2009 ANNUAL REPORT

ENVIRONMENTAL POLICY AND REGULATORY INSTRUMENTS

MISSION STATEMENT

The Environmental Management Authority is committed to protecting and conserving the natural environment to enhance the quality of life by promoting:

- *Environmentally responsible behaviour*
- *Development and enforcement of environmental legislation*
- *Encouragement of voluntary compliance*
- *The use of economic and other incentives*

This is to be achieved in an atmosphere of mutual respect, professionalism, accountability, transparency, collaboration and social responsibility.

Chairman's Message

Dr. Allan Bachan
Chairman

For the 2009 reporting period, the EMA's Board of Directors operated under the Chairmanship of Robert Green.

On behalf of the current Board of Directors I am pleased to present the 2009 Annual Report which focuses on the environmental policy and regulatory instruments implemented at the EMA.

This report reflects the ongoing commitment of the Authority in building awareness of our nation's environmental legislation and issues, while focusing on the EMA's jurisdiction in preserving and conserving our environment.

The report turns a critical eye to the structure and implementation of our policy instruments and proposes a way forward to make them more effective at safeguarding human health and our natural resources. The core policy instruments utilised at the EMA are: the standards and regulations or 'command and control' measures, which is its primary and subsidiary legislation; voluntary instruments or 'moral suasion' measures, which refers to public awareness and capacity building; and pricing and quantity instruments or 'market-based' measures, which refers to financial mechanisms geared towards inculcating more environmentally sustainable behaviours among individuals and entities such as deposit-refund systems and 'green' project funding.

To date the EMA has enacted the following pieces of legislation in accordance with its primary legislation, Environmental Management Act. These are: the Certificate of Environmental Clearance Rules, Water Pollutions Rules, Environmentally Sensitive Species and Areas Rules, the Noise Pollution Control Rules and the National Environmental Policy. Other pieces of legislation yet to be formalised include: (Draft) Air Pollution Rules and (Draft) Waste Management Rules.

It must be noted that environmental legislation is developed based on the environmental needs of a country. As the environmental issues morph over time, the legislation can be revised to effectively treat with these concerns.

Voluntary instruments at the EMA include its public awareness initiatives which include: its revamped website, newsletter, schools' competitions and programmes, along with other activities and publications. Market-based instruments at the EMA involve the deposit-refund system such as the National Beverage Containers Bill project, and with the establishment of the Green Fund Executing Unit funding is being made available for special national projects such as the Nariva Swamp Restoration, Carbon Sequestration and Livelihoods Project.

The data provided within this report captures the changes in approach to managing the environment of Trinidad and Tobago from the 1800s to present day, and defines a way forward for more consistent and accurate reporting on the state of the environment. It uses a decades-worth of data gathered from the implementation of our various policy instruments to understand evolving trends in the pressures and drivers affecting the state of our environment.

This report also highlights our achievements for the year 2009, along with future targets as a nation for 2010.

The EMA remains steadfast towards its mandate in sustainably managing our environment. We will continue to review current and impending legislation to augment our existing arsenal and ensure we are capable of adequately addressing the environmental needs of our country.

Dr. Allan Bachan
Chairman
November, 2014

ABOUT THE EMA

The Environmental Management Authority of Trinidad and Tobago was established by the Environmental Management Act Chap 35:05 (EM Act) in 1995 on World Environment Day (June 5th). The Environmental Management Authority is committed to protecting, restoring and conserving the environment to improve the quality of life by promoting:

- Environmentally responsible development;
- A culture of care for the environment;
- Development and enforcement of environmental legislation;
- Use of economic, financial and other incentives.

This is to be achieved in an atmosphere of mutual respect, professionalism, accountability, transparency, collaboration and social responsibility.

One of the main tasks of the EMA to date has been the development and implementation of a comprehensive and cohesive package of (subsidiary) environmental regulatory legislation in accordance with the requirements of the EM Act. Yet, it should be noted that the role of the EMA goes beyond regulation.

The EMA has been investing resources in improving environmental awareness and education; reporting on the state of environment; coordinating environmental management functions performed by persons in Trinidad and Tobago; working with partner agencies, organisations and institutions, in the development and implementation of other relevant environmental policies and plans; lending support to the fulfillment of the country's obligations to a number of regional and international conventions and treaties.

The EMA is responsible for a wide range of activities, a responsibility which has become increasingly important over the last few years given the country's rapidly growing economy. To help guide the organisation's work, a five-year strategic plan, spanning the period 2003 to 2008 was developed, within which five strategic priority areas were identified:

- Clean Air;
- Clean Water;
- Waste Management;
- Noise Management;
- Healthy Ecosystems.

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LIST OF ABBREVIATIONS

AO	Administrative Order
AR	Administration Record
ASOE	Annual State of the Environment
AWWA	American Water Works Association
CEC	Certificate of Environmental Clearance
CPC	Chief Parliamentary Council
DA	Designated Activity
DAPR	Draft Air Pollution Rules
dB	Decibels
dBA	A weighted decibels
DPSIR	Driver-Pressure-State-Impact-Response
DRS	Deposit Refund System
EC	Environmental Commission
EEA	European Environmental Agency
EIA	Environmental Impact Assessment
EM Act	Environmental Management Act
EMA	Environmental Management Authority
EPI	Environmental Policy Instrument
ESA	Environmentally Sensitive Area
ESAR	Environmentally Sensitive Areas Rules
ESS	Environmentally Sensitive Species
ESSR	Environmentally Sensitive Species Rules
FACRP	Fondes Amandes Community Reforestation Project
GDP	Gross Domestic Product
GFAC	Green Fund Advisory Committee
GFEU	Green Fund Executing Unit
GFL	Green Fund Levy
ICI	Industrial, Commercial, Institutional
IMA	Institute of Marine Affairs
IUCN	International Union for Conservation of Nature
LUC	Land Use Change
MBI	Market-Based Instruments
MOEEI	Ministry of Energy and Energy Industries
MOPHE	Ministry of Planning Housing and the Environment
MOWT	Ministry of Works and Transport
NEP	National Environmental Policy
NoV	Notice of Violation
NPCR	Noise Pollution Control Rules
NPS	Non Point Source

NSRP	Nariva Swamp Restoration Project
OECD	Organization for Economic Cooperation and Development
OSHA	Occupational Safety Health Agency
PSIP	Public Sector Investment Programme
RAR	Review and Assessment Reports
RIVM	National Institute for Public Health and the Environment
SMC	Stakeholder Management Committee
SP	Strategic Plan
SRAEL	Source Registration Application Electronic Log
T&T	Trinidad and Tobago
TCPD	Town and Country Planning Division
TO	Technical Officer
TOR	Terms of Reference
UNFAO	United Nations Food and Agricultural Organization
US EPA	United States Environmental Protection Agency
VI	Voluntary Initiative
VR	Noise Variation
WMR	Waste Management Rules
WPR	Water Pollution Rules

PART A: ASSESSMENT OF THE STATE OF THE ENVIRONMENT REPORT 2009

EXECUTIVE SUMMARY

Constrained by a lack of systematic monitoring and data collection, this Assessment of the State of the Environment report takes the novel approach of using the status and outputs of Trinidad and Tobago's environmental policy instruments to understand the state of our natural resources. In doing so, it also identifies shortcomings and next steps required to improve upon existing regulatory approaches, market-based approaches and voluntary-compliance approaches to managing the environment.

Trinidad and Tobago, like much of the world, has been unable to keep pace with the evolution of environmental policy thought from being legislation-dominant to being centred on market-based and voluntary techniques. Thus, indicators of the state of the environment were primarily gleaned from legislative outputs; particularly those of the EM Act and its subsidiary rules. Key findings include:

- Pressure on the environment, measured by the number of CEC applications for development projects received/approved mirrored the country's economic growth; steadily increasing over the period 2000-2007. Following the 2007 recession, development in all but the energy sector slowed down suggesting a reduction environmental pressure presently in 2009 relative to pre-2007;

- Quarrying activity is focused in the central and north-eastern areas of Trinidad where desired geological formations are found;

- Changes in land-use, measured by the number of CEC applications that were, at least in part, categorized as designated activity 8, were seen to be focused along the western sides of Trinidad and Tobago and surrounding major cities and highways. The number of DA 8 application still to be processed suggests that significant land use change is still to occur;

- The potential cumulative impacts from quarries and land use change in their most prevalent areas include: loss of aesthetic landscape, loss of biodiversity, reduced carbon sequestration, changes to hydrological regimes of waterways, increases in ground water contamination and increases in air, noise, light, solid waste and water pollution;

- The distribution of granted noise variations over the period 2002 – 2009 suggests that the month of February experiences the greatest amount of noise pollution, followed by the months of August and September;

- Based on the distribution of Source Registration Certificates, most registrable point sources of pollutants are found along the western side of Trinidad and Tobago;

- Based on the distribution of Source Registration Certificates, most of the registrable point sources of pollutants are located in moderate to highly vulnerable watersheds;

- Gradually decreasing numbers of consent agreements issued over the period 2003 – 2009 suggests that fewer breaches of 'environmental requirements' are occurring. Consequently, the procedures and standards for sustainably managing the environment through the EM Act and its subsidiary legislation are working to reduce unregulated environmental pollution.

Moving forward, additional legislative instruments will be passed into law including the Draft Air Pollution Rules and Draft Waste and Hazardous Substances Management Rules to increase the scope of environmental protection. Even among the enacted legislation, there is still room for improvement – both in comprehension and execution. Cognizant of this, the EMA will continue to revise enacted legislation periodically to guarantee their relevance and effectiveness while simultaneously streamlining processes to ensure that they are applied to their full capacity.

The infrastructure for implementing market-based instruments is still under development. As such, they have not been implemented and it is not possible to judge the state of the environment through their outputs. The two most promising market-based instruments at the cusp of implementation are:

1. The *Green Fund* and *Green Fund Levy* established under the Finance Act of 2000.
2. The beverage container deposit-refund system developed by the EMA in 1998.

With the Green Fund Executing Unit and Green Fund Advisory Committee only being established in 2008 under the Ministry of the Planning, Housing and Environment, the funds have now become operational. Though, to date, no projects have been funded. It is expected that in the upcoming years, NGOs and CBOs would make use of the fund to roll out large scale pollution abatement and restoration projects.

The beverage container bill is still being refined and is expected to soon be laid to parliament for approval. Once enacted, it would facilitate a finance-based mechanism for the reduction of solid waste entering the environment and our landfills.

Voluntary Instruments typically include education and awareness campaigns that may lead individuals to make sounder and sustainable environmental management choices. Since 1998

the EMA has spearheaded a number of workshops, competitions and programs geared towards increasing eco-consciousness among the people in Trinidad and Tobago and in particular, students and youth. However no quantitative studies have been done to measure the repercussions of these campaigns and how they have affected the state of the environment. Despite this, the EMA, per its mandate under the EM Act, will continue to sensitize the wider public to foster a sense of environmental pride and responsibility. Mechanisms will also be developed to monitor the social and environmental impact of outreach work.

Looking to policy and regulatory instruments as a proxy indicator for the state of the environment revealed that great emphasis is placed on reducing the pressures (particularly, pollution) placed on the environment through legislation. Equally, it has shown there is a deficiency in strategies and resources committed to addressing the drivers of environmental deterioration as well as systematically monitoring the state of the environment. Recognising that the ambitious goal of surmounting these shortcomings cannot be achieved alone, the EMA is dedicated to continuing its efforts at forging efficient, functional partnerships with all stakeholders to tackle these challenges.

To provide more concrete assessments of the state of the environment in the future, monitoring systems will be developed to routinely capture information on key indicators such as land use changes and solid waste management – both of which will be the themes of the 2010 and 2011 ASOE respectively.

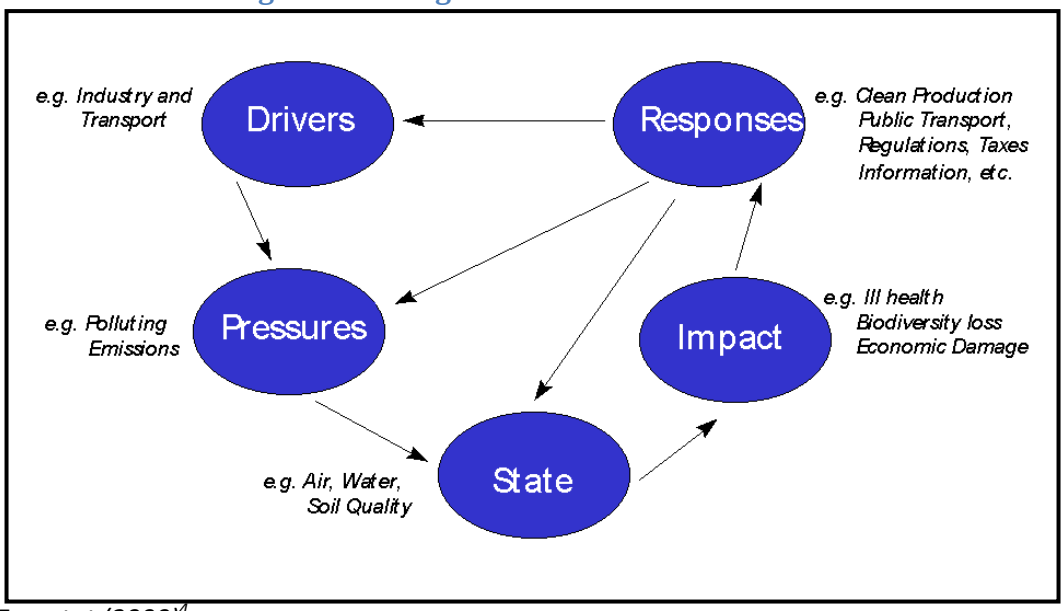
1.0 INTRODUCTION

1.1 Overview

Determining the status of a system, be it economic, social or environmental, can often become a complicated and imperfect task depending on the availability of data, choice of method and application of that method. For example, many economists use the gross domestic product (GDP) as the chief indicator for the health of the economy though it may mask wide social disparities[1]. Unfortunately for environmentalists there is no single indicator parallel to the GDP that can be used to assess the state of the entire environment given the complexity of the subject. Rather, the judgment and reporting of the state of the environment is based on the lens through which it is examined.

