



# Improving ocean and coastal governance in Trinidad and Tobago – Moving towards ICZM



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## ABSTRACT

Activities and resources found in the ocean and coastal realm of Trinidad and Tobago contribute critically to the identity and well-being of the country's citizenry. However, the current governance framework and capacity to manage facets of the coastal zone is proving to be inadequate, with resource mismanagement, degradation and depletion evident. This is compounded by the absence of a co-ordinating mechanism and collaborative process through which stakeholders can seek to cohesively manage the ocean and coastal sphere in order to minimise conflict and maintain its flows of ecosystem goods and services in the long term.

This paper recommends more sustainable, equitable and feasible means to manage the ocean and coastal realm for which Trinidad and Tobago has claimed stewardship. It critically analyses the current governance framework and juxtaposes it against identified theoretical and observed ICZM best practices worldwide. A more co-ordinated, cohesive and collaborative approach to governance is proposed that is participatory and co-operative in nature and underpinned by principles aligned to achieving sustainability in economic, social and ecological realms.

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## 1. Introduction

Integrated Coastal Zone Management (ICZM) has been identified as a means through which countries can better govern ocean and coastal resources and activities. This approach became popularised globally after, coming out of the United Nations Conference on Environment and Development (UNCED) in 1992, programs which manage coastal and ocean resources in countries/regions were strongly recommended to undergo integration (Cicin-Sain, 1993). The importance of ICZM was later re-affirmed in declarations arising out of the 2002 Johannesburg World Summit on Sustainable Development (WSSD) and the Mauritius Strategy for implementing the Barbados Programme of Action in 2005. It is now being practiced across a range of contextual circumstances – from developing to developed countries, small island nations to large coastal States on continental mainland. The sought outcome is generally recognised as one whereby:

*“(R)ational decisions are made concerning the conservation and sustainable use of coastal and ocean resources and space. The process is designed to overcome the fragmentation inherent in*

*single sector management approaches (fishing operations, oil and gas development etc.), in the splits in jurisdiction among different levels of government and in the land-water interface.” – Cicin-Sain et al. (1998; p. 1)*

Further to this, according to Cicin-Sain and Belfiore (2005; p. 854) ICZM seeks to:

*“[A]ttain sustainable development of coastal and marine areas; to reduce vulnerability of coastal areas and their inhabitants to natural hazards; and to maintain essential ecological processes, life support systems and biological diversity in coastal and marine areas....[I]t analyzes and addresses implications of development, conflicting uses, and interrelationships between physical processes and human activities and promotes linkages and harmonization among sectoral coastal and ocean activities.”*

In the two island State of Trinidad and Tobago the coastal and marine sphere is an important element of identity and prosperity for the population. The country has a sea to land ratio of 1:15. The surface areas of Trinidad and Tobago are 4,828 km<sup>2</sup> and 300 km<sup>2</sup> respectively while their archipelagic waters, territorial sea and exclusive economic zone (EEZ) collectively encompass 77,502 km<sup>2</sup>.

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Approximately 70% of the population and 80% of economic activities are concentrated along the coast (Central Statistical Office, 2007). The economy has always been supported by ocean and coastal associated resources and activities including offshore oil and gas and its attendant downstream industries, shipping, tourism and fisheries. In 2012, the energy sector contributed 41.6% to Gross Domestic Product (GDP) of the country, while the service sector (including shipping and tourism) contributed 51.3%.<sup>1</sup> Agriculture (including fisheries), in comparison to other sectors, only contributed 0.6% to GDP but fisheries' importance as a source of livelihood, subsistence and nutrition, especially to some of the more vulnerable in society, cannot be overstated (Mohammed et al., 2011). Tourism is especially important in Tobago where the island's marine and coastal characteristics are the main lure for visitors. Tourism accounts for about 37% of Tobago's estimated GDP (Baumgarten, 2009). Consequently no other industry is presently as important to the island's economy. Underscoring this point is the fact that just under 50% of employment – or 14,000 jobs – in Tobago are tourism related.

The absolute importance of the coastal and marine sphere to Trinidad and Tobago's economic, social and cultural well-being and the intimate association and dependence exhibited by some of the most vulnerable in society on activities and resources found there is undeniable. As the population grows, the climate changes and scarcity and appetite for limited resources becomes more likely, increasing conflict is forecasted (Heileman and Walling, 2005). However, governance of the coastal and marine sphere in Trinidad and Tobago remains characterised by a pervasive culture of sectoral management and short term planning, which are both often driven, but stymied, by attempts to consolidate power and characterised by narrowly focused outcomes (Mycoo, 2002; Soma, 2003). This mode of governance inhibits the degree to which ecological, economic and socio-cultural sustainability can be attained in the country.

This paper recommends more sustainable, equitable and feasible means to manage the ocean and coastal realm for which the country has claimed stewardship. Through considering Trinidad and Tobago's existing governance framework and international commitments along with the theoretical underpinnings of ICZM best practice it will propose strategies towards a more co-ordinated, cohesive, participatory and collaborative approach to governance by suggesting legal, institutional and policy means through which ICZM can be more effectively operationalized in the country.

## 2. Dimensions of integration in ICZM

For the most part, integration is fundamentally lacking from what is currently practiced in Trinidad and Tobago's uncoordinated approach to ocean and coastal management and what ICZM entails. ICZM necessitates that integration take place explicitly in a number of different realms to be successful (Sorensen, 1997). These dimensions of integration, as relates to Trinidad and Tobago, include:

- **Inter-sectoral** – which is horizontal in nature, bringing together different agencies and groups to manage conflicts and work towards a unified goal. In Trinidad and Tobago there is a legacy whereby attempts at coastal zone management in the country do not adequately address this field of integration (McShine-Mutunhu, 1985).

