

Issue 3 - January 2015

ICZM today

INTEGRATED COASTAL ZONE MANAGEMENT



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National ICZM Policy Update

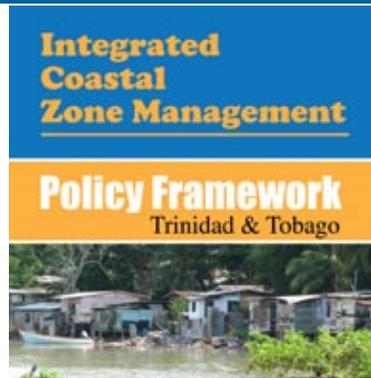
In April 2012, a multi-sectoral Steering Committee was appointed by the Ministry of Housing and Environment to develop an Integrated Coastal Zone Management (ICZM) Policy Framework, Strategies and Action Plan. The Steering Committee undertook extensive public consultations throughout Trinidad and Tobago to determine stakeholders views on areas that should be addressed in an ICZM Policy. Based on the outcome of the consultations, a draft ICZM Policy Framework was formulated and submitted to the Ministry of Environment and Water Resources in April 2014.

The goal of the policy is to facilitate an integrated approach to coastal zone management aimed at maintaining, and where necessary, enhancing the functional integrity of the coastal resource systems while enabling sustainable economic development through rational decision-making and planning. The policy defines the coastal zone and has separated the coast into immediate and direct impact areas and areas of influence.

ICZM is a participatory process that encourages active participation of people in all undertakings to conserve and enhance the country's coastal zones. The draft ICZM Policy is located on the IMA website –www.ima.gov.tt. Please review and send comments to rajuman@ima.gov.tt. Your feedback would be greatly appreciated.



The video - ICZM 'A participatory process' - can be viewed at www.ima.gov.tt



Cover photo:



The Mayaro - Manzanilla Road was damaged by floodwaters as a result of heavy rainfall.

Between November 9 and 15th 2014, 2.5 km of the Manzanilla – Mayaro Road was damaged. The Mayaro - Manzanilla Road is a coastal road built on a sand bar between the Nariva Swamp, a wetland of international importance (Ramsar Site), and the Manzanilla Beach. The road was initially utilised by workers in the coconut industry but in recent times, has been the main access route for workers/ material going to the oil and gas industries located in Mayaro/ Guayaguayare. The road and other infrastructure such as electricity poles and houses were damaged as floodwaters from the swollen Nariva and Dubloon Rivers removed sediments from these structures. This damage was caused MAINLY by rainfall over a few days running off the land. Imagine a hurricane or storm event with winds, storms surges and rainfall occurring at the same time, compounded by sea level rise. This event is a good example of the vulnerability facing this area of coastline and the communities living there and why we need an INTEGRATED COASTAL ZONE MANAGEMENT POLICY, so we can find a long-term solution to the problem, that treats with the core issues and takes into consideration future risks from climatic events.

‘Piloting the integration of Climate Change Adaptation and Coastal Zone Management in Southwest Tobago’

Trinidad and Tobago is highly vulnerable to the impacts of global climate change; particularly rising temperature, decreased precipitation and sea level rise (SLR). It is anticipated that these changes will have adverse effects on the physical environment and economy. There is therefore a need to reduce the risks associated with the expected impacts of climate change on the country by mainstreaming climate change adaptation into development planning. In December 2012, the Government of Trinidad and Tobago signed a technical cooperation (TC) with the Inter-American Development Bank (IADB) to undertake a pilot study on integrating climate change adaptation (CCA) into coastal zone management (CZM) in SW Tobago.