The most commonly used "lenses" are the primary components of the *Driving forces-Pressures-States-Impacts-Responses (DPSIR) Framework;* a structure, conceptualized in 1998 by RIVM[2], within which the European Environmental Agency (EEA) could report on the state of the environment[3]. Figure 1 shows the primary components and the causal links between them in the DPSIR Framework. Table 1 defines and describes each component.

Figure 1 - A schematic diagram showing the DPSIR framework



Source: Eurostat (2000)[4]

[1] Talberth, J. (2008). A New Bottom Line for Progress. In W. W. Institute, *State of the World: Innovations for a Sustainable Economy* (pp. 18 – 31).
[2] National Institute for Public Health and the Environment, Bilthoven, Netherlands.
[3] Kristensen, P. (2004). *The DPSIR Framework*. Denmark: National Environmental Research Institute.
[4] Eurostat. (2000). *Towards Environmental Pressure Indicators for the EU (1998): Statistics and Indicators.* Norwich: TSO.

Table 1 - A table defining the components of the DPSIR framework

DPSIR Component	Definition	Example	Examples of Indicators
Driving forces (Drivers)	All human activities, processes or patterns and the underlying 'needs' behind them. In a macroeconomic context, production and consumption processes are categorized by economic sector	Population; Transport; Energy; Agriculture; Industry; Tourism	Population age; Education levels; number of vehicles; Crop/livestock density; Immigration rates
Pressures	The consequences of drivers on the environment in pursuit of 'need'	Changes in land use; Resource Use; Waste emissions	Air emissions; Water emissions; Extraction rates
States	The physical, chemical and biological condition of the environment as a result of pressures placed upon it	Air quality; Water quality; Soil quality; ecosystems	Days exceeding ambient air quality standards; Biodiversity counts
Impacts	The effect of the state of the environment on the overall quality of the natural environment and socio-economic welfare of humans	Quality of ecosystem services; State of the economy; Human health	Primary productivity of plants; Incidents of disease
Responses	The social and/or political action taken in response to impacts which may focus on making changes to drivers, pressures or the state of the environment	Civil action; Policy Target Setting; Legislative tools;	Protest action; Standards and regulations; Educational campaigns; Taxes and subsidies

Sources: [Adapted from] UNFAO (2001)[5], Kristensen (2004)[6]

This annual state of the environment (ASOE) report examines the state of Trinidad and Tobago's environment from the perspective of *responses;* using the outputs of policy instruments applied locally as a proxy for the state of the environment. Grounded in evidence gathered by the Environmental Management Authority (EMA) over the past decade, this report reflects on the past and present environmental policy instruments used to manage the state of our environment and forecasts the legislative tools to come. Special focus is given to the Environmental Management Act Chap. 35:05 and its subsidiary legislation.

[5] United Nations Food and Agriculture Organisation. (2001). *Pressure State Response Framework and Environmental Indicators*. Retrieved from http://www.fao.org/ag/againfo/programmes/en/lead/toolbox/refer/envindi.htm#DPSIR

[6] Kristensen, P. (2004). *The DPSIR Framework*. Denmark: National Environmental Research Institute.

1.2 Policy Instruments for Environmental Management

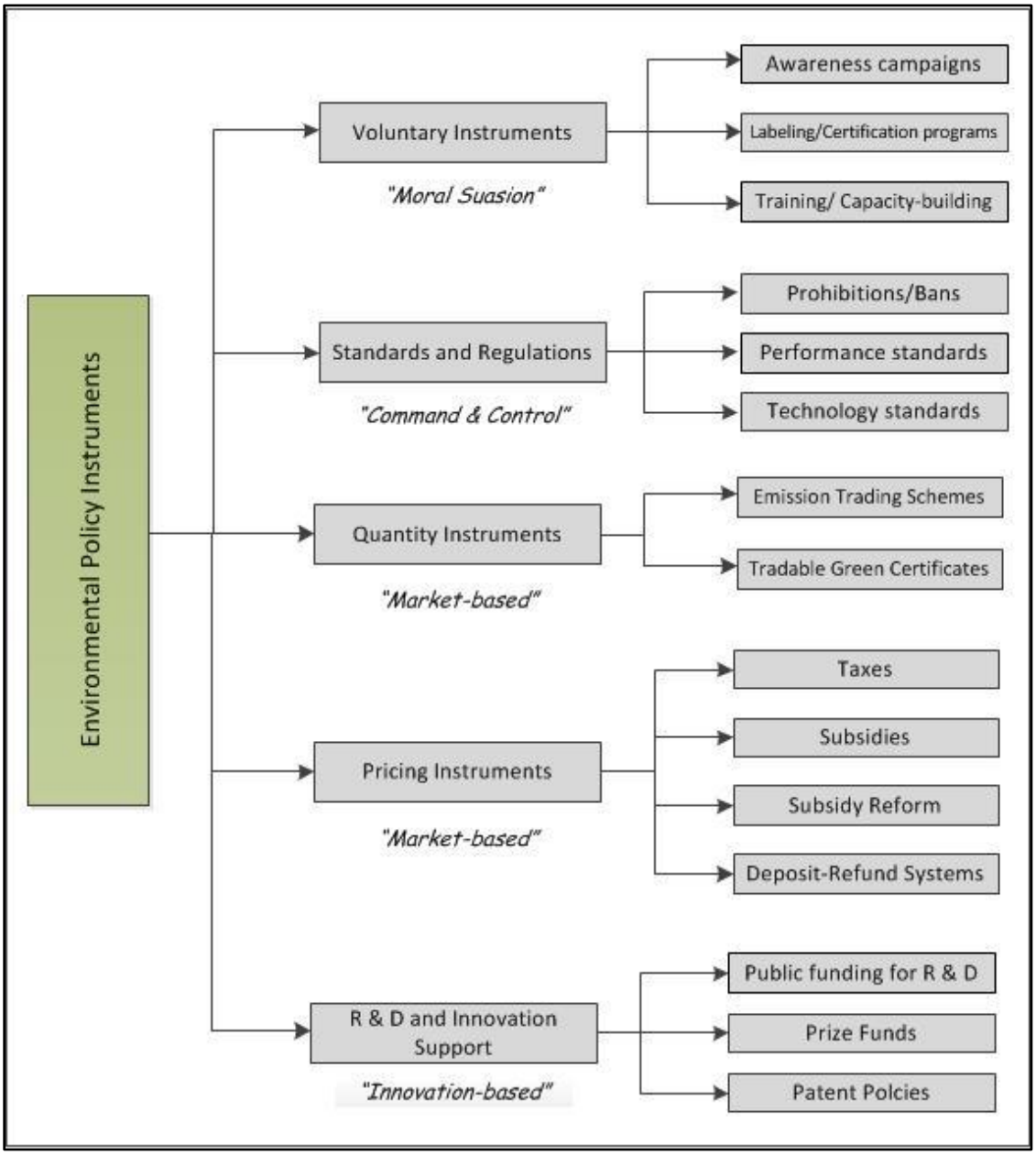
Environmental policy instruments (EPIs) refer to the myriad of techniques available to governments to lessen the impacts on the natural environment and human socio-economic welfare, by influencing the consumption and production behaviour of institutions and individuals[7]. In the language of economists, policy instruments are needed to address market and policy failures stemming from the evolution of property rights such as externalities, common pool resources, public goods, non-competitive markets and imperfect information[8]. As such, a plethora of instruments exist to address each market failure. The problem of externalities, for instance, can be addressed through market-based approaches such as taxes or via emission trading schemes; regulatory approaches such as prohibitions and technology standards; or voluntary measures such as accredited process management systems[9].

The classification systems of EPIs are as varied as the number of instruments available to policy-makers themselves. However, the most commonly used typology comprises of *financial instruments, regulation instruments* and *information/outreach instruments* – analogously referred to the "carrot, stick and sermon" model[10]. Variations of this model include the World Bank's typology of *Using Markets*, *Creating Markets*, *Regulations* and *Public Outreach*[11] or the Organisation for Economic Cooperation and Development's (OECD) *command-and-control (regulatory) instruments, economic instruments, liability and compensation, education, voluntary approaches and management plans*[12].

Regardless of how they are grouped, the toolkit of EPIs is extensive and includes, but is not limited to, the items represented in Figure 2.

[7] [Adapted from] Netherlands Scientific Council for Government Policy. (1992). *Environmental Policy: Strategy, instruments and enforcement*. Hague.
[8] United Nations Environmental Programme. (2003). *Instruments for Environmental Policy*. Environmental Policy Division. Retrieved from: http://www.unpei.org/sites/default/files/PDF/policyinterventions-programmedev/Instruments-for-Environmental-Policy.pdf
[9] Persson, A.M. (2007). *Choosing Environmental Policy Instruments: Case Studies from Municipal Waste Policy in Sweden and England*. (Unpublished doctoral dissertation). London: London School of Economics and Political Science.
[10] Persson, A.M. (2007). *Choosing Environmental Policy Instruments: Case Studies from Municipal Waste Policy in Sweden and England*. (Unpublished doctoral dissertation). London: London School of Economics and Political Science.
[11] World Bank. (1997). *Five years after Rio: Innovations in Environmental Policy.*
[12] Organisation of Economic Cooperation and Development. (2001c). *Sustainable Development: Critical Issues.* Paris: OECD.

Figure 2 - A schematic diagram illustrating the range of instruments available in an environmental policy toolkit



Sources: [Adapted from] Oates and Baumol (1975)[13], Netherlands Scientific Council for Government Policy (1992)[14], World Bank (1997)[15], OECD (2001c)[16]

[13] Oates, W. & Baumol, W. (1975). The Instruments for Environmental Policy. In E. Mills, *The Economic Analysis of Environmental Problems* (p. 97). National Bureau of Economic Research.
[14] Netherlands Scientific Council for Government Policy. (1992). *Environmental Policy: Strategy, Instruments and Enforcement.* The Hague.
[15] World Bank. (1997). *Five Years After Rio: Innovations in Environmental Policy.*

Box 1 - The evolution of EPIs

The multitude of EPIs available to the contemporary policy-maker is the product of an evolution of thought on environmental policy which spans three distinct, but overlapping, phases of thinking as detailed in Table 2.

Table 2 - A table summarizing the change in thought on EPIs over time

Timeframe	Dominant EPI of policy discourse	Notes
1960 - 1980	"Command and Control" Regulation	Since the advent of environmental policy institutions and legislation in the 1960s "do as I say"-type regulations have been the most strongly dominant and default tool used. However towards the early 1980s this approach was increasingly questioned on the grounds of having excessive implementation and enforcement costs; failing to provide dynamic incentives and; lacking effectiveness.
1980 - 1995	"Market-based" Approaches	This era marked a growing focus on market-based tools as EPIs due to dissatisfaction with 'command and control' approaches. Agenda 21 of the 1992 Rio 'Earth Summit' endorsed the need for increased use of economic instruments as one of its outcomes.
1995 - present	"Moral Suasion" Approaches/ Voluntary Initiatives	Spurred by a growing notion that 'force of conviction' rather than 'coercion' should drive policy systematic attention was given to 'softer' approaches such as voluntary instruments (VIs) which included information transfer mechanisms and management systems. Implicit in this era is the burgeoning understanding that environmental management cannot be done unilaterally and must involve all stakeholders.

Source: [Adapted from] Persson (2007)[17]

Given the complexity of the natural environment and the multitude of policy and market failures that underlie the drivers and pressures placed upon it, there is no all-encompassing policy instrument that will singlehandedly solve a given problem. Rather, policy makers must adopt a multi-faceted approach – applying a broad mix of policy instruments which together may result in a net positive change on the environment. A country's environmental policy mix is tailored to suit its geographic, economic and political context. Specifically, decision-makers opt for instruments that satisfactorily meet key criteria such as: cost effectiveness, distributive equity, risk in the presence of uncertainty and political feasibility[18]. As such, the optimum policy instruments of today may differ from those of tomorrow. This is true especially for Trinidad and Tobago (T&T).

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[16] Organisation of Economic Cooperation and Development. (2001c). *Sustainable Development: Critical Issues.* Paris: OECD.

[17] Persson, A.M. (2007). *Choosing Environmental Policy Instruments: Case Studies from Municipal Waste Policy in Sweden and England*. (Unpublished doctoral dissertation). London: London School of Economics and Political Science.

[18] Goulder, L. H. & Parry, I. W. (2008). Instrument choice in environmental policy. *RFF Discussion Paper No. 08-07*.

1.3 History of Trinidad and Tobago Environmental Policy Instruments

Throughout the history of T&T, the dominant EPI applied has been "command and control" regulations, or the use of legislative tools such as bans and standards to regulate the use of resources and environmental pollution. The earliest example, and incidentally the oldest on record for all of the western hemisphere, dates back to the mid-eighteenth century when British colonizers legally declared Tobago's Main Ridge forest a reserve to safeguard the local watershed[19]. The ordinance reads, in part:

"Did also in pursuance of your said Instructions remove to Your Majesty a tract of Wood Land lying in the interior and most hilly parts of this island for the purpose of attracting frequent Showers of Rain upon which the Fertility of Lands in these Climates doth entirely depend.

William Young

Assented to by his Honour the Commander in Chief this Thirteenth day of April One Thousand Seven Hundred and Seventy Six."

Not unlike the rest of the world, 'command and control' regulations persisted as being the dominant instrument of choice in T&T for achieving public policy objectives until the early 1990s. Environmental laws were created in a piecemeal fashion over the decades without a cohesive framework to guide them. By the mid-nineties, the EPI landscape of T&T was ineffective and disjointed; consisting of over 100 pieces of legislation to be enforced by over 50 different agencies[20].

This heavily decentralized responsibility over environmental stewardship was only one of several deficiencies in environmental management at that time. Another major dearth was that the many (individual) EPIs could not be properly enforced, either due to a lack of resources to being about necessary action, or a lack of appreciation for the importance of environmental laws[21]. Moreover, many laws were too ambiguous for an attempt at enforcement to be made while those that were clear bore feeble penalties, and were thus ineffective as deterrents. Overall, the environmental protective structure was unable to address the number, scale and complexity of the drivers and pressures being placed upon the environment that accompanies a rapidly developing nation.