- **Inter-governmental** – which is vertically oriented seeking enhanced co-ordination and communication between the several tiers of government – community/village councils, local governments (Municipal Corporations) and the central government – and between the citizenry and the government. This realm of integration is especially pertinent to Tobago where there is some level of autonomy in the governance of its affairs.
- **Spatial** – this would entail efficiently utilizing limited coastal space and rationally managing the myriad of activities that competes for it. It will also involve connecting the issues that perpetuate across the ocean-coastline-terrestrial continuum and, in doing so, adopting a more holistic and adequate modality, legally and institutionally, to deal with them.
- Bridging the **science-management** divide – Early coastal zone management efforts in Trinidad and Tobago, have acknowledged there is need to inform management practices with sound science and continuous monitoring and evaluation to enable adaptive management. The Institute of Marine Affairs (IMA), a statutory organization was tasked with researching and recommending avenues for management of the marine, coastal and associated environmental resources (McShine-Mutunhu, 1985).
- **International** – where discourse between nation States is needed to placate trans-boundary issues affecting coastal area management.

These dimensions of integration are all lacking to varying degrees in Trinidad and Tobago. Enhancing them would be a major focus of a national ICZM program. A program with country-wide considerations, while challenging to implement, may have the benefit of being more sustainable (Christie, 2005). It would extend beyond project type initiatives, which can be limited in time horizon, spatial influence, resource availability, political support and/or wider contextual fit and relevance (Olsen and Christie, 2000; Christie et al., 2005; Shipman and Stojanovic, 2007). This paper will now explore in more detail process tools for, and legal and institutional pathways to integration that already exist or that would be needed within a national ICZM plan for Trinidad and Tobago.

## 3. Grounding the dimensions of integration for ICZM in Trinidad and Tobago

### 3.1. Sectoral integration

Sectoral management dominates governance in the ocean and coastal sphere in Trinidad and Tobago (Mycoo, 2002; Soma, 2003). Few formal mechanisms exist that mandate inter-sectoral modes of management. This, in turn, negatively affects efficiency and sustainability of coastal zone activities and resource use. To fulfil this horizontal mode of integration, engagement of important agencies that perform regulatory and/or advisory functions in various sectors that operate in the ocean and coastal realm is crucial.

Born and Miller (1988) analysed this “networking” approach to coastal zone management, which is utilized in various State programs throughout the USA. They assessed its effectiveness and compared this model to the alternate approach i.e. that of establishing a new monolithic body with powers to plan and regulate all aspects of coastal and ocean management. They concluded that networking of existing agencies has proven to be not only viable in efforts to achieve management objectives, but “may be a more politically acceptable way... (and) often the only realistic opportunity for undertaking such (coastal zone) management challenges through public institutions.” (p. 241).

The means being proposed here to enable the “networking”

<sup>1</sup> GDP data sourced from the website of the Central Statistical Office of Trinidad and Tobago: <http://www.cso.gov.tt/content/gross-domestic-product-data-2009-2013>.

approach in Trinidad and Tobago is the formation of a national Coastal Zone Management Council (CZMC). In this present conceptualization of a national CZMC, sitting with pertinent regulatory agencies would be major umbrella organizations that represent interests of member groups with a stake in coastal zone affairs. The Tobago House of Assembly<sup>2</sup> is also seen to be a necessary constituent of this national Council in order to bring Tobagonian perspectives in matters of coastal and ocean management. The envisaged fifteen member CZMC would therefore be comprised of heads or senior, influential representatives of the following organizations:

1. Institute of Marine Affairs (IMA)
2. Environmental Management Authority (EMA)
3. Fisheries Division
4. Maritime Services Division (MSD)
5. Town and Country Planning Division (TCPD)
6. Forestry Division
7. Ministry with responsibility for energy and energy affairs
8. Ministry with responsibility for tourism
9. Ministry with responsibility for the environment
10. Ministry with responsibility for coastal protection
11. Ministry with responsibility for foreign affairs
12. Ministry with responsibility for local government bodies
13. Tobago House of Assembly (THA)
14. Council of Presidents of the Environment (COPE)<sup>3</sup>
15. Trinidad and Tobago Chamber of Industry and Commerce (TTCIC)<sup>4</sup>

This proposed Council could, *inter alia*, be responsible for three main activities. Firstly, the CZMC would periodically review, update and improve upon the National ICZM Policy for Trinidad and Tobago. An ICZM Policy Framework, Strategies and Action Plan is currently being developed for the country by a Cabinet appointed, multi-sectoral Steering Committee. Through this policy the CZMC could, *inter alia*, outline the vision for ocean and coastal sustainability and prescribe guidelines to be used in the development of ocean and coastal sectoral policy. This includes mandating public engagement in the policy formulation process, which has been marginalised in the crafting of some past policy documents.

The second proposed function of the CZMC would be for it to approve prospective and current national plans, policies and legislation affecting the coastal zone and its management. It would make recommendations throughout the drafting phase and collectively ensure that edicts are in-keeping with the national vision. Any inconsistencies, conflicts and lack of synergy, which regimes of segregated management can lend themselves to, will be effectively redressed by the CZMC in these documents before final approval by Cabinet. The Council should seek to ensure robust mechanisms are included in policies, plans and legislation so that conflict is minimised and co-action maximised. The formal consensus building forum provided by the CZMC would enable achieving this objective.