The Institute of Marine Affairs is the executing agency. Activities under this project began in April 2013 and are expected to be completed in June 2015. The objective of this TC is to develop an ICZM program that incorporates CCA and disaster risk management using an ecosystem based approach. The lessons learnt from this TC will directly inform the development of the broader national ICZM Policy Strategies and Action Plan. The TC will also lay the foundation for future investments in a coastal risk assessment and management program in Trinidad and Tobago.



l-r: Dr. Amoy Lum Kong; Mr. Hayden Spencer, Assistant Secretary, THA; Mr. Garth Otley Member of the Board of Governors of IMA at the launch.

Activities completed to date under this TC included the following:

- **Gap analysis** - review of the legislative, policy and institutional information and capacity arrangements related to CZM and climate change in Trinidad and Tobago.
- **Vulnerability and Risk Assessment** – the development of climate-related hazard vulnerability and risk assessments of the coastal zone area of Southwest Tobago based on climate variability (existing climatic events) and climate change scenarios.
- **Coastal ecosystem-based climate change adaptation response plan** - the design and implementation of an adaptation response plan for coastal ecosystems in Southwest Tobago which included the deployment of an coral reef early warning system (CREWS) on Buccoo Reef and enhancement of a long-term water quality monitoring program.
- **General guidelines for incorporating an ecosystem based approach to adaptation into a national ICZM Policy** - produce guidelines that incorporate CCA into an ICZM Policy, including identification of best management practices for adapting coastal economic activities to risk.

A) GAP ANALYSIS -THE LEGISLATIVE, POLICY AND INSTITUTIONAL ARRANGEMENT FOR CCA AND ICZM

While Trinidad and Tobago has a National Climate Change Policy (NCCP), it does not specifically address ICZM and CCA on the coast, though it does note the effects of rising sea level and temperature. Research has shown that there is a lack of specific policies to treat with CZM and CCA although

various policies address ICZM in a piecemeal and fragmented manner. Moreover, the policies are dated and those that exist are not implemented. In addition, it is important to recognise that ICZM and CC adaptation cannot be dealt with without reference to other policies. In situations where a policy names several organisations with responsibility to implement, the absence of specific provisions on ICZM and CC adaptation can translate into non-action. There is little in existing policies that indicate how the policies are to be used as part of an ICZM plan or for CCA as it relates to the coast. Development plans suffer from a similar lack of specificity as it relates to ICZM and CCA.

There are some 20 pieces of legislation that can potentially address ICZM. The multiplicity of laws and policies impacting on coastal areas gives rise to as much as twenty nine (29) institutions having a defined legal and/or policy role. This creates problems such as overlapping jurisdiction, the independence syndrome, and a lack of proper co-ordination of the work of enforcement and management agencies. Key problems confronting State entities with responsibility for aspects of coastal zone management are the lack of sufficient resources, the most important being financial resources and the presence of little or no public awareness of the importance of coastal areas to the society. Public education programs are limited and sporadic and have generally failed to transform attitudes towards sustainably using coastal areas in Trinidad and Tobago. These problems have led to unsustainable utilization of our coastal resources.

The legal and institutional structure for ICZM must be customised:

- to meet the needs of T&T;
- to the nature of its coastal areas,
- to the institutional and governmental arrangements; and
- to the country's traditions, cultures and economic conditions of Trinidad and Tobago.

There are accepted principles and characteristics associated with the ICZM concept that focuses on three operational objectives:

- Strengthening sectoral management, for example, through training, legislation, and staffing
- Preserving and protecting the productivity and biological diversity of coastal ecosystems, mainly through prevention of habitat destruction, pollution, and overexploitation
- Promoting rational development and sustainable utilization of coastal resources.

B) VULNERABILITY AND RISK ASSESSMENT

Southwest Tobago is home to an estimated 70% of the population of Tobago. The area houses the majority of development associated with housing, hotels and resorts. The coastal area includes Buccoo Reef and other fringing coral reef formations, which have been identified as invaluable to Tobago's tourism industry. The viability of SW Tobago can be stated through social, financial and environmental considerations. All of these considerations are dependent on a healthy, productive coastal environment. Adverse climate changes may thus threaten the sustainability of not only the SW region but all of Tobago.

