport policies	Development, formulation and content of national maritime transport policies. The aim of this is to achieve the maritime vision of the country concerned and to ensure that the sector operates in an efficient, sustainable, safe and environmentally friendly manner.
Maritime Spatial Planning	Cross-border cooperation in Maritime Spatial Planning	The most successful marine spatial plans share several characteristics that may be interpreted as good practices. These were identified as: 1. clear legal authority to undertake MSP 2. strong political leadership 3. adequate financing to complete at least a first round of MSP 4. effective stakeholder engagement throughout the MSP process 5. clear, measurable management objectives 6. use of best available information, including local and traditional knowledge, in the analysis phase of MSP.
Sustainable shipping	Port of Antwerp: The greenest ships are given the greatest incentive	Based on the engine characteristics and the fuel used, the Environmental Ship Index (ESI) evaluates the amounts of NO _x , SO _x and CO ₂ emitted by the ships, with a bonus for particularly efficient ships or those with onshore power connectors. The port of Antwerp has been an “incentive provider” since the index was first introduced in 2012; ships with a good environmental score are granted a discount on port dues. Results: 2012: 462 calls 2013: 344 calls 2014: 501 calls 2015: 903 calls 2016: 1.137 calls

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Water Pollution	Ballast Water Management	Best practice guidance and a harmonised approach to sampling for compliance in accordance with Article 9 of the IMO Ballast Water Convention 2004.
Water Pollution	Addressing Illegal Discharges in The Marine Environment	This guidance supports authorities involved in the enforcement chain addressing illegal pollution (e.g. surveillance operators, inspectors and investigators, Port State Control Officers, law enforcement officials).
Water Pollution	Port Reception Facilities	<p>A port is defined in the PRF Directive as: "a place or a geographical area, made up of such improvement works and equipment as to permit, principally, the reception of ships, including fishing vessels and recreational craft"</p> <p>Thus, the following all fall within the wide range of "ports" for which a WRH Plan should be</p> <ul style="list-style-type: none"> • loading or discharging of cargo; • passenger vessel operations; • commercial and recreational fishing operations; • cooperation of vessels servicing offshore industries, such as the oil industry or • the renewable energy industry; • fish farming, where a jetty is used by fish carriers and feed carriers; • launching and retrieval of yachts/recreational vessels from marinas, slipways, • jetties and sailing clubs; • reception and unloading of dredge material from dredging vessels; • operation of port service vessels such as pilot boats and tugs; and, • mooring ships and/or recreational craft either at a jetty or on buoys
Maritime Industry	Best Practices in the structuring of the Maritime Industry	<ul style="list-style-type: none"> • Increasing Private Participation • The national agency responsible for and dedicated to ensuring the safety of ships, the protection of life and property at sea and the marine environment, and compliance with applicable national laws and regulations.

Air quality	<p>Best Clean Air Practices for Port Operations</p>	<p>Best Port-wide Planning Practices to Improve Air Quality container ships at the port Port-wide planning practices can improve air quality at ports and in near-port communities.</p> <p>Port-wide planning helps to inform strategic clean air investments at ports. These activities include identifying emissions sources, developing plans to reduce emissions, raising funds and getting community input on emissions reduction activities. Below are best practices for port-wide planning to promote improved air quality.</p>
Air quality	<p>Drayage Truck Best Practices to Improve Air Quality</p>	<p>Drayage trucks play an important role in port operations, the economy and air quality. Drayage trucks are generally diesel-fueled, heavy-duty (Class 8) trucks that transport containers and bulk freight between the port and intermodal rail facilities, distribution centers, and other near-port locations. This page describes best practices, listed below, that port authorities, drayage truck drivers, and other port operators can adopt to reduce dray truck emissions.</p>
Sustainable Terminals	<p>Production of Green Energy</p> <p>Greening energy production is a major challenge facing society. There is a need to move away from conventional fuels and towards greener, more renewable sources of energy. Although this is ultimately a task for wider society, terminals have shown a willingness to contribute through taking measures to ensure they use clean, green fuel where possible. In some cases, this has come in the form of the creation of green energy sources such as wind turbines. For example, In the port of Hamburg saved energy or generated energy from renewable sources, or by using low-emission technologies has amounted to over 60 million kWh per year which accounts for avoiding 76.000 tons of CO2 per year.</p>	<p>HHLA-Hamburg Germany: HHLA's Container Terminal Tollerort admin and maintenance building is heated by the use of CO2 free biogas from the nearby Hamburg sewage plant. The biogas heats up water which is then pumped through a 1 km long pipeline and through a heat exchanger used for heating and hot water. This accounts for a reduction of CO2 emissions by 1000 tonnes On the roof of HHLA's Container Terminal Tollerort maintenance building, a solar power plant is installed which produces 115.000 kWh of electricity annually. Half of this amount is used to power the fleet of 24 pure electric cars which refuel next to the building.</p> <p>DP World- Antwerp, Belgium: In order to meet its own requirements for electricity and to lower CO2 emissions, DP World Antwerp has built a NPG fermentation unit on the Antwerp Gateway terminal 85% of electricity consumed on site comes directly from the NPG fermentation unit. By constructing a windmill in cooperation with the Antwerp Port Authority, DP World Antwerp also wants to increase the amount of green electricity up to more than 95% of the total energy consumption. Since 2011, DP World Antwerp has had an energy management system (ISO 50001) with an energy plan that includes objectives for improving energy efficiency. Internal and external audits are used to check whether these objectives are met, and to make adjustments where necessary.</p>