<sup>2</sup> The Tobago House of Assembly (THA) is body made up of a mixture of elected and appointed persons, guided by the Tobago House of Assembly Act, Chapter 25:03, and established in accordance with the Constitution of the Republic of Trinidad and Tobago with a view to making special provisions for the administration of the Tobago's affairs. It affords the island some measure of self-governance, devolved from the central Government of Trinidad and Tobago.

<sup>3</sup> COPE is a group of autonomous, not-for-profit, non-governmental organizations (NGOs) and community based organizations (CBOs) representing specialist interests in sustainable development concerns.

<sup>4</sup> TTCIC defines its mission: "To be the voice of business in the development of a strong sustainable national economy".

The final recommended task of the CZMC would be to encourage a co-ordinated response when unforeseen/emergency situations in the ocean and coastal sphere may arise. This function of the Council would be performed more on a discretionary/as needed basis. Conventional agencies would still maintain their roles as regular day to day managers of resources and activities in the coastal sphere, but the CZMC would be required to assist when called upon or when the need is identified in exceptional circumstances. The existence of the CZMC would provide the assurance that, should a co-ordinated response to a problem in the coastal zone be compelled, a framework from which one can be generated is already apparent, thus aiding in efficiency and effectiveness of the charted reaction.

The CZMC would have to be established by a CZM Act. Legislatively backing the CZMC will move it beyond the realm of being merely a political gesture to tangibly reflecting support and commitment of the Government of Trinidad and Tobago to its cause. The CZMC's purpose, functions and powers should be outlined in law to ensure that organizations making up and/or influenced by the Council recognise its authority and are induced to cooperate towards the goal of sustainability and sectoral integration in ocean and coastal management. The CZMC legislation could also define a lead agency for the Council. The IMA is suggested as an appropriate lead agency as it has a multi-disciplinary scientific research mandate and therefore may be recognised as being the least partisan of the proffered Council members. In addition, funding flows for the CZMC will have to be determined to ensure that appointees are adequately compensated for their time and expertise and that administrative and operational functions of the Council can be effectively carried out. Special funding, for the purposes of enhancing coastal zone management, can also be made available through the Government to the bodies actively participating on the CZMC as a stimulus to them making the proposed system work.

Many details regarding what the CZMC will ultimately represent i.e. the processes, procedures and rules of operation and the reforms such a construct will entail, would have to be worked out through properly structured and genuine consultation with coastal zone stakeholders and affected publics. The initial ideas presented here are just a crude, malleable vision which can be developed upon and moulded to be accommodated into the ocean and coastal governance framework in Trinidad and Tobago.

### 3.2. Integration among governmental tiers

Trinidad and Tobago is a two island nation state. Examining the modalities through which coastal zone management is currently implemented in the country presents an interesting dichotomy. Proper integration among governmental tiers is essential for effective ocean and coastal governance in Tobago, but it is not as important an ICZM dimension when considering Trinidad's context alone.

#### 3.2.1. Inter-governmental ICZM considerations in Trinidad

The land area in Trinidad is divided into fourteen municipalities. These municipalities represent local government districts where elected and appointed officials are tasked with ensuring that specific functions and responsibilities, assigned to Municipal Corporations through the Municipal Corporations Act, Chapter 25:04, are carried out effectively. The administrative boundaries of the fourteen municipalities in Trinidad are defined such that thirteen have direct land–sea coastal interfaces.

Coastal zone governance in Trinidad differs from several other countries such as the United States (Hershman et al., 1999), the People's Republic of China (Lau, 2005), the Philippines (Eisma et al.,

2005) and Indonesia (Patlis, 2005). In these countries regional governmental bodies have scope to enact laws and establish institutions relating to sectoral governance or overall management of resources and activities in the coastal zone. Where devolution away from central Government control does occur in aspects of coastal zone management, this is when integration between governmental levels is seen as being highly necessary (Clark, 1997). This, however, is not a feature of the local government framework in Trinidad, as law making responsibility and statutory authority is reserved for actors within the central Government.

Given Trinidad's relatively small population size and land area; the fact that Municipal Corporations face constraints in human and financial resource availability; and the existence in the country of a limited pool of qualified practitioners in management of coastal resources and activities, it is debatable whether there is great benefit to be derived at this point in time from devolution of important coastal zone management related functions to Local Government bodies (Manor, 1999). A few possibilities do exist however where increased engagement of Municipal Corporations may prove useful.

The concept of decentralisation through local government systems and its perceived benefit of bringing governance closer to the people (Gaventa and Valderrama, 1999) does leave scope for enhanced roles of Municipal Corporations in bolstering monitoring and enforcement capacity for some regulations related to ocean and coastal management (Scholz and Wang, 2006). This of course, is contingent upon requisite amendments being made to relevant pieces of legislation (Pomeroy et al., 2004) to give power of enforcement to Local Government officials. Along with this, the possibility of increasing application of concepts related to co-management (Carlsson and Berkes, 2005) through local government systems can also be given consideration (Brown, 1998; Shackleton et al., 2002; Berkes, 2010). Public participation is definitely a feature of the vertical integration in ICZM that needs to be enhanced in Trinidad and Tobago. A mechanism to facilitate improved public interaction through the use of Municipal Corporations will be discussed in further detail later on in this section.