Halcrow, a CH2M HILL Company, was contracted to undertake a study to develop a vulnerability and risk assessment for South West Tobago based on climate change scenarios. The assessment was used to formulate a Coastal Vulnerability Index (CVI) which will identify areas that are at risk to erosion and/or permanent or temporary coastal flooding. The results will be applied to better understand the risk of climate change to the region so that educated decisions can be applied at policy and planning levels.

In June 2014, Halcrow facilitated a training workshop with key stakeholders on the methodology being applied to the assessment. The preliminary result of the risk assessment and CVI was presented at the IMA 14th Research Symposium held at the Madgalena Hotel, Tobago in September 2015. This assessment is currently being finalised.



Adam Hosking of Halcrow presenting on Vulnerability and Risk Assessment for Southwest Tobago based on climate change scenarios at IMA's 14th Research Symposium.

INSTALLATION OF A CORAL REEF EARLY WARNING SYSTEM (CREWS) AT BUCCOO REEF

In an effort to monitor and build capacity to adapt to the impacts of climate change, a CREWS buoy was deployed on Buccoo Reef, Tobago in November 2013. The customized CREWS buoy, referred to as Winky by fisherfolks and dive operators, is designed to measure, record and transmit key meteorological and water quality measurements. Meteorological sensors that measure air temperature, wind speed and direction, barometric pressure, rainfall, photosynthetically available radiation (PAR), ultraviolet radiation (UVR), and specialized oceanographic sensors and site specific sensors are also included.

The data collected is available to scientists and other stakeholders to predict possible threats to the reef environment from climate change impacts and from land-based sources of pollution. The data can be downloaded from the link featured below. A tide gauge would be installed during the first quarter of 2015 to monitor sea level.



Addison Titus, IMA Marine Technician (l), and Jon Fajans, secure the CREWS buoy



Coral Reef Early Warning System (CREWS)

CREWS data - <http://www.coral.noaa.gov/data/icon-network/crews-data-reports.html>

C) PUBLIC AWARENESS AND DISSEMINATION

A communication strategy was developed based on research conducted with key stakeholders in Southwest Tobago. A pilot programme implemented and evaluated. The final report and communication strategy will inform future communication plans as it pertains to ICZM CCA.

Go to www.ima.gov.tt to view video ‘Do it for Tobago’.

D) ECOSYSTEM BASED APPROACH (EbA) TO ICZM AND CCA

Jonathan Mc Cue, Principal Consultant of Sustainable Seas Ltd was contracted to complete the project entitled “Design and Implementation of a Coastal Ecosystem based Climate Change Adaptation Plan and Guidelines for incorporating an Ecosystem Based Approach (EbA) to Adaptation into a National Integrated Coastal Zone Management Policy”. Mr. Mc Cue facilitated 2 workshops: one in Trinidad and one in Tobago to build capacity amongst stakeholders on EbA.

ICZM and EbA both provide a robust framework to determine strategies and measures for climate resilience. These relate to the first 2 steps of the USAid process of climate change adaptation (USAid, 2009) (Figure 1). ICZM plays an important role in shaping coastal ecosystem management policies, as well as improving and co-ordinating local activities while EbA provides the principal criteria to underpin the design of intervention measures. Climate change has added another layer of complexity to coastal management. ICZM and EbA are relevant instruments because of their focus on identifying and quantifying coastal hazards and impacts to assess coastal vulnerability. In this context, ICZM addresses the policy direction of climate change adaptation while EbA directs the “management practices” for adaptation in response towards delivering coastal resilience.