Recognising these shortcomings, in the wake of the 1992 Rio 'Earth Summit', the government sought to design "*a framework which would be comprehensive yet simple, and which would*

[19] Environment Tobago. (2001, February 1st). *The Origin of the Tobago Forest Reserve*. Retrieved from Environment Tobago: http://tinyurl.com/k9cbk9p
[20] Environmental Management Authority. (1999). *Annual State of the Environment Report*. Port of Spain: EMA. Retrieved from EMA: http://www.ema.co.tt/docs/techServ/SOE/1999_SOE.pdf
[21] Environmental Management Authority. (2007). *Annual State of the Environment Report.* Port of Spain: EMA.

create the space and context for including a multiplicity of actors and actions" in keeping with the mantra **think strategically but act specifically**[22]. The result of this effort was the enactment of the Environmental Management Act No.3 of 1995 (herein referred to as 'the EM Act')[23].

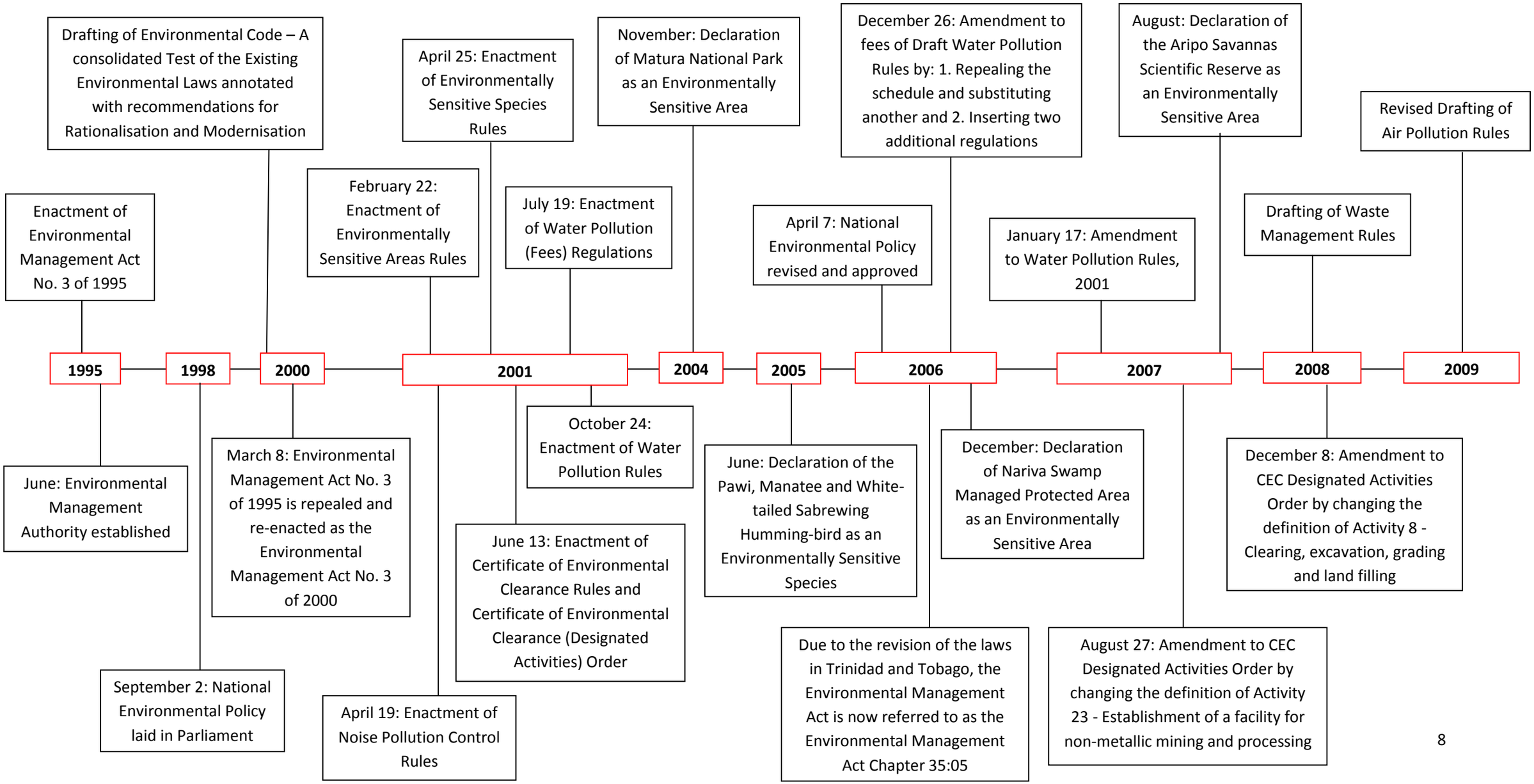
The EM Act would usher in a new era of environmental management in T&T by providing a holistic framework for environmental management. It mandated the formation of: (i) the EMA to, among other things, coordinate the plethora of stakeholders and environmental initiatives of the country, (ii) the environmental trust fund to fund the operations of the EMA, and (iii) the environmental commission to expediently and exclusively address legalities around environmental issues. It called for the modernization and reconciliation of older legislation through the formation of a draft environmental code[24]; provisioned for the use of voluntary and market-based instruments; and contained unparalleled penalties for non-compliance[25]. However, perhaps the greatest legacy of the EM Act might be the directive to create subsidiary legislation (rules) to manage the air, water, land and biological resources of T&T.

The rules, mandated under Part V of the EM Act, serve as performance standards and as such are a 'command and control' type EPI. To date, the EMA has enacted five subsidiary rules and expects that two more, which exist as drafts, would be implemented in the near future.

Subsequent chapters of this ASOE report provides further detail into the EM Act and its subsidiary legislation. Figure 3 shows the evolution of T&T's EPIs since the creation of the EM Act in 1995.

[22] Environmental Management Authority. (2007). *Annual State of the Environment Report.* Port of Spain: EMA.
[23] **NB** Following revisions to this Act in 2006, it is now referred to as *the Environmental Management Act Chapter 35:05 (EM ACT Chap. 35:05)*.
[24] **NB** Copies of the draft environmental code are available for purchase at the EMA's head office in Port of Spain.
[25] The EM Act Chap. 35:05 can be found at the EMA's website: http://www.ema.co.tt/docs/legal/cur/Act_3_of_2000.pdf

Figure 3 - A Timeline of Environmental Legislation since the Enactment of the Environmental Management Act in 1995



2.0 ENVIRONMENTAL MANAGEMENT ACT

2.1 Overview

In 1995, the *Environmental Management Act No. 3 of 1995* was established to set rules and guidelines for the purpose of creating an effective environmental management system in T&T. This legal framework seeks to increase sustainable development in T&T through a balance of economic growth coupled with beneficial environmental practices. The Act of 1995 included the establishment of the Environmental Management Authority (EMA), an Environmental Trust Fund and the Environmental Commission[26]. This Act was repealed and re-enacted in 2000 with no amendments and was re-named the *Environmental Management Act No. 3 of 2000*. In 2006, all subsidiary legislations were consolidated and included in the Act. It is currently known as the *Environmental Management Act Chapter 35:05* (EM Act). According to Section 4 of the EM Act[27], its objectives are to:

(a) promote and encourage among all persons a better understanding and appreciation of the environment;
(b) encourage the integration of environmental concerns into private and public decisions;
(c) ensure the establishment of an integrated environmental management system in which the Authority, in consultation with other persons, determines priorities and facilitates coordination among governmental entities to effectively harmonise activities designed to protect, enhance and conserve the environment;
(d) develop and effectively implement written laws, policies and other programmes for and in relation to-
  (i) the conservation and wise use of the environment to provide adequately for meeting the needs of present and future generations and enhancing the quality of life
  (ii) the government's commitment to achieve economic growth in accordance with sound environmental practices
  (iii) the government's international obligations; and
(e) enhance the legal, regulatory and institutional framework for environmental management.

Currently, there are eight (8) enacted subsidiary legislations, including: Certificate of Environmental Clearance Rules 2001, Certificate of Environmental Clearance (Designated Activities) Order 2001, Certificate of Environmental Clearance (Fees and Charges) Regulations 2001, Noise Pollution Control Rules 2001, Water Pollution Rules 2001 (as amended), Water Pollution (Fees) Regulations 2001, Environmentally Sensitive Areas Rules 2001 and

[26] Environmental Management Act. (1995). Introduction.
[27] Environmental Management Act Chapter 35:05. (2000). Section 4 - Objects of the Act.

Environmentally Sensitive Species Rules 2001. There are draft versions of the Air Pollution Rules and Waste Management Rules which are soon to be enacted. Table 3 summarizes the date of enactment of each subsidiary legislation along with any amendments where applicable.

Table 3 - Table showing date of enactment and amendments of subsidiary legislations required by the Environmental Management Act Chapter 35:05.

Subsidiary Legislation	Applicable Section(s) of the EM Act	Date of Enactment	Date of Amendment (where applicable)
Environmentally Sensitive Species Rules, 2001	26 (e) and 41	25th April, 2001	Not applicable
Noise Pollution Control Rules, 2001	26(a)(b)(j)(k), 49, 51 and 81(5)(i)	19thApril, 2001	Not applicable
Environmentally Sensitive Areas Rules, 2001	26 (e) and 41	22nd February, 2001	Not applicable
Certificate of Environmental Clearance Rules, 2001 Certificate of Environmental Clearance (Designated Activities) Order, 2001 Certificate of Environmental Clearance (Fees and Charges) Regulations, 2001	26(h), 27, and 28	Rules and Designated Activities - 13th June, 2001 Fees and Charges - 24th May, 2001	Amendment to CEC Designated Activities Order on 27th August, 2007 and on 8th December, 2008
Water Pollution Rules, 2001 Water Pollution (Fees) Regulations, 2001	26, 48, 52, 53 and 54	Rules - 24th October, 2001 Fees - 19th July, 2001	Amendment to Fees on 26th December, 2006 Amendment to Rules on 17th January, 2007
(Draft) Air Pollution Rules, 2009	26(a), (b), (c), (d), (j), (k), (l), 27, 49, 50 and 51(1)	Pending	Not applicable
(Draft) Waste Management Rules, 2008	26, 27, 28, 55-58	Pending	Not applicable

Source: [Adapted from] EMA, 2007[28]

[28] Environmental Management Authority. (2007). Annual State of the Environment Report, 2007. Environmental Management Authority: Trinidad.

2.2 Environmental Management Authority

Through the requirements of the EM Act, the EMA was established in 1995. The EMA initiated its operations in June of 1995 and is mandated to write and enforce environmental laws and regulations required by the EM Act. This is in order to control and prevent pollution, to conserve natural resources and to raise awareness to the public about the nation's environmental issues[29]. In order to meet their objectives, the EMA constantly engages in collaborations with other governmental ministries, non-governmental organizations and community-based organizations. The general functions of the EMA as stated in Section 16 of the EM Act[30] are to:

(a) make recommendations for a National Environmental Policy;
(b) develop and implement policies and programmes for the effective management and wise use of the environment, consistent with the objects of the Act;
(c) co-ordinate environmental management functions performed by persons in T&T;
(d) make recommendations for the rationalisation of all governmental entities performing environmental functions;
(e) promote educational and public awareness programmes on the environment;
(f) develop and establish national environmental standards and criteria;
(g) monitor compliance with the standards criteria and programmes relating to the environment;
(h) take all appropriate action for the prevention and control of pollution and conservation of the environment;
(i) establish and co-ordinate institutional linkages locally, regionally and internationally;
(j) perform such other functions as are prescribed; and
(k) undertake anything incidental or conducive to the performance of any of the foregoing functions.

2.3 National Environmental Policy, 2006

To further accomplish the objectives of the EM Act, the EMA was also mandated to prepare a National Environmental Policy (NEP) which would aim at providing a "rational, practical and

[29] Environmental Management Authority Website. (February, 2001). History. Retrieved from http://www.ema.co.tt/new/index.php/about-us/history
[30] Environmental Management Act Chapter 35:05. (2000). Section 16 - General Functions of the Authority.

comprehensive framework for environmental management in T&T"[31]. The NEP was laid in parliament on April 7th 2006 and focused on the sustainable management of the environment. Through the rules of the EM Act, the NEP can be revised from time to time in order to keep up with the rapid and changing development occurring in T&T. The main objectives of the NEP are to:

a) *Prevent, reduce or where possible recycle all forms of pollution to ensure adequate protection of the environment and consequently the health and well-being of humans;*
b) *Conserve the vitality and diversity of the natural environment through the conservation of ecological systems and the biodiversity within;*
c) *Develop within the carrying capacity (the assimilative capacity of the environment) of the country through national physical development and planning; and the sustainable use of renewable resources and the conservation of non-renewable resources;*
d) *Change attitudes and practices of citizens with a view to reducing the polluting practices of the public;*
e) *Ensure that all industries install a certified Environmental Management System;*
f) *Empower stakeholders, including communities, to care for their own environments by providing opportunities to share in managing their local resources and the right to participate in decision-making; and*
g) *Promote the integration of the principles of environmental sustainable development into all national policies and programmes*[32].

In Annex 2 of the NEP, it is proposed that an annual report should be produced to measure the effectiveness of the NEP. The report is based on appropriate indicators that summarize the state of the environment, some topics include: protecting environmentally sensitive areas and species, land disturbed and restored, pollution prevention, energy conservation, air and water pollution self-monitoring programmes, and compliance with laws and regulations[33].

2.4 Subsidiary Legislation

2.4.1 Certificate of Environmental Clearance Rules, 2001

In 2001, the Certificate of Environmental Clearance (CEC) Rules were established in accordance with Sections 26(h) and 35 of the EM Act. The purpose of this subsidiary legislation is to reduce environmental impacts by requiring the holder of the CEC to implement measures to reduce and/or mitigate against the identified impacts, as well as comply with prescribed standards[34].