### 3.2.2. Inter-governmental ICZM considerations for Tobago

In Trinidad and Tobago the impetus and necessity for governmental integration in ICZM really comes to the fore when the governance arrangements for Tobago are expressly considered. Tobago exercises some degree of self-determination, devolved from the central Government of Trinidad and Tobago. Execution of this arrangement takes place through the Tobago House of Assembly (THA), which was established in accordance with the Constitution of the Republic of Trinidad and Tobago, with a view to making special provisions for the administration Tobago's affairs.

Section 25 of the THA Act prescribes that the THA is allowed authority over a number of matters and shall be responsible for the formation and implementation of policy in respect to them. In addition, under section 29 of the Act, the THA is granted power to propose Bills in relation to these matters. These Bills, if adopted, are then known as Assembly Laws. THA authority and the jurisdiction of proclaimed Assembly Laws extends throughout the island of Tobago and the waters surrounding it, up to a distance of six nautical miles.

Assembly Laws give the THA the ability to tailor a legal regime more appropriately suited to Tobago's context. With respect to matters of interest, this legislative freedom and authority is intended to increase efficiency in management and sustainability in utilization (Work, 2002). Importantly though, section 29(4) of the THA Act prescribes that:

"A Bill adopted by the Assembly shall not seek to abrogate, suspend, repeal, alter, override or be contrary to any written law of the Republic of Trinidad and Tobago or impose any direct or indirect taxation whatsoever."

Where ICZM is concerned this provision is essential because it is meant to prevent the THA from developing laws and institutions that misfit or that do not merge seamlessly with dictates in the national governance framework. However, as Patlis (2005) has highlighted through examples from Indonesia, even when declarations exist similar to that of section 29(4) of THA Act, inconsistencies between national and regional laws can surface.

For this reason affording the THA a space on the proposed national CZMC is imperative. Having the CZMC review Bills and policies, emanating out of the THA, which are related to aspects of coastal zone management, will be crucial for harmonising the regional and national governance frameworks. Similarly, the THA, by virtue of its involvement in the CZMC, can mitigate against the passing of national policy and legislation instruments that are not suited to the sustainable management of Tobago's coastal and ocean resources, activities and interests. In addition, the THA representative on the national CZMC can be an avenue to establish institutional linkages in order to better facilitate and engender collaboration between bodies tasked with ocean and coastal management functions in Trinidad and those with similar mandates in Tobago.

Lastly, in light of the THA Act granting Tobago some autonomy in the management of its coastal and marine affairs, and the pervasiveness of sectoral management on this island as well, it may also be useful for a Tobagonian version of the CZMC to be operationalized. Alternatively, Tobago can devise its own ICZM model that may be considered more able to suit its particular circumstances. What is important however, is the realisation that it may be necessary for a regional integrative coastal zone management mechanism to be established in Tobago alongside a national ICZM program for the country as a whole.

### 3.2.3. Enabling participation through reconsidering the role of Local Government

Public engagement and participation in management is recognised as one of the fundamental tenets of ICZM programs worldwide (Cicin-Sain, 1993). However, many institutions that guided or informed formulation of public policy, plans and legislation in Trinidad and Tobago's ocean and coastal affairs did not always acknowledge public participation as being important or necessary. Therefore numerous governance instruments in effect today have been formulated with minimal input from the general public and lack avenues for their continuous participation. Although perceptible changes in ideologies are slowly giving credence to public inclusion and engagement in the processes through which governance mechanisms are formulated and implemented, stipulations making public consultation obligatory practice in Trinidad and Tobago are still rare in most sectors of the ocean and coastal sphere. Mechanisms to open spaces, widen public participation and empower stakeholders as it relates to coastal zone management are needed.

Municipal Corporations can be better utilised in this regard. A regularly cited problem with consultative processes is that several stakeholder groups who wish to participate are not afforded opportunities to do so (Cornwall, 2002). This could be for a number of reasons which include their existence not being known, which is especially pertinent to many small community based organisations (CBOs) and non-governmental organisations (NGOs), and that communications informing that consultations are underway do not

reach as wide a target audience as intended. The administrative boundaries of municipalities provide apt divisional units from which detailed contact lists can be compiled of civic groups/interests that would like to participate in public education, outreach and consultation exercises e.g. village councils; local NGOs, CBOs, cooperatives and user groups; and sectoral membership associations. Within the ICZM process Municipal Corporations can adopt the integral role of co-ordinating and facilitating public consultations related to coastal zone management issues (Cuthill, 2001).

The proposed system for enhancing public participation in coastal and ocean management affairs is envisaged to operate as follows. The onus would be placed on all stakeholder groups who would wish to participate in consultative/outreach exercises pertaining to coastal zone governance to register with their respective Municipal Corporations (based on locational base of the respective organizations). Point of contact details as well as any particular interests would be provided as a necessity in this registration process. When consultations on ocean and coastal issues are to take place in various regions around the country, applicable Municipal Corporations will be appraised of the details by the consultation organisers. The Municipal Corporations will, in turn, be responsible for communicating the information regarding the consultations to the appropriate stakeholder groups populating their contact lists. The possibility exists for communication to flow in the opposite direction as well. Ideas and issues identified by civic groups, that may or may not be known to coastal zone managers, can be passed through the established channels to the Municipal Corporations. The Municipal Corporations will then periodically report to the CZMC to ensure the loop of dialogue is closed and suggestions and concerns of civil society are heard even outside of official consultation fora.