Jonathan Mc Cue



A cross-section of participants at the workshop



*FIGURE 1
FIVE STEP APPROACH FOR ADAPTING TO COASTAL CLIMATE CHANGE (USAID 2009)*

Five steps can be used to structure the application of EbA within an ICZM framework to address the challenges of climate change adaptation. The 5 steps can be re-phrased as a series of “questions” that provide a means to ensure that principles of EbA are used within the framework of ICZM to identify approaches to climate change adaptation that are designed to reduce the vulnerability and risk to coastal systems and increase the resilience of coastal communities. These 5 questions are:

Ecosystem Based Adaptation - Steps or Questions

- 1. Who are the main stakeholders and ecosystems, and what are the relationships between them?**
- 2. What is the structure and function of the ecosystems, and are means in place to manage and monitor them?**
- 3. What are the important economic issues that will affect the ecosystem and its inhabitants?**
- 4. What are the likely impacts of the ecosystem on adjacent ecosystems?**
- 5. What are the long term goals and have flexible ways of reaching them been determined?**

MAINSTREAMING CLIMATE CHANGE ADAPTATION INTO INTEGRATED COASTAL ZONE MANAGEMENT (ICZM)

Mainstreaming climate change within ICZM is a way of reducing potential impacts on coastal developments, by thinking ahead. Mainstreaming climate change into coastal planning essentially means incorporating climate risks into all development planning decisions. This will have to be addressed by all government agencies, at all levels of government, and across all sectors (e.g. finance, health, agriculture, and environment), as well as by civil society and the private sector. Climate change mainstreaming therefore contributes to more sustainable development and more resilient communities. Indeed, if climate change is not mainstreamed into decision making, there is a real risk that development goals will not be achieved. The most effective route to mainstreaming is through an integrated ‘whole-of-government’ approach, preferably coordinated at the highest level of government.

Recommendations for mainstreaming climate change adaptation in Trinidad and Tobago are as follows:

- Use pilot projects to test how various policy measures might contribute to societal benefits; then use the results of these pilots to inform the broader audience that will be essential to getting adaptation measures adopted and implemented more widely.
- Build confidence by firstly, addressing a simple issue; this sets the stage for then tackling issues that are more controversial or less clearly defined.
- Conduct directed scientific research that adopts stakeholder concerns as real, and tests their hypotheses about the source of problems and their solutions.
- Encourage a focus on interests and common threats, rather than on particular measures that might foster a hardening of views.
- Demonstrate fairness by creating broad ICZM policies that do not single out particular groups, and do not deprive individuals of their constitutional rights (e.g. private property rights).
- Encourage stakeholders to recommend and help test their own approaches and practices, possibly accompanied by a promise not to impose formal regulations on the sector as a result of the outcome of those tests.
- Engage a full range of stakeholders in assessing vulnerability, selecting the course of action, and assisting in the process of mainstreaming. All important governing institutions and stakeholder groups need to be involved or informed of what is happening so that they can identify with the process and become active partners in implementation.