[31] National Environmental Policy. (2006). Foreword. Environmental Management Authority: Trinidad.
[32] National Environmental Policy. (1996). Goals, Objectives and Basic Principles, Chapter 2.
[33] National Environmental Policy. (2006). Annex 2. Environmental Quality and Performance Indicators.
[34] Environmental Management Act Chapter 35:05. (2000). Certificate of Environmental Clearance.

Further to this subsidiary legislation, the CEC (Designated Activities) Order, 2001 was made under Section 35(1) of the EM Act. It lists 44 Designated Activities for which a company and/or person must acquire a CEC before proceeding[35]. They are also required to pay a prescribed fee as stated in the Certificate of Environmental Clearance (Fees and Charges) Regulations.

2.4.2 Environmentally Sensitive Areas Rules, 2001 and Environmentally Sensitive Species Rules, 2001

The Environmentally Sensitive Areas (ESA) Rules and the Environmentally Sensitive Species (ESS) Rules were enacted in 2001 under sections 41, 42 and 43 of the EM Act. The ESA Rules seek to conserve areas housing threatened species and containing high amounts of biodiversity. The main objectives of the ESS Rules include the maintenance of species abundance and diversity as well as the preservation of the integrity of species' populations[36]. These areas and species are mainly determined through several survey studies and collaboration with stakeholders. Currently, the EMA has designated three ESAs in Trinidad and these include: Matura National Park, Aripo Savannas Strict Nature Reserve and the Nariva Swamp Managed Resource Protected Area. As of 2009, three species have been declared as environmentally sensitive, including: the Pawi (*Aburriapipile/Pipilepipile*), West Indian Manatee (*Trichechusmanatus*) and the White-tailed Sabrewing Hummingbird (*Campylopterusensipennis*).

2.4.3 Noise Pollution Control Rules, 2001

The EMA manages the negative impacts of noise through the Noise Pollution Control Rules, 2001 (NPCR). The NPCR was enacted in accordance with sections 26(a)(b)(j)(k), 49, 51 and 81(5)(i) of the EM Act. The NPCR lists three noise zones within T&T which include Industrial Areas, e.g. Point Lisas Industrial Estate; Environmentally Sensitive Areas, e.g. Nariva Swamp Managed Resource Protected Area; and the General Area, e.g. residential areas[37]. The NPCR sets guidelines and prescribed standards in the First Schedule for maximum permissible sound pressure levels within each zone[38]. Any person or facility which produces noise in excess of these prescribed levels is required to apply for a Noise Variation (VR). The EMA is also mandated to enforce compliance to these rules which is done through appropriate measurements stated in the NPCR's Schedules 2 and 3.

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[35] CEC (Designated Activities) Order. (2001). Retrieved from http://www.ema.co.tt/new/images/pdf/certificate_of_environmental_cleareance-designated%20activities-order.pdf
[36] Environmentally Sensitive Species Rules. (2001). Schedule 2. Guidelines for Environmentally Sensitive Species.
[37] The Noise Pollution Control Rules. (2001). Section 4 - Noise Zones.
[38] The Noise Pollution Control Rules. (2001). Retrieved from http://www.ema.co.tt/new/images/pdf/noise_pollution_control_rules_2001.pdf

2.4.4 Draft Waste Management Rules, 2008

In 2008, under Section 26 of the EM Act, the Waste Management Rules (WMR) were drafted. The WMR classifies materials which are potentially endangering to human health and to the environment as hazardous wastes. These include metal and metal-bearing wastes, wastes containing principally inorganic and/or organic constituents which may contain metals, and organic materials and wastes which may contain either inorganic or organic constituents[39]. The main purposes of these rules are to effectively manage hazardous waste through the registration of facilities that generate hazardous waste and to highlight management guidelines for the generating, handling and disposing of such waste. Once the WMR are enacted, all persons and facilities who generate hazardous waste must submit an application to be a Registered Generator. Further to the protection of those in contact with the hazardous waste, a person must also submit an application for a permit to handle such waste.

2.4.5 Draft Air Pollution Rules, 2009

In 2009, a draft version of the Air Pollution Rules was developed under sections 26(a), (b), (c), (d), (j), (k), 48, 49, 50 and 51(1) of the EM Act. The EMA plans to manage and control air pollutants through the development of prescribed maximum permissible levels of harmful substances. The draft rules lists particulates, non-metallic inorganic, metallic and organic pollutants paired with short-term and long-term maximum permissible levels[40]. There is also a permit to be acquired by facilities or persons which emit harmful substances into the atmosphere in excess of the prescribed levels. Information to be submitted to the EMA includes the environmental receptors within a 1 km radius of the facility, types of substances being emitted and details on stacks (where applicable). Air permits granted by the EMA are to be accompanied by regulations which would reduce negative impacts to the environment by reducing and monitoring air pollutants.

2.4.6 Water Pollution Rules, 2001 (as Amended)

The Water Pollution Rules (WPR) were established through Sections 26, 48, 52, 53 and 54 of the EM Act. The First Schedule of the WPR lists 20 substances/parameters, and defines the concentration, quantity or condition at which these are considered pollutants and harmful to both human health and natural environments. The list includes physico-chemical parameters,

[39] Draft Waste Management Rules. (2008). First Schedule, Hazardous Wastes, Part A. http://www.ema.co.tt/new/images/pdf/draft-waste-management-rules-2008.pdf
[40] Draft Air Pollution Rules. (2009). First Schedule, Maximum Permissible Levels for Ambient Air.

biological substances and solid wastes[41]. Any facility discharging harmful substances into water bodies outside of these levels must apply for a Source Registration Certificate[42]. They are also required to pay a prescribed fee as stated in the Schedule of the Water Pollution (Fees) Regulations[43]. The Second Schedule lists the water pollutants alongside permissible levels for inland surface water, coastal nearshore, marine offshore and environmentally sensitive areas and/or groundwater[44]. A person who releases a water pollutant listed in the Second Schedule of the WPR at levels outside of those permitted is required to apply for a Water Pollution Permit[45].

2.5 Compliance and Enforcement

The EM Act requires persons to comply with procedures for the registration of pollutant sources as well as procedures and standards linked to permits or licenses[46] for each subsidiary legislation, where applicable. The EMA can take action against a person if it is found that there is a violation of an environmental requirement, e.g. a person producing noise levels above the limits prescribed in the NPCR or a facility introducing pollutants above prescribed concentrations directly into a water body[47]. The action taken by the EMA includes a written notice of violation requesting modification to the activity as well as an invitation to the person to make representations concerning the matter[48]. If a person fails to make representations or is unable to resolve the matters served in the notice, then an Administrative Order (AO) is served to the violator. The AO mainly lists the details of the violation, directs the person to immediately cease and desist from the violation and requests to immediately remedy the environmental conditions and damages due to their violation[49].

2.6 Environmental Trust Fund

[41] Water Pollution Rules. (2001). Schedule 1 - Register of Water Pollutants.
[42] Water Pollution Rules. (2001). Section 7(1) - Registration Certificate.
[43] Water Pollution (Fees) Rules. (2001). Retrieved from http://www.ema.co.tt/new/images/pdf/water_pollution_fees_regulations_2001.pdf
[44] Water Pollution Rules. (2001). Schedule 2 - Permissible Levels.
[45] Water Pollution Rules. (2001). Section 8(1) - Requirements to apply for a permit.
[46] Environmental Management Act. (2000). Part VI, Compliance and Enforcement, Section 62 - Environmental Requirements.
[47] Environmental Management Act. (2000). Part VI, Compliance and Enforcement, Section 63 - Notice of Violation.
[48] Environmental Management Act. (2000). Part VI, Compliance and Enforcement, Section 63 - Notice of Violation.
[49] Environmental Management Act. (2000). Part VI, Compliance and Enforcement, Section 65 - Administrative Orders.

The Environmental Trust Fund was developed through the EM Act and is used to support the actions carried out by the EMA. According to the EM Act, the purposes of the fund include[50]:

(a) incentive measures for reducing environmental pollution, protecting the environment and conserving natural resources;
(b) demonstration projects of innovative technologies which reduce pollution, or which reduce or eliminate the use of hazardous substances or the generation of wastes;
(c) emergency response activities to address actual or potential threats to human health or the environment, including remediation or restoration of environmentally degraded sites, containment of any wastes, hazardous substances or other environmentally dangerous conditions, or other appropriate precautionary measures to prevent significant adverse effects on human health or the environment; and
(d) public awareness and education programmes to enhance the understanding of environmental protection and natural resources management issues within Trinidad and Tobago.

2.7 Environmental Commission

The Environmental Commission (EC) was established through Section 81(1) of the EM Act "for the purpose of exercising the jurisdiction conferred upon it by this Act or by any other written law"[51]. The EC is mandated to enforce the decisions and actions of the EMA or to hear and determine appeals made by persons who are opposed to the decisions and actions of the EMA. The EC's Mission Statement[52] states:

"The Environmental Commission shall, in a fair, accessible, effective, and efficient manner, resolve environmental disputes arising under the law and shall interpret and apply the law consistently, impartially, and independently to protect the rights of citizens while being cognizant of the need for the balancing of economic growth with environmentally sound practices."

[50] Environmental Management Act. (2000). Part VII, Environmental Trust Fund and Finances, Section 72 - Establishment of Purposes of the Fund.
[51] Environmental Management Act. (2000). Part VIII, Establishment and Jurisdiction of Environmental Commission, Section 81 (1) - Establishment and jurisdiction of Commission.
[52] Environmental Commission. (2000). Mission Statement. Retrieved from http://www.ttenvironmentalcommission.org/vis_mis.htm

3.0 CERTIFICATE OF ENVIRONMENTAL CLEARANCE RULES

3.1 Overview

In June 2001, the Environmental Management Authority (EMA) established:

i. The Certificate of Environmental Clearance Rules (henceforth referred to as the "*CEC Rules, 2001*") under section 26(h) and after compliance with sections 27 and 28 of the EM Act
ii. The *CEC Rules (Designated Activities) Order, 2001*, under section 35(1) of the EM Act.

The *CEC Rules, 2001*, aim at regulating proposed development projects in T&T by requiring that developers obtain a Certificate of Environmental Clearance (CEC) before commencing works[53] on any of the 44 designated activities described in the *CEC Rules (Designated Activities) Order, 2001 (as amended).* A CEC is a permit issued by the EMA that sanctions proposed projects as long as they adhere to stipulated conditions during each phase of the project's lifecycle, including: establishment, expansion, operation, decommissioning or abandonment. The failure to attain a CEC and/or comply with the conditions set within it constitutes a breach of law and offenders may be penalized in accordance with the EM Act.

Box 2 - Themes of Designated Activities (DAs)

The National Environmental Policy (NEP) (*See Section 2.3*) classifies these 44 designated activities into 17 broad themes:

1. Agriculture/horticulture
2. Electricity generation, transmission and distribution
3. Engineering operations
4. Food and beverage industry
5. Heavy manufacturing industries
6. Light manufacturing industries
7. Metal smelting and reforming
8. Mineral mining and processing
9. Oil and gas exploitation
10. Telecommunications
11. Tourism and recreational development
12. Transport system infrastructure
13. Waste management
14. Water and sewage systems
15. Storage and warehousing
16. Other service-oriented activities
17. Land reclamation

The specific conditions outlined within a CEC, informed by both international best practice and other subsidiary legislation of the EM Act, address many environmental aspects[54]of the project that may have negative consequences to humans and the environment. The *CEC Rules, 2001* thus possess an all-encompassing quality: the potential to tackle environmental issues/problems also covered by other subsidiary legislation (*viz. water pollution, noise pollution,* air *pollution, etc.*) and international conventions. Considering as well

[53] Only minor works that are required to investigate the site are permitted in the absence of a CEC determination from the EMA.
[54] Environmental aspects are defined as "*any element of an organization's activities or products or services that can interact with the environment*" by ISO 14001:2004 (http://www.iso14001requirements.com/what-is-environmental-aspects-and-impacts).

the breadth of designated activities covered, the *CEC Rules, 2001*are the most far-reaching and 'cross-cutting' legislative tool currently available to the EMA for safeguarding the environment.

The CEC Rules, 2001 also outline a flexible and interactive framework for issuing CECs to applicants known as the "CEC process". This process consists of several phases and deadlines within which actions must be taken by the applicant, the EMA, and other stakeholders before a CEC determination is made. Key phases and their respective deadlines are presented in Table 4. The complete process is illustrated in Figure 4.