This communication system, through the use of decentralised databases, has a number of potential benefits. Firstly, it allows for area specific issues to be better targeted and addressed on a regional basis while still being flexible enough for use in matters of national interest. It also reduces the need for sectoral management bodies with responsibilities in the coastal zone to dedicate scarce time and resources to compiling their own country-wide lists of stakeholder groups that should be accommodated in participatory processes. Very often stakeholder organizations involved in consultations overlap sectoral divides and as such, duplication of effort is also minimised in this proposed modality of interaction. Lastly, the system alleviates marginalisation of concerned parties as it is designed such that once interested constituent groups register with their Municipal Corporations they will be informed and invited to participate in consultations and also given a straightforward way to interface with the CZMC.

This proposed mechanism to provide feedback has the potential to critically enhance public inclusion in ocean and coastal management. Enabling communication through employing the novel approach described, when coupled with the aforementioned desire to have policies, plans and legislation addressing ocean and coastal issues be subject to public scrutiny before approval, will build upon and add to existing approaches to participatory management practiced in the country. It will aid in amassing social capital and strengthening the bonds, norms and networks necessary to encourage compliance and enable collective action and adaptive practices in coastal zone management (Berkes, 2010).

### 3.3. *Spatial integration*

In Trinidad and Tobago, holistic and adequate spatial management, which connects issues that perpetuate across the ocean-coastline-terrestrial continuum and which addresses competition that arises for prime coastal zone space, remains elusive in many

respects. When coastal zone management ideologies began to take root in the country in the 1970s and 80s, proper co-ordination of development and use of space within the coastal zone had been identified as a major problem (McShine-Mutunhu, 1985). Since then, grappling with synchronisation of spatial planning and management across the entire land–sea divide has proven a challenging endeavour.

The establishment in the 1980s of the now defunct Coastal Area Planning and Management Division (CAPMD) within the IMA could be considered the first attempt at spatial integration in coastal zone management. The CAMPD was a unit created to carry out multi-disciplinary coastal area planning and management study. Its findings were to feed into providing criteria, guidelines and policies for planning and development affecting especially the marine and littoral areas of the country. Recognising that Town and Country Planners had little interest, knowledge and expertise in the specialized disciplines, processes and issues related to the marine environment, the CAMPD was meant to complement and work in collaboration with the Town and Country Planning Division (TCPD). The intent was that better consideration would be given to impacts on, and sustainable and optimal utilization of, the marine and coastal sphere in land use planning (McShine-Mutunhu, 1985). Although the CAMPD is no longer operational the IMA still informs planning decisions of the TCPD indirectly through its research. The direct influence the IMA has in planning is fairly limited however, lying mainly in the recommendation of appropriate coastal set back distances for proposed development bordering the nearshore environment.

In Trinidad and Tobago, the need to consider the inter-connectivity between land and sea was never really explicitly brought to the fore in the Town and Country Planning Act, Chapter 35:01. This Act provided guidance as to what should be taken into account when creating Development Plans for the country. Consequently, land–sea interconnectivity was also not expressly considered in the National Physical Development Plan (NPDP). The NPDP stemmed from provisions in the Town and Country Planning Act, and sought to provide a framework for the preparation of regional and local plans and for the integration of spatial planning with socio-economic policy making. The marginalisation, in these instruments, of the need to carefully examine terrestrial–marine spatial relationships and connectivity in the governance of land use, has perpetuated management in silos and a lack of attention being paid to the marine environment by Planners. Recognising these shortcomings, a novel National Spatial Development Strategy (NSDS) is being developed to replace the dated NPDP. It seeks to better address spatial development oversights in the coastal zone in conjunction with new accompanying legislation. The draft NSDS also calls for collaboration and co-ordination between Planning Authorities, an ICZM committee (which can take the form of the CZMC) and the IMA.

Apart from seeking to practice land use management and planning in a manner which is more cognisant of marine impacts, another facet of spatial integration in ICZM lies in finding means to better co-ordinate use of physical space in the marine environment itself. Some processes are in place to regulate development in terrestrial and marine areas of Trinidad and Tobago. For marine areas Certificates of Environmental Clearance (CECs), administered by the EMA, are required to undertake many proposed activities. In addition, licenses granted from the Land Management Division (LMD) are required to build on or alter the sea bed that fall within the country's jurisdiction. Terrestrial development is similarly regulated through the CEC process along with an approval system overseen by the TCPD. On land however, the TCPD has the additional role of spatially co-ordinating use. The opportunity exists for the concepts and techniques undertaken by the TCPD on land, to be

put into practice to better spatially manage the seas around Trinidad and Tobago. This is especially in light of increasing intensification of sea uses (Smith et al., 2011).

Employing a planning process that lays out a vision for the future development, growth and use of areas is largely standard practice in governing terrestrial land use and management in countries around the world. In Trinidad and Tobago, creation of the NPDP, the NSDS and a series of local and regional plans came about through this approach. The TCPD, in granting approvals for development and land use alteration, is guided by what land uses are prescribed or considered appropriate in the plans created for particular areas. Unfortunately however, no similar plan based approach to management, which articulates spatial usage and vision for the marine sphere, has been fully adopted for Trinidad and Tobago's waters.