Satellite image of Southwest Tobago

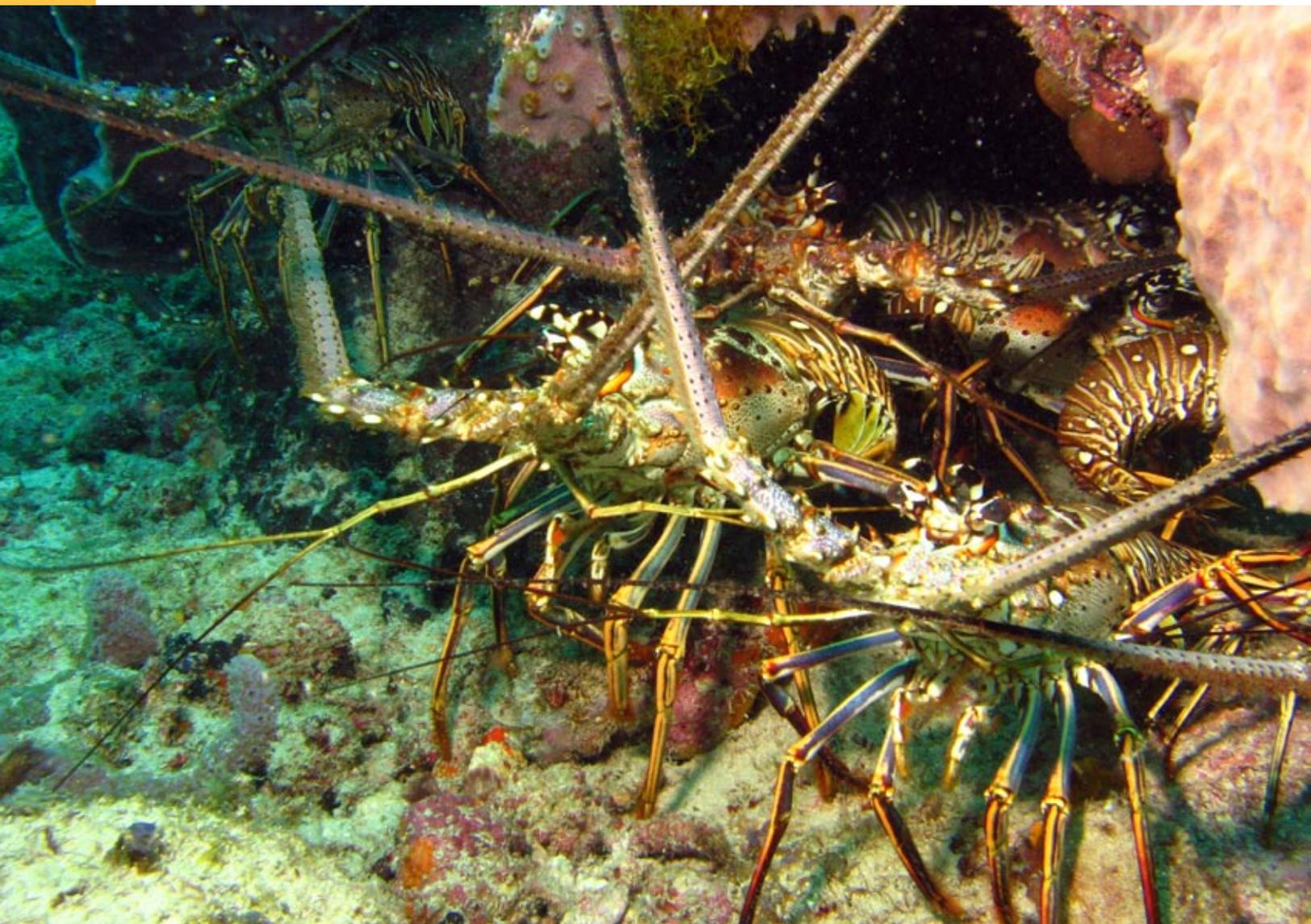
Improve Governance Mechanisms

A key difference of a climate change mainstreaming programme from other projects (or programmes) is that non-environment ministries (Planning, Finance) are specifically targeted. It is recommended therefore that improved economics (and the understanding thereof) is used to better understand and communicate ICZM related challenges. These include cost-benefit studies, expenditure reviews, and quantifying the value of natural and social capital. This marks an important shift away from relying on general arguments for sustainability or inclusive policy approaches. Instead, ministries should be able to quantify the costs and the benefits of different climate change adaptation investment choices (on the coast) in a “currency” that the whole government understands.

This recommended “economic lens” is anticipated to help the T&T government to convince decision makers and their electorate of the necessity for change. T&T now needs to attempt to quantify the economic value of their own coastal and marine resources. Two recent publications which could be helpful are: the IDB (2013) report (Project TT-T1033 “Understanding the Economics of Climate Change Adaptation” and also the “Waite, R., et al. (2014). Coastal Capital: Ecosystem Valuation for Decision Making in the Caribbean document.



*Views from Southwest Tobago:
(from top left clockwise) Milford Beach; Pigeon Point; Caribbean Spiny Lobster*





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