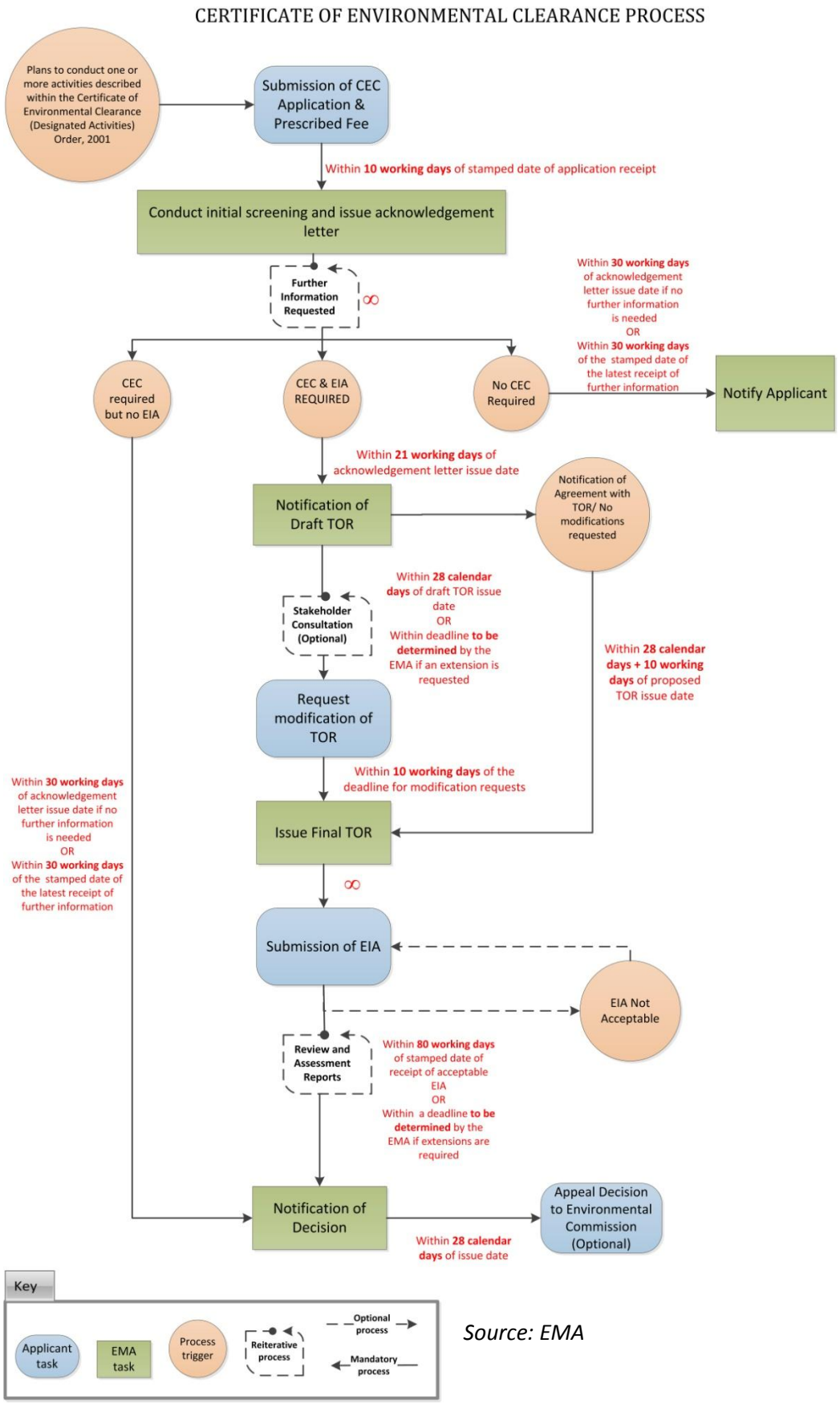
Table 4 - A table describing the 6 major statutory deadlines within the CEC Process

Phase of CEC Process	Description	Timeline
Screening and Acknowledgement	This is a review of all applicant submitted material, inclusive of a site visit where applicable, and the determination as to whether: a) A CEC is not required b) A CEC (and possibly further information) is required but no EIA c) A CEC (and possibly Further Information) and an EIA is required	Within 10 working days from the stamped received date by the EMA.
Notification of Decision (CEC but no EIA required)	This is a notification to the applicant as to whether their CEC has been granted or denied.	Within 30 working days from the dispatch date of the acknowledgement letter if further information is not required. **OR** Within 30 working days from the stamped received date of the latest further information response provided to the EMA (having determined that all outstanding items have been properly addressed and no additional information is required to make a decision).
Notification of Proposed TOR (CEC and EIA required)	This refers to the development of a proposed TOR for the completion of an EIA.	Within 21 working days from the dispatch date of the acknowledgement letter (where no further information is required). **OR** Within 21 working days from the dispatch date of the determination letter (where further information is required).

Phase of CEC Process	Description	Timeline
Request for Modification of TOR	This refers to the submission of a request to modify the TOR based on comments made from stakeholders other than the applicant and the EMA	Within 28 calendar days of the issue date of the Draft TOR
Issue of Final TOR	This refers to the issuance of the final TOR to the applicant	Within 10 working days after 28 calendar days following the issued date of the Draft TOR.
Notification of Decision (EIA Required)	This is a notification to the applicant as to whether their CEC has been granted or denied.	Within 80 working days from the date of receipt of all copies of the EIA report as stipulated within the TOR.

Source: CEC Rules, 2001

Figure 4 - A schematic diagram illustrating the CEC process



Source: EMA

Due to the collaborative nature of the CEC process, timely determinations depend upon the timely cooperation and contributions of all stakeholders involved. This applies especially to the applicant who, unlike the EMA, has very few temporal deadlines imposed upon them by the *CEC Rules, 2001*. For instance, there is no legally prescribed time limit for an applicant to provide further information requested by the EMA to supplement an application; however, the CEC process is halted until this information is received. Further to that, in support of sustainable development, the EMA presently opts not to deny applications on the basis of belated submissions. As such, case files may remain open for multiple years before a determination is made.

3.1.1 Initial Application

If a person or company is about to embark on one or more activities outlined in the *CEC Rules (Designated Activities) Order, 2001,* they are required to provide to the EMA a range of information in accordance with Section 3(5) of the *CEC Rules, 2001*. Required information includes, but is not limited to:

- The purpose and objective of the activity;
- The description of the site and areas possibly affected by the activity (including physical, biological and social environment);
- The size and scale of the activity;
- The description of the activity (including scope of works);
- The duration and schedule of activity;
- Maps, plans, and other necessary supplementary materials that would aid understanding the nature of the site and the potential impacts of the project.

Under Section 3(7) of the *CEC Rules, 2001* applicants may request that certain documents be withheld from the national Register on the basis of being a trade secret or confidential business information. This option is made available to the applicant since the Register is a public library open to inspection by anyone. The decision to omit information from the Register is solely at the discretion of the EMA.

In addition, applicants are also required to pay the prescribed application fee of TT$500.00[55] in accordance with section 3(1) of the *CEC Rules, 2001*.

[55] This value is set in Section 3 of the *CEC (Fees and Charges) Regulations, 2001*. This can be found: http://www.ema.co.tt/new/images/pdf/certificate_of_environmental_clearance_fees.pdf

3.1.2 Screening and Acknowledgement

When an application is received, it is assigned to a technical processing officer after administrative staff vets the package to ensure all required documents are provided. The technical officer (TO) is then responsible for screening the provided documents to ensure the application is properly categorized under the most appropriate DA. For example, applicants requesting modifications to gas stations often mistakenly submit applications under DA 29 (Establishment of infrastructure for the storage of petroleum or liquid petroleum gas or their derivatives) rather than DA 43(a). Though this may seem like semantic triviality, proper classification of applications is important for gathering proper statistics on the development and the state of the environment of T&T. More importantly, the processing officer determines which determination pathway the application should go and communicates this to the applicant. The possible determination pathways available are:

1. No CEC is required;
2. A CEC is required (but no EIA required); or
3. A CEC and EIA are required.

3.1.3 CEC Determination Pathways and Determinations

To make an informed determination, the processing officer may sometimes need information in addition to what was originally received. This is attained through correspondences with the applicant and/or site visits. Further information may not be needed in all cases but when they are, may significantly delay the processing time of an application based on the nature of the information requested.

Not every application received by the EMA requires a CEC. This may be because:

I. Thresholds within, and amendments to, the *CEC Rules (Designated Activities) Order, 2001* may exclude certain projects from requiring a CEC. For example, applicants who are unaware of the 2007 and 2008 amendments to DA 23, which excludes quarrying activities less than 150 acres from needing a CEC, may still apply for one.

II. The proposed activity does not fall into the scope of any designated activity. A common offender of this type is an application for the "subdivision of land (without physical work being done)" which is erroneously thought to be captured under DA 8 (clearing, grading, excavation and filling of land).

In cases such as the aforementioned, a determination letter notifying the applicant that a CEC is not required and the reasons why, would be issued with the acknowledgement letter or within 30 working days of the last further information received (where further information is required) in accordance with section 6(1)(a) of the *CEC Rules, 2001*.

Box 3 - Amendments to the *CEC Rules, 2001*

To date, the *CEC Rules, 2001*, have undergone 2 amendments:

1. Certificate of Environmental Clearance (Designated Activities) (Amendment) Order, 2007
   Formalized on August 27th, 2007, the quantifier "*of areas of one hundred and fifty acres or more*" was added to the definition of DA 23 (Establishment of a facility for non-metallic mining and processing). This change reduces the reach of the *CEC Rules, 2001* to manage the quarrying sector as many would-be projects (quarries under 150 acres) are CEC exempt.

2. Certificate of Environmental Clearance (Designated Activities) (Amendment) Order, 2008
   Formalized on December 8th, 2008, the definition of DA 8 was substituted with:
   "*Except for the purposes of mining, processing, or storage of clay, andesite, prorcellanite, limestone, oil sand, sand(s), gravel or other non-metallic minerals in respect of an area less than one hundred and fifty acres –*
   a. *The clearing, excavation, grading or land filling of an area of more than two hectares during a two year period;*
   b. *The clearing of more than half a hectare of forested area during a two-year period; or*
   c. *The clearing, excavation, grading or land filling of any area with a gradient of 1:4 of more.*"

   This change prevents quarrying operations from being managed by DA 8(Clearing, grading, excavation and filling of land).

When a CEC is required, the EMA must decide on whether or not an EIA must be done before a determination is made. The United Nations Environment Programme (UNEP) defines an EIA as "*a procedure that identifies, describes, and develops means of mitigating potential impacts of a proposed activity on the environment*"[56]. EIAs are quite costly and involve in depth socio-economic and environmental studies that can delay a project for months, if not years. As such, the decision to request an EIA is not made lightly. Rather, the decision depends on the level of danger to the environment associated with the **nature, scale and location** of the project. For instance, the grading of land in preparation for a single-story house in a residential area away from sensitive receptors would not require an EIA, whereas the establishment of a 50 acre landfill in close proximity to a productive wetland would.

[56] United Nations Environment Programme. (2008). *Desalination: Resource and Guidance Manual for Environmental Impact Assessments.* Manama: UNEP. Retrieved from: http://www.unep.org/Themes/Freshwater/PDF/Resource&GuidanceManualforEIAs.pdf

Box 4 - EIAs in the context of the CEC process

The EIA is a critical tool within the *CEC Rules, 2001* for safeguarding the environment of T&T. The steps taken to craft and submit an acceptable EIA within the CEC process can be considered the "EIA sub-process". The EIA sub-process aims at achieving several objectives within the CEC process, namely:

I. To reach a common understanding and application of the principles and application of an EIA;
II. To improve the EIA process so that its scope of review is consistent with the nature of the proposal and commensurate with the likely issues and impacts;
III. To promote public awareness and to provide and facilitate opportunities for the public's involvement;
IV. To avoid duplication where multiple jurisdictions are involved; and
V. To identify and apportion responsibilities for participants in the EIA process.

Firstly, a Terms of Reference (TOR) is proposed by the EMA to the applicant who in turn may solicit public comments for its improvement. Once the TOR is finalized, the applicant may take as long as necessary to conduct the EIA and submit the report to the EMA. Upon receipt of an EIA report, the EMA conducts a preliminary screening to determine if the report is acceptable for further review. If it is not, it is returned to the applicant for improvement. If it is, digital and physical copies of the EIA report are provided in accordance with the requirements of the TOR for distribution among stakeholders that form part of the EIA review team and posting for public comment. The stakeholder review team usually comprises of individuals from government ministries, non-governmental organizations and government agencies. This includes but is not limited to:

- Town and Country Planning Division (TCPD)
- Maritime Services Division
- Occupational Safety and Health Agency (OSHA)
- Ministry of Works and Transport (MOWT)
- Ministry of Energy and Energy Industries (MOEEI)
- Council of Presidents for the Environment （COPE）
- Fisheries Division
- Institute of Marine Affairs (IMA)
- Regional Corporations
- Fire Services Division
- The Archaeological Committee
- Wild Fowl Trust

Where the EMA lacks the expertise in-house to review special subject areas within an EIA, the services of specialist private consultants are retained.

Comments generated from the stakeholder review team and the public are compiled, screened for relevance and compose the Review and Assessment Report (RAR). Comments within the RAR adhere to the following typology:

1. Critical – Must be addressed to the satisfaction of the EMA and provides information for the CEC determination;
2. Supplementary – Must be addressed if the EIA report is to be deemed 'complete' but does not affect the CEC determination;
3. General/Deficiencies – Included for the benefit of the applicant and contains comments of note from the review team.

Applicant responses to the RAR are reviewed by the EMA, stakeholder review team and sometimes the wider public (where significant modifications/updates to the EIA are required). If the responses are insufficient, another RAR is generated and this cycle repeats until all outstanding issues are addressed. Given this reiterative nature of the RAR process, a determination within 80 working days (mandated by section 6(1)(b) of the *CEC Rules, 2001*) is sometimes unachievable, and extensions are made in accordance with section 6(2) of the *CEC Rules, 2001*.

Applications that require a CEC (inclusive of their associated further information requested or EIA report received) are judged based on project qualities which include but are not limited to:

- The production and disposal of solid waste;
- The likelihood of exacerbating natural disasters *viz.* flooding and landslides;
- The potential effect of noise on the surrounding receptors *viz.* biodiversity and people;
- The potential effect on surrounding coastal, marine, surface and ground water;
- The potential effect of dust and fumes on the surrounding receptors;
- The potential effect on biodiversity, ecosystems and ecosystem services;
- The potential effect on infrastructure and services *viz.* buildings, potable water, roads, and electricity generation;
- The potential for adverse effects to be mitigated and/or minimized.

While it is clear that EMA considers many factors before making a determination on an application, it should be noted that under the *CEC Rules, 2001* the EMA may only consider environmental parameters in the determination of a CEC. Factors outside of the purview of the EMA for making a determination include:

- Possible impacts to the culture and structure of surrounding communities;
- Possible health and safety concerns of persons working on the project during construction and operation;
- Present or future zoning status of the land upon which projects may occur;
- Present or future economic and energetic sustainability of the project;

If a project poses too great of a threat to public health and/or the environment with respect to the aforementioned parameters considered, the CEC application is refused. For projects that have an acceptable environmental impact with mitigation measures applied, the CEC is issued. However, not all CECs are created equally. Every application has its own unique circumstances, conditions and issues which need to be considered and thus a 'cookie-cutter' approach cannot be taken. For instance, the CEC for the modification of an automotive repair garage differs from that of conducting works related to the exploration of crude oil or natural gas offshore. There may even be great variation within themes: The CEC for establishing a 4 hectare fruit farm would contain very different requirements than that of a 40 hectare rice farm.

A notice of refusal/issued is drafted within 30 working days of the last further information received or the date of issuance of the acknowledgement or within 80 working days of the date of receipt of an acceptable EIA unless an extension is granted in accordance with sections 6(1)(a) and 6(1)(b) of the *CEC Rules, 2001*. Within 28 calendar days of receiving a notice of refusal, applicants may appeal the EMA's decision to the Environmental Commission.