The approach being alluded to here, which examines and seeks to apply spatial and temporal dimensions to human activities in maritime areas, is known as marine spatial planning (MSP). MSP has long been used in aiding management of Australia's Great Barrier Reef (Day, 2002) and the practice has more recently gained agency in several other areas worldwide, including Belgium (Douvere et al., 2007), parts of the United States of America (Halpern et al., 2012), and China (Li, 2006). MSP's application is still in the early stages in many localities around the globe and therefore little quantitative evidence of its success exists. This fact however, does not preclude Ehler (2008) from outlining a number of benefits – economic, ecologic and administrative – that are anticipated to flow from its utilization. MSP is also seen by Douvere (2008) as a tool that can be used to enhance implementation of ICZM and ecosystem based management (EBM)<sup>5</sup> approaches and certainly incorporates many of their tenants.

Trinidad and Tobago, as part of a nine country pilot project in the Caribbean, has started to lay some ground work that can be applied to advancing MSP use in ICZM for the country. This regional initiative, aptly labelled the Caribbean Marine Atlas, is geared towards identifying, collecting and organising available geo-spatial datasets into a digital atlas of key themes relevant to the marine and coastal environment of the Caribbean. The intention is to spatially represent, on both a regional and national scale, parameters describing key topics of interest such as coastal habitats, fisheries, environmental quality, climate change and sea level rise, oceanography and socio-economic aspects. The ultimate goal is to use it as a support tool for sustainable and integrated management of marine and coastal areas in the region.<sup>6</sup>

This Caribbean Marine Atlas is a good platform to lead into comprehensive MSP. As Douvere (2008) points out, MSP entails much more than identifying/collecting datasets and spatially representing them. It goes further as an iterative and adaptive process that analyses spatial data to identify trends and formulate plans and patterns of zonation. It then involves the implementation of recommendations and the monitoring and evaluation of outcomes in a continuous, cyclical process. The CZMC should make it a policy prescription to seek advancement of MSP in the recognition that ICZM would positively benefit from it. A substantial portion of technical knowledge and expertise required to develop marine spatial plans would reside in the TCPD and IMA. However, similar to the on shore process, collaboration would be necessary with Municipal Corporations, all bodies tasked with aspects of ocean and

coastal management, as well as user groups that will be affected in strategically planning use of marine space.

A few other important issues relevant to Trinidad and Tobago's coastal zone can be better addressed by ensuring that spatial perspectives are adequately considered in ICZM. Disaster risk reduction and alleviating impacts due to climate change and sea level rise have spatial planning dimensions. Despite forecasted increases in occurrence of extreme weather events and inundation and erosion of coastal land under future climate change scenarios (IPCC, 2007), coastal land continues to be reclaimed for development in vulnerable areas around the country without approval (Mycoo, 2002). Special attention should be paid to addressing the inefficiencies in the system governing land reclamation and also further mainstreaming climate considerations into spatial planning and development of the coastal zone. With regard to the latter point, creation of clearly defined rules formalizing set back distances for infrastructural development along shorelines and the edges of coastal ecosystems e.g. mangroves, can be contemplated. It would allow for further buffering against climate change impacts and provide leeway for natural ecosystem adaptation/migration to occur (Juman and Hassanali, 2013).

Lastly, there is a need in Trinidad and Tobago to guard against development that inhibits physical and visual access to the shoreline of the public. This has been a problem in other Caribbean islands including Barbados and Jamaica (Mycoo, 2006). In Tobago, an 1865 law, the Three Chains (Tobago) Act, Chapter 57:04, reserves to the public the right of thoroughfare along the coastline, for a strip of land three chains<sup>7</sup> in breadth from the high water mark extending inland. This author is not aware of any similar law that applies to Trinidad. However, Pogue and Lee (1999) have identified that zoning and planning are among a suite of processes and tools that can be used to secure public access to shorelines. This salient issue should therefore be kept in mind when undertaking spatial planning in the coastal zone.

#### 3.4. Bridging the science-management divide

Encouraging the crafting of more evidence aware policy and making more evidence informed decisions is continuously strived for in management of ocean and coastal resources and activities globally. In Trinidad and Tobago, the need for this approach has long been recognised, with the IMA being conceptualised in the 1970s as a vehicle through which achievement of this endeavour could be sought.<sup>8</sup> Conducting applied and theoretical, interdisciplinary research into the use and development of the marine and coastal resources of the country, the Caribbean and adjacent regions is one of the primary purposes of the IMA. Additionally however, Section 5 of the Institute of Marine Affairs Act, Chapter 37:01, mandates that the IMA functions to, *inter alia*:

- Provide information and advice to the Government in its formulation of policies relating to the marine and other related aspects of the environment;
- Respond to technical enquiries and questions made by policy making organs of the Government, private sector organizations and individuals;
- Advise on the development and optimum utilisation of the marine and coastal resource potential of Trinidad and Tobago

Therefore the IMA has been statutorily positioned as the agency

<sup>5</sup> EBM, like ICZM, is a holistic strategy that can be applied to marine and coastal regions, geared towards achieving collective management of species, natural resources and humans as components of the larger ecosystem (Arkema et al., 2006).

<sup>6</sup> More information about the Caribbean Marine Atlas including some outputs thus far from can be found at <http://www.caribbeanmarineatlas.net/>.

<sup>7</sup> A chain is a unit of length measuring about 66 ft or 20 m.

<sup>8</sup> More historical insight into the IMA including its ideological evolution can be found at <http://www.ima.gov.tt/home/about-ima/history.html>.

responsible for integrating science into management of the marine and coastal realm of Trinidad and Tobago. Part of the reason the Institute was recommended in this thesis to be the lead agency of the proposed CZMC was because of this. This positioning will bring mutual benefit, allowing the IMA to better carry out its functions while enabling ICZM shaped by consideration of evidence and research.