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Sustainable Terminals	<p>Air and Water Terminals are aware that some cargoes being unloaded and loaded can have a harmful or disturbing impact upon the local environment. For instance, excessive dust arising from the terminal can be disturbing for local residents. Bulk cargoes spilt during unloading can also have a harmful impact on the water quality in the ports area. For this reason, terminals are proactive in taking measures to minimise any potential impacts on air and water quality during cargo handling operations.</p>	<p>Dry Bulk Terminals - Terminal Antwerp, Belgium Euroports has invested heavily in dust reduction measures for dry bulk handling over the past few years. Examples include working with closed and half open grabs, fitting wind screens on unloading bunkers spray systems activated by sensors when the grab descends into the bunker, sensors to automatically limit the heights that goods fall through, dust extraction systems, closed transport systems with fixed and mobile dust extraction at either end, loading bellows and cascade chutes for loading barges, specially designed container filling systems, and extractors on bagging machines. These measures create a win-win situation for all parties. Much less dust is caused and less amounts of products are lost, there is less cleaning of quays, the work conditions for port workers are improved, there are fewer transport movements and finally there are fewer emissions into the air and water.</p>
Maritime transport Policies	<p>Integrated maritime policy (UE)</p>	<p>States are encouraged to develop their own integrated maritime policies in close cooperation with national and regional maritime stakeholders.</p> <ul style="list-style-type: none"> ●Creation of internal coordination structures within their respective administrative systems (ministries, national parliaments, etc.). Such a structure would provide a governance framework that would facilitate decision-making at national level. A maritime coordination officer could be appointed, who would be primarily responsible for structuring the dialogue between diverging sectoral interests. ●Coastal regions and other local decision-makers should be able to play a role in the development of integrated maritime policies, given their experience in integrated coastal zone management and spatial planning regulation of their activities. ●All maritime stakeholders should be involved in the definition of integrated maritime policy. These include economic partners (industries and services), social partners, NGOs, universities and research centres. It is recommended that they be involved at national, regional and local level. ●Develop cross-border coordination in regional sea basins, to ensure the dissemination of best practices and increased cooperation between states in areas such as protection of the marine environment, safety, security and surveillance of maritime spaces, as well as marine and maritime research.

<p>Maritime Transport Policies</p>	<p>Implementing Port Community Systems</p>	<p>Best practice should be adopted to ensure that the future PCS is implemented suitably for each port community. Once it has been decided to implement a PCS, these actions will help mitigate potential conflicts among stakeholders and enhance understanding of the model to be used.</p> <ul style="list-style-type: none"> ●Set a benchmark point: A benchmark point determines where all stakeholders stand in terms of information and processes at the beginning of the project, which enables benefits to be measured and quantified as the project progresses. ●Use the BRM approach to design the relational model for the PCS ●Build a Simulator: The results of the simulation can then be compared with current performances, end results can be outlined, and the expected benefits that a PCS will bring the port community can be specified. ●Start with case studies: Case studies should be carried out with the buy-in of a limited number of enthusiastic stakeholders who can then help promote the end results for wider consumption. <p>Two alternatives are identified here:</p> <ul style="list-style-type: none"> - Niche portals. These are mini-PCS solutions that focus on specific parts of the supply chain such as rail movements. Niche portals can be developed using the same principles as a fully functional PCS to maximize their benefits. Incumbent SCPs come to understand these, which will put any concerns to bed, and can use them to attract other stakeholders willing to contribute to developing a scalable PCS. - Gold supply chains. These are the movement of specific products via containers through one or more ports in the country. They require the active collaboration of a relatively limited number of relevant SCPs, such as a terminal operator, a shipping line, or a freight forwarder. Their success will eventually attract the interest of additional SCPs. <ul style="list-style-type: none"> ●Build the community: A PCS is not an IT project, but rather a change management project. The key is to build a true community of SCPs where everyone recognizes that the benefits of working together towards a common goal are greater than working separately. This can only be achieved through regular engagement with the community of PCS stakeholders. ●Seek alliances with “power players”: Some stakeholders in a port community are in a better powerful position to influence or “force” the adoption
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	<p>of a PCS. They provide essential support and, most importantly, eliminate the risk of developing a PCS that no-one will use. Developing strong alliances with such power players will effectively make a PCS mandatory for the port community.</p> <ul style="list-style-type: none"> ●Build a governance consortium: Another key step is seeking partners for a potential governance consortium and/or steering committees for pilot projects. Three actions should be considered while building this consortium: <ul style="list-style-type: none"> - Create a code of conduct or charter to direct the behaviour of consortium members. - Develop strategies to deal with potential partners who are not well aligned with the PCS vision, such as companies who profit from the inefficiencies of the status quo. All parties should be encouraged to become part of the broader community. - Make the pilot project steering committee open to national membership even if the project is local. ●Develop cloud- and/or web-based applications: SMEs do not have strong incentives or the required funds to invest in IT solutions and thus are heavily dependent on manual transactions. This must change if a port community wants to move towards a paperless supply chain. The development of cloud- and/or web-based applications are an ideal strategy in achieving this. ●Foster relationships with incumbent IT providers: Foster and maintain good relationships with incumbent IT providers. A PCS must work with current IT platforms and cooperate with these to develop win-win arrangements wherever possible.
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