When a CEC is issued, works associated with the project must commence within 3 years or else it becomes void and a new CEC would be required. Once works begin, both the EMA and the applicant have shared responsibility over the monitoring and regulating activities to ensure compliance with the conditions within the CEC. The failure to adhere to conditions constitutes a breach of environmental requirement (Section 62(g) of the EM ACT) and the EMA's legal enforcement process is triggered (See Section 7 of this report).

3.2 The State of the Environment through the CEC Rules

As noted previously, the CEC Rules hope to manage the environmental impact of proposed developmental activities. Thus, the type and number of CECs issued over the past 9 years paint vivid pictures of how the physical environment of T&T has changed and how it will change in years to come. Proper interpretation of CEC data is predicated on:

i. An understanding of the economic context and the development goals of the time period under scrutiny;
ii. An understanding of the changes and amendments of the CEC Rules during the period under scrutiny;
iii. An understanding that the CEC process does not respect discrete annual intervals (that is, the process permits, and in some cases demands that, applications received within a given year be resolved in years following.)

The latter understanding is especially critical. A number of factors may prohibit a CEC application received in a given year from being determined[57] within that year including, but not limited to: the time of year the application is received, the complexity of the application, the determination pathway the application takes and the responsiveness of applicants to requests for information. A key implication of applications 'rolling over' to succeeding years is that the number of 'open' case files to process in a year, includes applications received in a given year, as well as unresolved applications from previous years. It is theoretically possible, therefore, for the EMA to make more determinations than applications received in a given year. It is also within reason to expect that the CEC statistics creates a perception of increasing inefficiency by the EMA to process applications due to continuously increasing backlogs encouraged by the open-ended nature of the CEC process.

Notwithstanding the ticklish nature of interpreting the statistics on determinations made, the number of applications received within a given year aligns well with economic and policy changes. Over the period 2000 – 2008, T&T's economy experienced an average growth rate of

[57] A 'determination' includes granting or refusing a CEC as well as notifying applicants that no CEC is required.

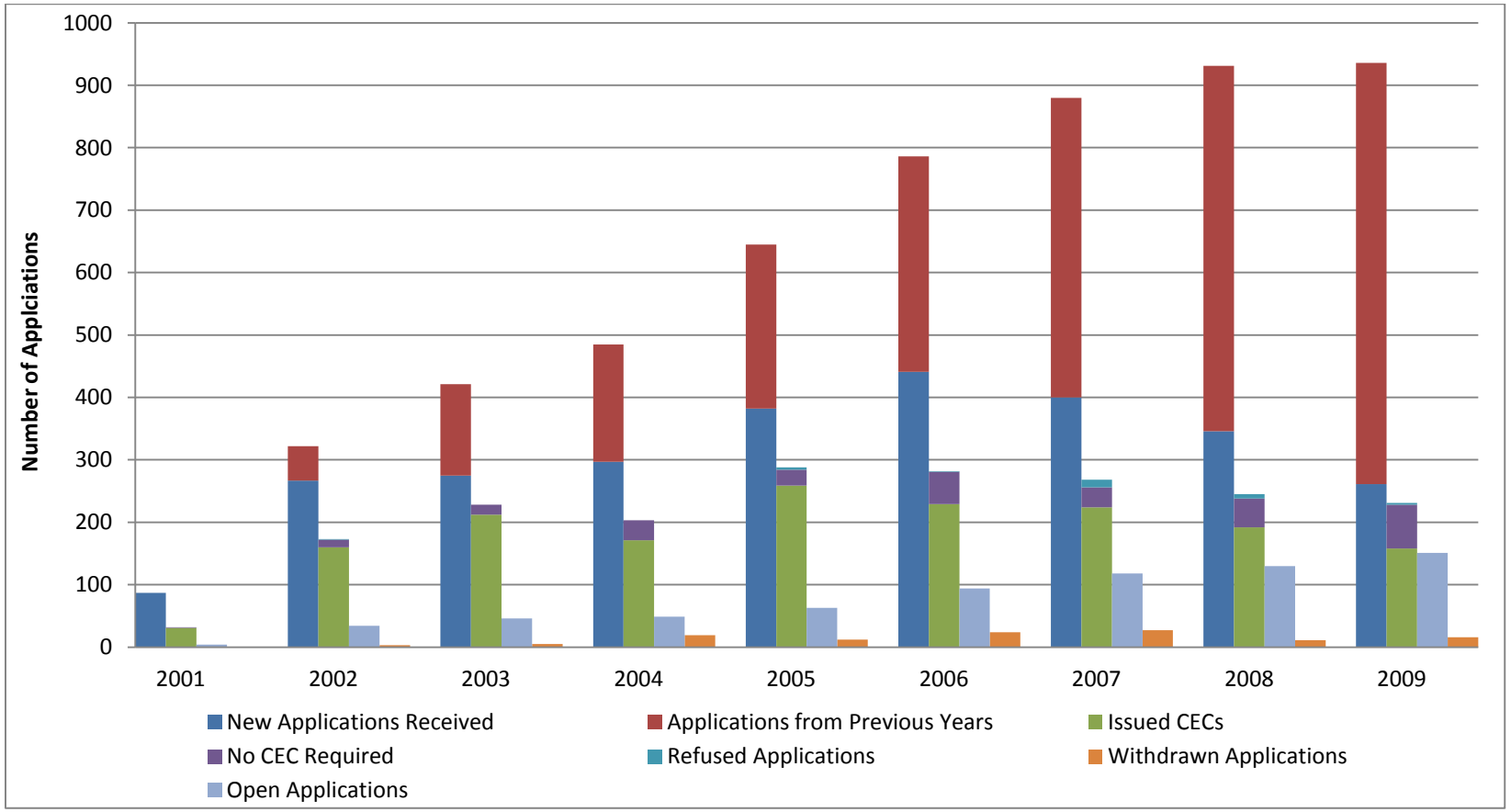
about 4% spurred on by a boom in oil and gas exploitation and infrastructural development projects[58,59]. Preliminary data for 2009 suggest that after 15 years of continuous growth, our local economy will begin experiencing deceleration as a consequence of the international economic recession which began unfolding in 2007[60]. With the exception of the energy sector, contractions have been observed in all sectors, especially in the service-oriented, construction and quarrying sectors[61]. Figure 5 shows the changes in annual CEC applications received and processed over the period 2001 – 2009.

Quarrying applications also saw a marked decrease due to amendments made in 2007 and 2008 to the CEC Rules. These amendments also served to remove the glut of undetermined applications since the majority of those applications were determined as not requiring a CEC, as shown in Figure 6. Though no quarrying applications were received in 2009, it would be remiss to assume no quarrying activity has begun since 2008. Rather, in time to come, the EMA may have the challenge of retroactively managing undocumented quarries currently being established and operated[62]. Figure 7 shows the known locations of quarries registered between 2001 and 2006. Assuming that unregistered quarries would occur in areas near to existing quarries to exploit the same in-demand geological formations, it can be inferred that the environment in the north-eastern area of Trinidad is being impacted to an unknown degree.

Quarrying is only one of several designated activities that significantly change the landscape of the project area. Many projects require land to be cleared and/or graded for the establishment of facilities or to aid resource extraction. Such projects would be classified, at least in part, as DA 8. Figure 8 shows the number of applications involving the clearing of land (change from vegetative cover to otherwise) received over the period 2001 – 2009. The growing number of applications to yet be determined indicates that significant land use change is still to come. Figure 9 shows us the spatial distribution of applications requiring the clearing of land made in 2009. Though this map does not show us the extent (area) of land use change, it gives us a clear idea of where changes are being proposed most frequently. Unsurprisingly, development is focused around major cities and highways; excluding only large areas on the eastern halves of T&T. This observation is corroborated by Figure 9 that shows the location of all projects for which CEC applications were received in 2009.

[58] Environmental Management Authority. (2007). *Annual State of the Environment Report.* Port of Spain: EMA.
[59] Government of Trinidad and Tobago. (2009). *Review of the Economy 2009.* Port of Spain.
[60] Government of Trinidad and Tobago. (2009). *Review of the Economy 2009.* Port of Spain.
[61] Government of Trinidad and Tobago. (2009). *Review of the Economy 2009.* Port of Spain.
[62] After the amendments to the CEC rules removed Quarrying of a particular scale from the remit of the EMA, the Ministry of Energy absorbed responsibility of monitoring and managing quarries via quarry mining licenses rather than via a CEC. Consequently, the EMA no longer received notification as to the establishment of quarries. In addition, as enforcement has, and continues to be, a challenge it is likely that undocumented quarries have also been established as well.

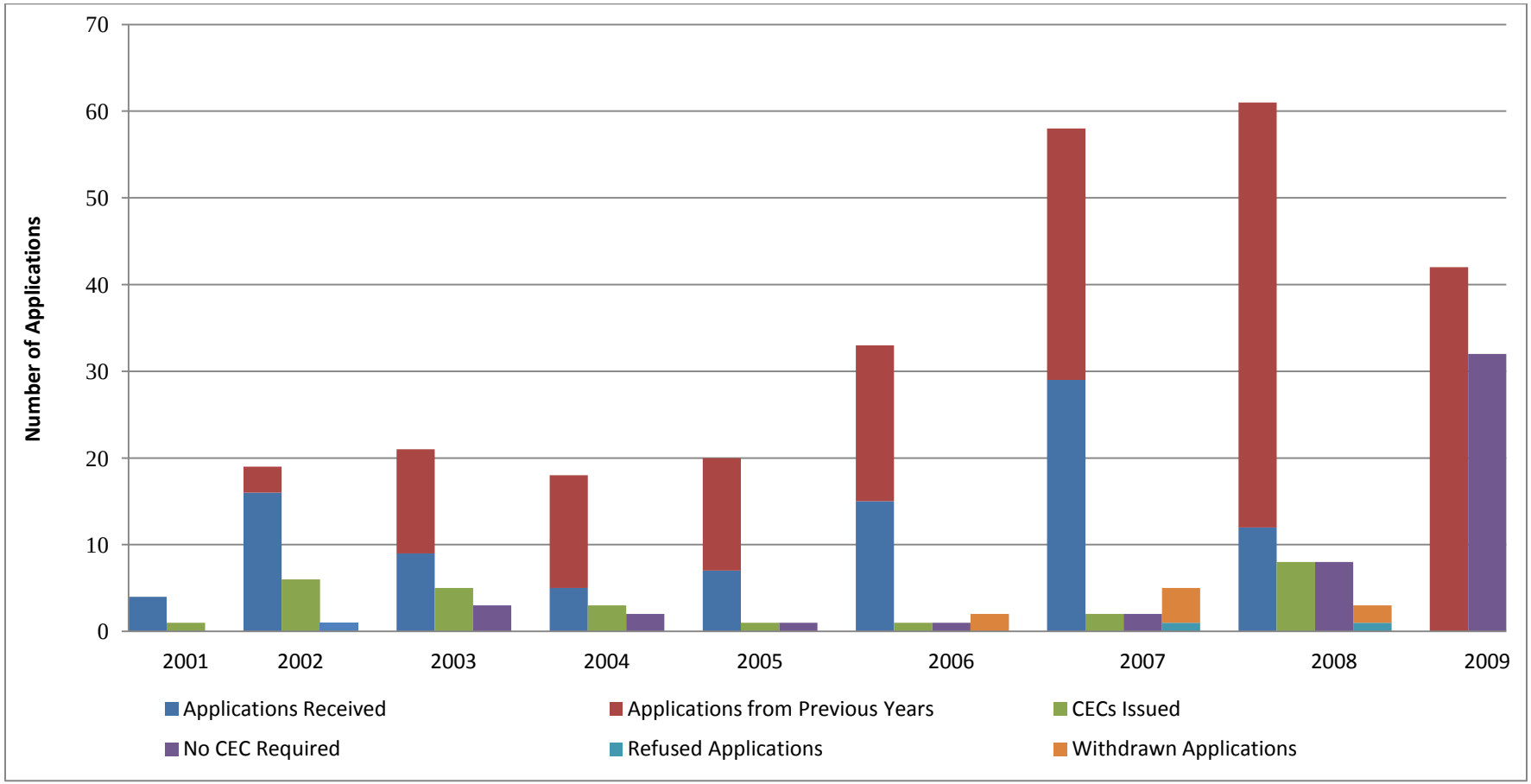
Figure 5 - A graph showing the number of applications received, determined, withdrawn and left open each year over the period 2001 – 2009



The graph above shows that since 2001 the number of new applications for CECs steadily increased until 2006 after which the number gradually declined. The graph shows that the number of applications determined[63] *followed a similar trend. It can be seen that the number of applications that roll over into the following year(s) and the number of new applications that remain open at the end of a given year has steadily increased since 2001.*