The degree to which research findings and scientific understanding are taken on board by policy and decision makers can depend on the ability of researchers to be relevant and communicate findings in a useful form. This has traditionally been a problem in many fields of scientific research including that of natural resource use and environmental planning and management (Lubchenco, 1998; Norton, 1998; Greigrich, 2003; Brownson et al., 2006; Gibbons et al., 2008). In Trinidad and Tobago, the IMA in particular, as well as other marine and coastal research institutions, are not immune to challenges regarding getting research to be heeded by ocean and coastal managers.

Gibbons et al. (2008) highlight that the reward structures and motivations existing to the scientific community sometimes perpetuate disconnects that can exist between science and its influencing of policy formation. Researchers are often driven to publish in academic journals in order to gain recognition and credibility in their respective areas of expertise as well as to garner funding to initiate or carry out further research. Narrowly focused, technical and detailed papers published in peer reviewed journals are often not written in language easily comprehensible to the layperson. For the decision makers, they may also not clearly allude to the policy implications of the research. This is in contrast to grey literature, which can offer the option of both “plain language” summaries and more detailed technical reports. The contents of this type of literature tend to be more amenable to uptake by policy makers. IMA researchers have historically produced a mixture of both grey literature and academic publications. In more recent times however, there has been a push towards encouraging more peer reviewed articles as outputs to research, in order to boost the Institute’s reputation as an ocean and coastal research organization (IMA, pers. comm.). The directorate of the IMA needs to fully consider the implications of this change in strategic direction as it relates to the IMA functioning in its policy advisory role.

The use of “interpreters” is seen as means to easing communication challenges that can be apparent between scientists and decision makers and bridging the inconsistencies that arise in the science–policy interface. Interpreters are seen as distinct from “pure” scientists, acting instead as science arbiters and, as described by Pielke (2007), “honest brokers” of policy alternatives. It is a specialised field where persons have a good grasp of the science, including opposing arguments and uncertainties, along with an understanding of wider issues, so that synthesis and analysis can be made of policy options. Holmes and Clark (2008) have outlined the skills and characteristics that should be possessed by good interpreters.

Indeed, some scientists do possess the abilities to act as good interpreters. However it is important for research organizations with advisory functions, like the IMA, to realise when such capacities are lacking. They can then work towards strengthening these capabilities by developing skills in personnel and/or promoting interpretation as an attractive career path.

Researchers should be able to more efficiently and appropriately communicate their scientific research and messages to decision makers. However the onus need not only be on researchers to get policies and decisions better informed by science. Ocean and coastal managers also have a part to play. They can act as more ardent “customers” through defining areas of interest, concern and/or uncertainty, where the potential exists for scientific research to

bring clarity and provide guidance. By proposing research questions and contributing to crafting of research programs, policy and decision makers can proactively seek to fill knowledge gaps and make research more relevant to national priorities. In 2012, with just this intention, the IMA hosted a consultation with decision makers and stakeholders from a number of sectors in the marine and coastal realm. The aim was to create dialogue, exchange information and cross fertilize and integrate ideas. This was with a view to understanding the research needs of coastal zone managers and allowing that feed into the Institute’s future research agenda. A host of novel potential study questions were generated through this exercise which was a testament to its usefulness. Participants even called on similar consultations to be held on a periodic basis suggesting that policy and decision makers are eager to engage more in efforts to have science conducted that can be useful in policy formulation (IMA, pers. comm.).

A final point to note with regard to bridging the science–management divide in Trinidad and Tobago’s coastal zone governance is that the IMA does not hold a monopoly over ocean and coastal research that can be used to inform policy and decisions. Many other organizations, be them public, private, not-for-profit, tertiary-level, community-based, non-governmental, statutory and/or possessing a combination of these characteristics, are undertaking useful scientific research in the marine and coastal sphere. There is often a problem of knowing exactly what data and research exists, getting access to it and/or attesting to its veracity. This is so even despite the fact that one of the functions of the IMA is the “collection and dissemination of information relating to economic, social, technological, scientific, environmental and legal developments in the marine and coastal zones of the Caribbean and adjacent regions.” (Institute of Marine Affairs Act, Section 5d.). With the proliferation of bodies carrying out scientific study in the coastal and marine environment of Trinidad and Tobago, it is difficult for the IMA to adequately perform this function, largely relying on specific research findings being voluntarily sent to the Institute’s Information Centre to be catalogued. Establishing an ICZM framework for the country however, will aid in information exchange thereby revealing where quality data and studies exist and pathways to their access. This, coupled with application of the approaches mentioned above, will enable science to better inform long, medium and short term policy decisions and day to day operational rules.

### 3.5. Integration across national borders

Trinidad and Tobago is the southern-most country in the Caribbean archipelagic chain. Its proximity to neighbouring countries is such that it has had to negotiate with Grenada, Barbados,<sup>9</sup> Saint Vincent and the Grenadines and Venezuela in order to delimit particular sections of its EEZ. Given the country’s geographical location, the dynamic and fluid nature of the marine environment, and ever increasing globalisation and interconnectedness of the regional and world economy in which it is nestled, it is not surprising that activities of and decisions made by other Nations can have significant bearing on managing the coastal and marine resources that fall within its jurisdiction (Fanning et al., 2013). Establishing and signing on to bilateral and multilateral agreements has been one method used to deal with trans-boundary and/or wider scaled issues regarding ocean and coastal management and has also been a means of capitalising on economies of scale.

<sup>9</sup> Arbitration proceedings were needed to settle the EEZ and continental shelf delimitation dispute between Barbados and Trinidad and Tobago. More information can be found at: [http://www.pca-cpa.org/showpage.asp?pag\\_id=1152](http://www.pca-cpa.org/showpage.asp?pag_id=1152).

Trinidad and Tobago has recognised the importance of bilateral negotiation. In the past the country has not been averse or uncommitted to undertaking it with neighbouring States to seek resolutions to issues pertinent to coastal and marine resource management. For example, in September 2013 it concluded a formal process with Venezuela that set out the functional and governance structure to oversee development of the largest of three cross border gas fields that straddle the Trinidad and Tobago–Venezuela maritime boundary. This agreement came ten years after an MOU was signed by both countries to develop cross border reserves and was historic in that it was the first of its kind in the Americas.

Trinidad and Tobago also recognises some international forums as legitimate avenues to dispute resolution and is willing to submit to their decisions when diplomacy fails. This augurs well for aspects of the country's international dimension of integration in coastal zone management. In 2007 the official Government position was declared whereby it was stated that for the settlement of disputes related to interpretation or application of the United Nations Convention on the Law of the Sea (UNCLOS) the country will use the International Tribunal for the Law of the Sea (ITLOS) and the International Court of Justice (ICJ) as preferred means.

Along with bilateral collaboration in matters of ocean and coastal governance, Trinidad and Tobago has also shown keenness to engage with organizations, processes and agreements that seek multilateral cooperation. The country is a member of the United Nations (UN) which, among other things, deals with a range of issues that have implications for ocean and coastal management. It is also associated with the International Maritime Organization (IMO), which is a specialized UN agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. The nation is an active member of the Alliance of Small Island States (AOSIS) which pays special attention to the peculiar developmental challenges faced by small, low lying coastal countries, and at the moment, particularly climate change. Trinidad and Tobago also sits on and is the site of the Secretariat headquarters of the Association of Caribbean States (ACS). This organization is chiefly concerned with addressing, at the wider regional level, interest and concerns related to preservation and conservation of the Caribbean Sea, sustainable tourism, trade and economic integration, vulnerability to natural disasters and transport. Lastly, the country is an integral part of the Caribbean Community and Common Market (CARICOM) which seeks cooperation among member States on economic and trade related matters, movement of labour and capital and co-ordination of agricultural, industrial and foreign policies.

In addition to participation in these multi-nation collaborative bodies, a number of international and regional agreements, which have bearing on matters relating to coastal zone management, have been ratified by the Trinidad and Tobago (Anderson, 2003). However, there are difficulties associated with enacting and operationalizing international and regional law nationally (Anderson, 2001). Institutional arrangements arising out of ICZM, which would include the Ministry of Foreign Affairs being represented on the CZMC, could serve as a mechanism through which legislative enactment can be lobbied for and propelled. Coupled with this, an efficient ICZM process also provides the means to better identify where it is necessary for Trinidad and Tobago to cooperate regionally and/or internationally and how best capitalise on these opportunities with a view to sustainable development and management of the resources and activities in the coastal zone.

#### 4. Conclusions

Activities and resources found in the ocean and coastal realm of

Trinidad and Tobago contribute critically to the identity and well-being of the country's citizenry. In this two island nation, where the total land area is dwarfed by the extent of marine space under the State's jurisdiction, sustainably managing the aspects of the coastal zone is therefore imperative. However, the current governance framework and capacity to do so is proving to be inadequate, with resource mismanagement, degradation and depletion evident. This is compounded by the absence of a co-ordinating mechanism and collaborative process through which stakeholders can seek to cohesively manage the ocean and coastal sphere, in order to minimise conflict and maintain its flows of ecosystem goods and services in the long term.

ICZM has been identified as a measure that could be applied to more sustainably manage Trinidad and Tobago's coastal and ocean space, resources and activities. As a participatory process requiring discourse, co-ordination and harmonization among government agencies and other stakeholders, including communities, it would endeavour to improve governance so that, *inter alia*, conflict is alleviated, a balance is struck between conservation and development considerations, sustainable livelihoods are promoted and the vulnerability of coastal populations is reduced.

In Trinidad and Tobago's context, several recommendations have been put forward through which ICZM can be given effect. These include:

- Establishing, legally grounding and adequately resourcing a Coastal Zone Management Council;
- Increasing opportunities for genuine stakeholder participation in ocean and coastal governance by implementing a system that better utilizes the reach and access of Local Governments to the general population;
- Adopting and expanding the application of marine spatial planning approaches nationwide; and
- Boosting the research, "interpretive" and outreach capacity of institutions with responsibility for conducting ocean and coastal scientific research and, in particular, the IMA.

Enacting these and other changes to the coastal zone management landscape would essentially require political will. Also needed would be a departure from the engrained dogmas that tend to shy away from co-operative interactions and which seek to maintain power imbalances. The existing, less than effective, status quo for coastal zone management practice in Trinidad and Tobago has endured partly because leadership has been *laissez-faire* as it relates to championing change in the governance process. Coupled with this, the general public may not recognise the importance of, or have not been empowered to take ownership and drive change. Therefore, as much as anything, an ideological and attitudinal shift needs to take place in order to enable the creation/strengthening of the necessary legal and institutional pathways through which integrated and sustainable ocean and coastal governance can be realised.

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