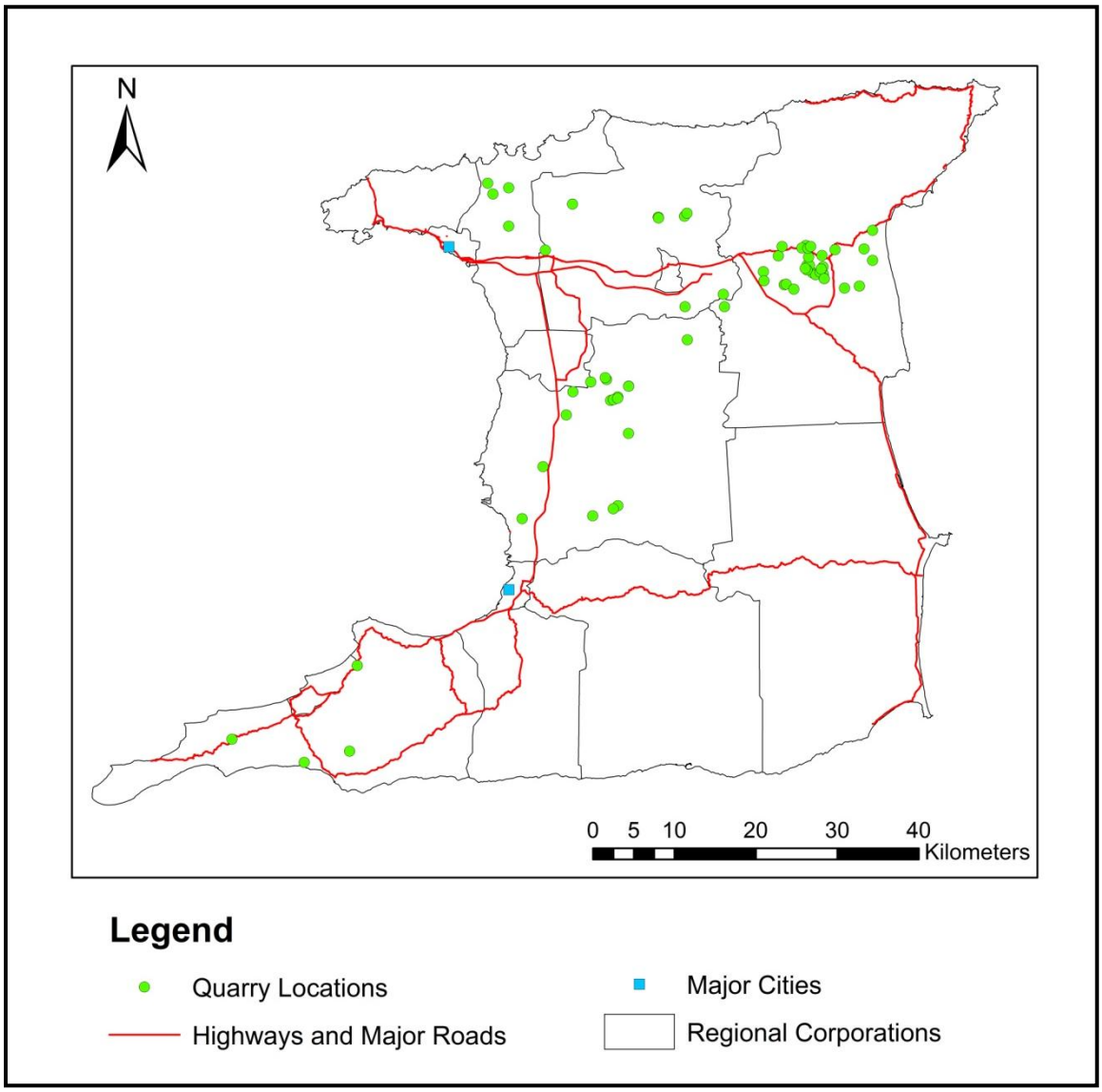
[63] A CEC application is considered 'determined' when the applicant is notified that 'No CEC required' or if the CEC has been issued or refused.

Figure 6 - A graph showing the number of quarrying applications received, determined, withdrawn and left open each year over the period 2001 to 2009



The graph above shows that since 2001, the number of 'undetermined' CEC applications gradually increased over time due to pending further information or the completion of an EIA. It also shows that from 2006 the number of applications withdrawn or not requiring a CEC began increasing, and peaking in 2009 when a majority of outstanding applications were determined to not require a CEC. The year 2009 was the first and only year to not receive a new application classified as DA 23 (extraction of non-metallic minerals).

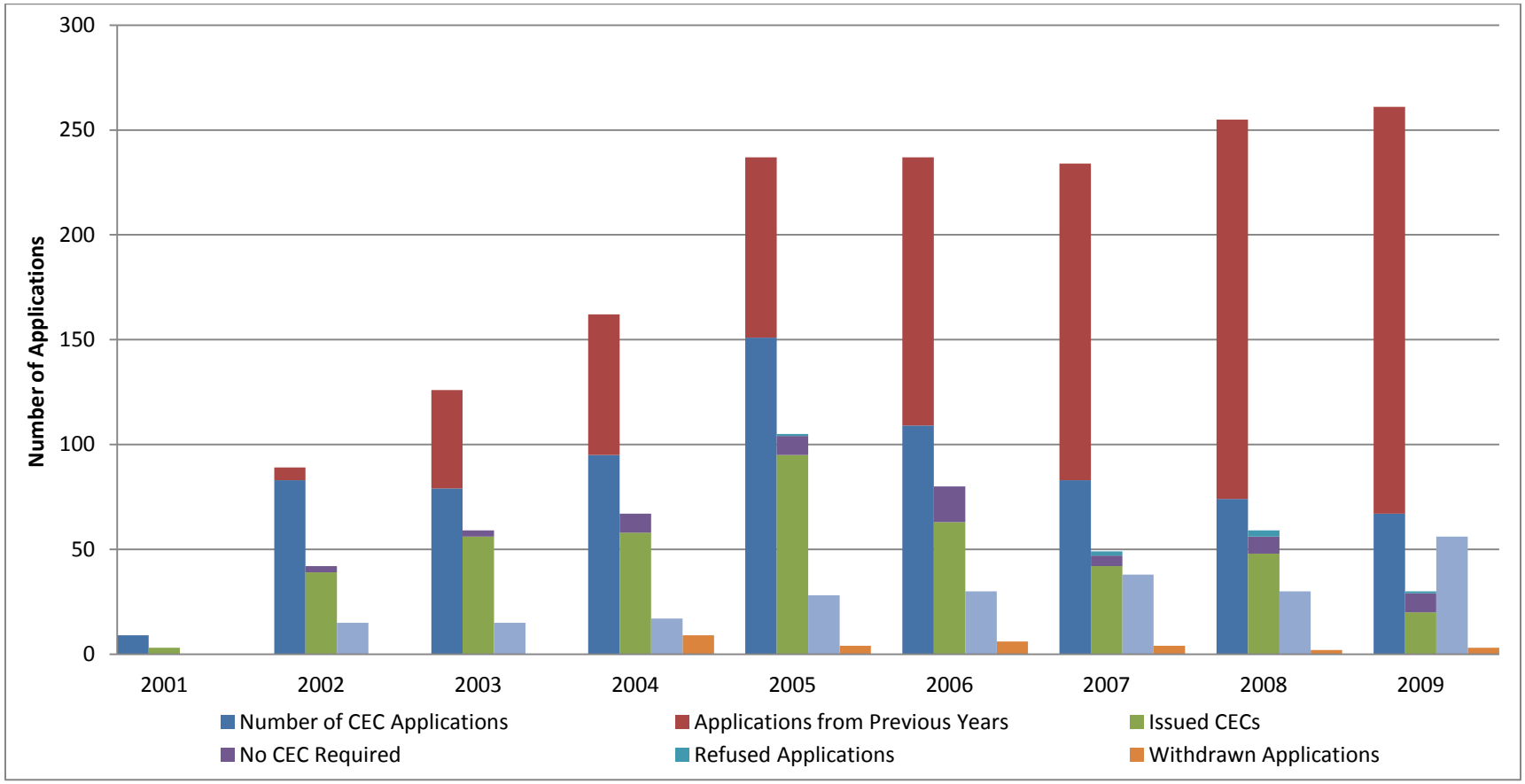
Figure 7 - A map showing the location of quarries with issued CECs over the period of 2001 – 2008



Source: EMA

The map above shows that over the period of 2001 – 2008, registered quarries have clustered mostly in the north-eastern part of Trinidad; in Valencia (Sangre Grande regional corporation). A number of quarries exist in the mid-western part of Trinidad though they aren't as densely grouped as the quarries in the north east. A few isolated quarries exist in the south-western peninsula and in the middle and western parts of the Northern Range.

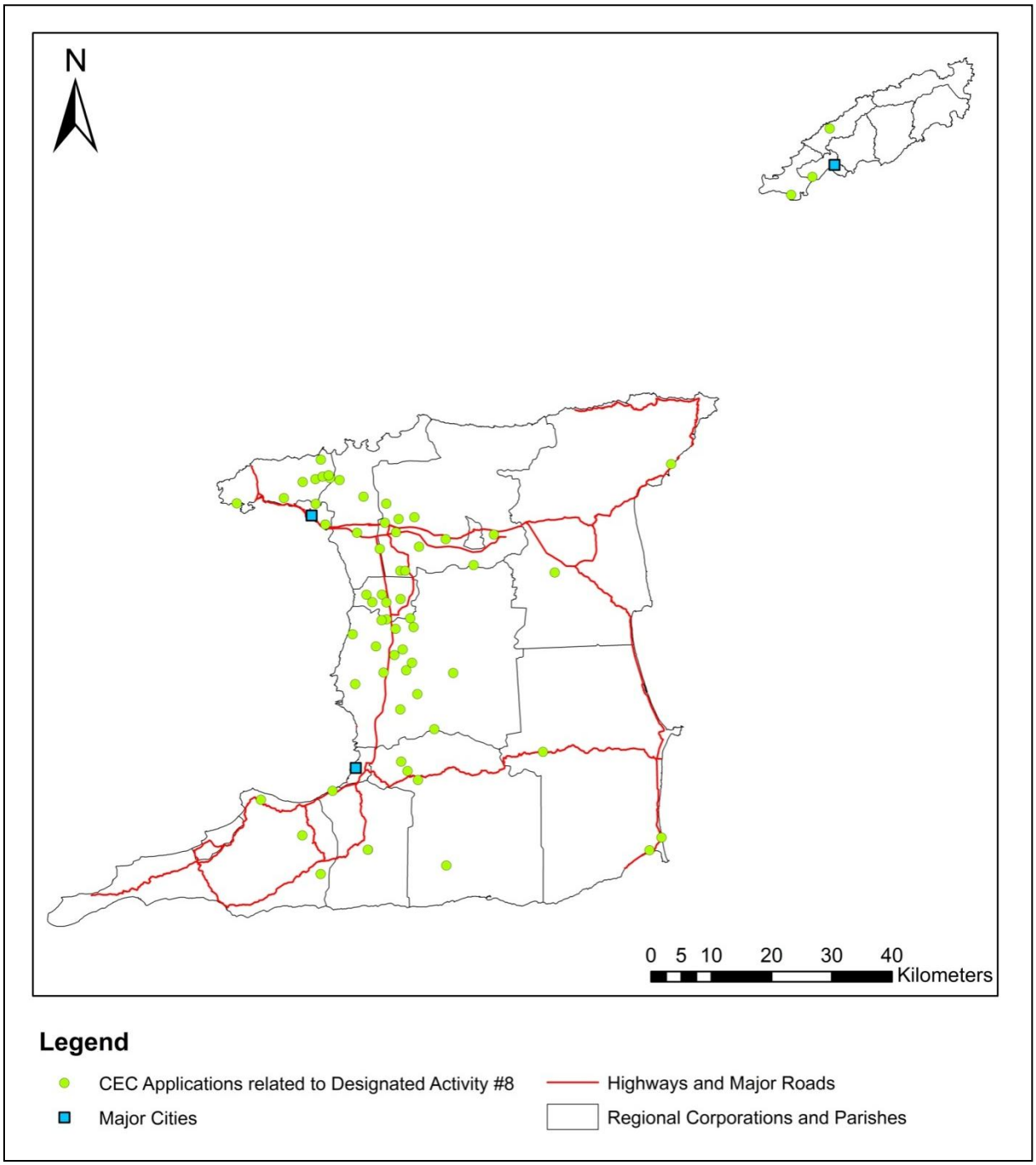
Figure 8 - A graph showing the number of land clearing (DA 8) applications received, determined, withdrawn and left opened each year over the period of 2001 – 2009



The graph above shows that between 2001 to 2005, the number of applications classified, at least in part, as DA 8, gradually increased, after which it steadily declined. The graph shows that since 2001, there has been a steady increase in the number of DA 8 related applications for which no determination[64] has yet been made.

[64] A CEC application is considered 'determined' when the applicant is notified that 'no CEC required' or if the CEC has been issued or refused.

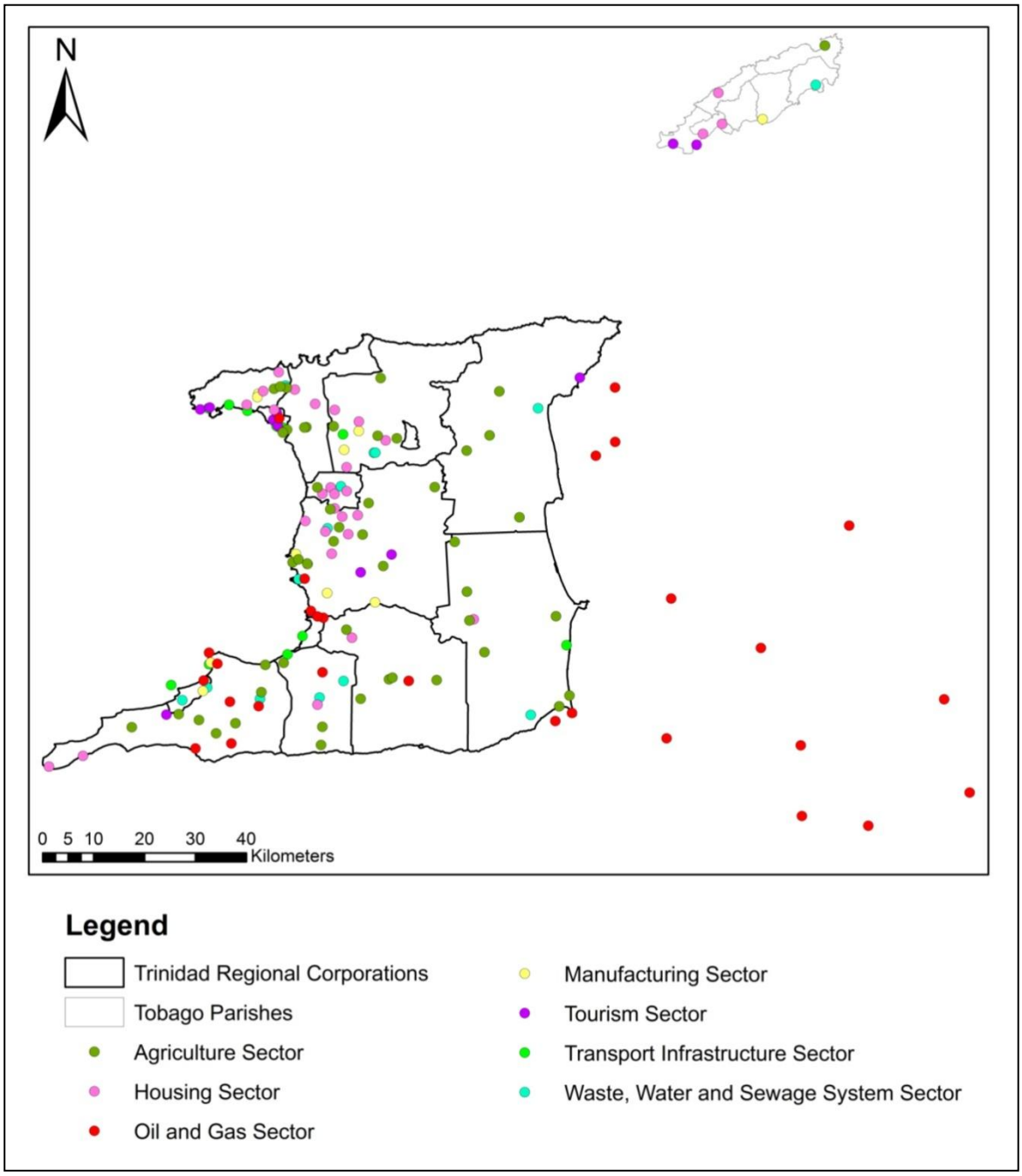
Figure 9 - A map showing the locations of applications received in 2009 which were categorised, at least in part, as land clearing (DA 8)



Source: EMA

The map above shows that most development activity that requires the clearing of land is done on the western halves of both T&T. It shows that development in Trinidad and Tobago is centred on major cities and highways.

Figure 10 - A map showing the geographic distribution of CEC applications received in 2009, categorized by sector



Source: EMA

Overall, the analysis of the State of the Environment through the lens of the *CEC Rules, 2001* shows that registered development is focused on the Western sides of T&T. The logical implication of this is that these areas will experience increased environmental stress merely due to the cumulative impact of the multitude of projects despite mitigation obligations being prescribed for each CEC.

Anecdotal evidence from environmental practitioners, EMA staff, and development authorities suggest that public awareness of the CEC Rules is heightened in the oil and gas, agricultural, land clearing, coastal and automotive sectors. This is due in part to close collaborations with those sectors and in part to continued outreach programmes such as the EMA's Compliance Assistance Programme (CAP) instigated this year. As such, it is reasonable to believe that registered development closely mirrors and represents the majority of development occurring in Trinidad and Tobago.

However, the *actual* environmental impact cannot be gleaned from CEC data alone. Rather, CEC data tells us where most pressure is being experienced and suggests how much more is to come. The example drawn in this report is that of DA 8 which focuses on the clearing of land for development. In 2009 most CEC applications classified, at least in part, as DA 8 occurred on the Western half of T&T. As of 2009, there were some 150 applications classified, at least in part, as DA 8 awaiting final determination – forecasting further land use changes in upcoming years. The removal of vegetation for the establishment of infrastructure may have several implications on the environment including, but not limited to, loss of habitat, changes to the hydrological regimes of water ways, and increases in noise, light, air, solid waste and water pollution.

Due to amendments to the CEC rules in 2007 and 2008, it is suspected that a number of quarries are being established in areas unbeknownst to the EMA. Using data on the locations of past quarrying activity, it is suspected that the unrecognized quarries may be located in the Northern Range, mid-western Trinidad and North-Eastern Trinidad. Given the heavily destructive nature of quarries, it is suspected that the cumulative impact of multiple, small, unregulated quarries is exerting heavy environmental pressure in the aforementioned areas. Cumulative impacts include but are not limited to: over-exploitation of mineral resources, reduced aesthetic from loss of landscape, loss of biodiversity, increased ground water contamination, altered hydrological regimes, and increased environmental pollution.

3.3 Next Steps

Although the *CEC Rules, 2001* have managed the environmental impacts associated with development projects over the past 9 years, there is a wealth of untapped potential for this 'command and control' type legislative tool. Recognizing this, the EMA continually strives to improve the efficiency of the CEC process and enhance the *CEC Rules, 2001* directly and indirectly through various initiatives. Some proposed measures include:

1. *Closing elapsed case files*
   While it is acknowledged that various stages of the CEC process permit the indefinite 'open' status of CEC applications to facilitate data gathering, a large number of files are left perpetually open purely as a result of loss of interest by the applicant. This continuously building backlog of files not only creates an illusion of increasing inefficiency, but also divides the attention of EMA staff who could dedicate energy towards viable applications. By conducting a 'housekeeping' exercise to close neglected applications, and creating a statute of limitations on open files, more attention can be given to quickly processing progressive projects.

2. *Implementation of Strategic Environmental Assessments*
   At present, EIAs are requested on a case by case basis which can incur significant costs and time delays to multiple projects that may be in relatively close proximity to one another. Adopting a sectoral approach to EIAs can expedite the CEC process, particularly for offshore applications, by having a single developer-funded EIA done for an area which can then be routinely amended over time. More so, this approach would also reduce the cost of development projects in the designated areas.

3. *Development of designated activity specific Information packages*
   Clarification and further information requests/responses can consume a lot of time as each designated activity requires different kinds of information before a determination pathway can be chosen. By developing guidelines and checklists specific to each designated activity, applicants may submit more complete information along with their application thereby reducing the need for further information later on.

4. *Develop Carrying-Capacity Models*
   A key objective of T&T's National Environmental Policy (*See Section 2.3*) is to develop within the carrying capacity (assimilative capacity) of the environment. That is, to facilitate physical development that can be sustained indefinitely without deleterious effects on humans or the environment. Presently the *CEC Rules, 2001* are applied on a case-by-case basis without

consideration of cumulative impacts or synergistic effects the proposed project may have with neighbouring projects unless the project requires an EIA. By developing carrying capacity models, processing officers can adopt a more holistic approach to gauging the environmental risk of a proposed development in an area.

5. *Amendments to DA 8 and DA 23*

   As noted previously, the recent changes to DA 8 and DA 23 may have inadvertently created room for unsustainable mineral extraction practices to flourish. The magnitude of the suspected environmental impact is unknown. Given the potential danger, and in accordance with the precautionary principle, it is proposed that these amendments are revoked.

6. *Additions to the CEC Rules (Designated Activities) Order, 2001*

   Certain activities, such as the establishment of a house or housing development, are not considered designated activities despite their potentially significant environmental impact associated with them. CECs are determined for these projects under tangential DAs such as DA 8 (the clearing of land). Amending the CEC Rules to include housing and housing developments into the list of DAs would better enable processing officers to address the potential environmental impacts surrounding this activity.

4.0 NOISE POLLUTION CONTROL RULES

4.1 Overview

Noise pollution occurs when there is a presence of excessive sound that is considered to be stressful and a nuisance to its receiving environments. The EMA is mandated to manage the negative impacts of noise through the Noise Pollution Control Rules (NPCR), 2001. According to the NPCR, there are three zones in T&T: Zone I - Industrial, Zone II - Environmentally Sensitive and Zone III - General[65]. The First Schedule of the NPCR sets guidelines and prescribed standards for maximum permissible sound pressure levels within each of these zones. These rules apply to any person or facility which produce sound in excess of the maximum permissible levels and not to sounds produced by nature without any human involvement[66].

The NPCR allows certain exemptions from its prescribed maximum levels of noise. A Noise Variation (VR) is required for any other planned activity or event outside of these exemptions, which is anticipated to generate sounds above the permissible levels. Once the EMA approves a VR application, the applicant is allowed to produce sound levels in excess of the permissible levels but solely within the levels and timeframe prescribed by the EMA.

Measurement and reporting of sound pressure levels must be conducted in accordance with the Second and Third Schedules of the NPCR in order to determine compliance of the prescribed standards. If an event or activity is found to be in excess of the maximum permissible levels, the legal enforcement process is triggered (See Section 7).

4.2 Prescribed Standards of Noise Levels

The First Schedule of the NPCR indicates the maximum permissible sound pressure levels within each noise zone. Table 5 is adapted from the First Schedule and lists the permissible levels within each noise zone. Depending on the zone, there are varying permissible sound levels between the day (8:00 a.m. - 8:00 p.m.) and the night (8:00 p.m. - 8:00 a.m.)[67]. There are three types of sound durations that can be measured to determine compliance and these are: continuous [measured in A-weighted decibels (dBA)], instantaneous [measured in decibels (dB)] and increase above background levels [measured in A-weighted decibels (dBA)][68].

[65] The Noise Pollution Control Rules. (2001). Section 4 - Noise Zones.
[66] The Noise Pollution Control Rules. (2001). Section 1(2) - Citation and Application.
[67] The Noise Pollution Control Rules. (2001). Schedule 1.
[68] The Noise Pollution Control Rules. (2001). Schedule 1.

Table 5 - Table Showing the Prescribed Standards of Noise Levels in Trinidad and Tobago as adapted from the First Schedule of the Noise Pollution Control Rules, 2001.

Type of Zone	Duration of Sound	Daytime Limits (8:00 am - 8:00 pm)	Night Time Limits (8:00 pm - 8:00 am)
Industrial Areas*	Continuous[+]	75 dBA	
	Instantaneous[-]	130 dB (peak)	
Environmentally Sensitive Areas	Increase above background levels	3 dBA	3 dBA
	Instantaneous	120 dB (peak)	115 dB (peak)
	Continuous	60 dBA	60 dBA
General Area	Increase above background levels	5 dBA	5 dBA
	Instantaneous	120 dB (peak)	115 dB (peak)
	Continuous	80 dBA	65 dBA

* The prescribed standards for Industrial Areas are relevant for anytime during a 24-hour day.
[+]Continuous sound pressure level is defined as "that value of the "A" weighted sound pressure level of the sound as measured at a specific location averaged over a continuous 30 minute period"[69].
[-] Instantaneous sound pressure level is defined as "that value of the unweighted peak sound pressure level of a sound as measured at a specific location"[70].

4.3 Exemptions

The NPCR allows the exemption of certain events and activities in which a noise variation is not required. Table 6 lists such activities that can produce sound levels in excess of the prescribed standards along with the duration and time of day in which they are exempt.

Table 6 - Table showing Activities that are Exempt from the Noise Pollution Control Rules

Exempt Activity	Duration/Time of day when Exempt	Notes
Religious events and activities	Between 6:00 a.m. and 11:00 p.m. of the same day at a maximum duration of 5 hours	Exempt activity does not include sound amplifying equipment
Sporting events and activities	Between 8:00 a.m. and 9:00 p.m. of the same day at a maximum duration of 5 hours	Exempt activity does not include sound amplifying equipment

[69] The Noise Pollution Control Rules. (2001). Section 2 - Interpretation, Equivalent Continuous Sound Pressure Level and Instantaneous Unweighted Peak Sound Pressure Level.
[70] The Noise Pollution Control Rules. (2001). Section 2 - Interpretation, Equivalent Continuous Sound Pressure Level and Instantaneous Unweighted Peak Sound Pressure Level.

Exempt Activity	Duration/Time of day when Exempt	Notes
Educational instruction, educational classes and recreation in schools or other educational institutions being a school	Between 7:00 a.m. and 9:00 p.m. of the same day	-
Public march, meeting, procession and gatherings	-	Activity must be approved in accordance with the Summary Offences Act
Any alarm or emergency device, apparatus or equipment when triggered in event of an emergency	A continuous period of a maximum duration of 8 hours	-
Sound associated with the installation, repair or replacement of public utilities in a public place	Between 7:00 am and 11:00 pm of the same day	-
Emergency work required to be performed either before a period of public emergency or after a period of public emergency	-	Exempt activity is to protect persons or property from exposure to danger or hazards, including the restoration of public utilities or other public services following a storm, earthquake, accident or other like occurrence
Warning devices for the protection of the public	-	Devices include police, fire, ambulance, automobile horns, vehicle alarm devices when used for the purpose of warning
Armed force activities conducted in the course of duty	-	-
Use of motor-operated garden equipment such as lawn mowers, brush cutters, edge trimmers, mist-blowers, leaf-blowers and power tools (whether electrically, pneumatically or other non-manually operated)	Constant presence of an operator for normal use, where such use is between the hours of 7:00 a.m. and 7:00 p.m. of the same day; manually operated grass cutters can be operated between 4:30 a.m. to 7:00 p.m. on the same day	Activity is carried out for the general repair and maintenance of property

Exempt Activity	Duration/Time of day when Exempt	Notes
Construction activity when conducted on a construction site	Between 7:00 a.m. and 7:00 p.m. of the same day	-
Use of agricultural machinery and equipment on agricultural lands	Between the hours of 4:30 a.m. and 7:00 p.m. of the same day	-
Testing of emergency alarms, devices and equipment	Between the hours of 8:00 a.m. and 4:00 p.m. of the same day and for a continuous period of not more than five minutes	-

Source: [Adapted from] NPCR, 2001[71]

4.4 The State of the Environment through the NPCR

4.4.1 Noise Variations

As previously noted, the NPCR seeks to manage the generation of noise within T&T through the allotment of prescribed levels. The NPCR allows persons to legally vary from such levels through the requirement of a VR. According to the NPCR, a VR is required for "a variation from the prescribed standards" listed in the First Schedule[72]. A VR is required by any person who plans an activity or an event which will generate noise in excess of the prescribed levels. The VR application form (available on the EMA's official website) is submitted to the EMA who ultimately grants or refuses permission to the applicant. An approved VR application allows the applicant to produce sound in excess of the maximum permissible levels, but limited to the levels permitted in the VR set by the EMA.

The EMA received 3,700 VR applications between 2002 and 2009. Such applications were approved, refused or withdrawn by the applicant before a decision was made by the EMA. Figure 11 summarizes the number of applications received by the EMA and shows the determinations - number of applications granted and refused as well as the numbers of applications withdrawn and events cancelled.

[71] The Noise Pollution Control Rules. (2001). Section 7 - Exempt Activities.
[72] The Noise Pollution Control Rules. (2001). Section 2 - Interpretation.

Figure 11 - Graph showing the number of noise variation applications received, determined, withdrawn and events cancelled by applicants each year between 2002 and 2009

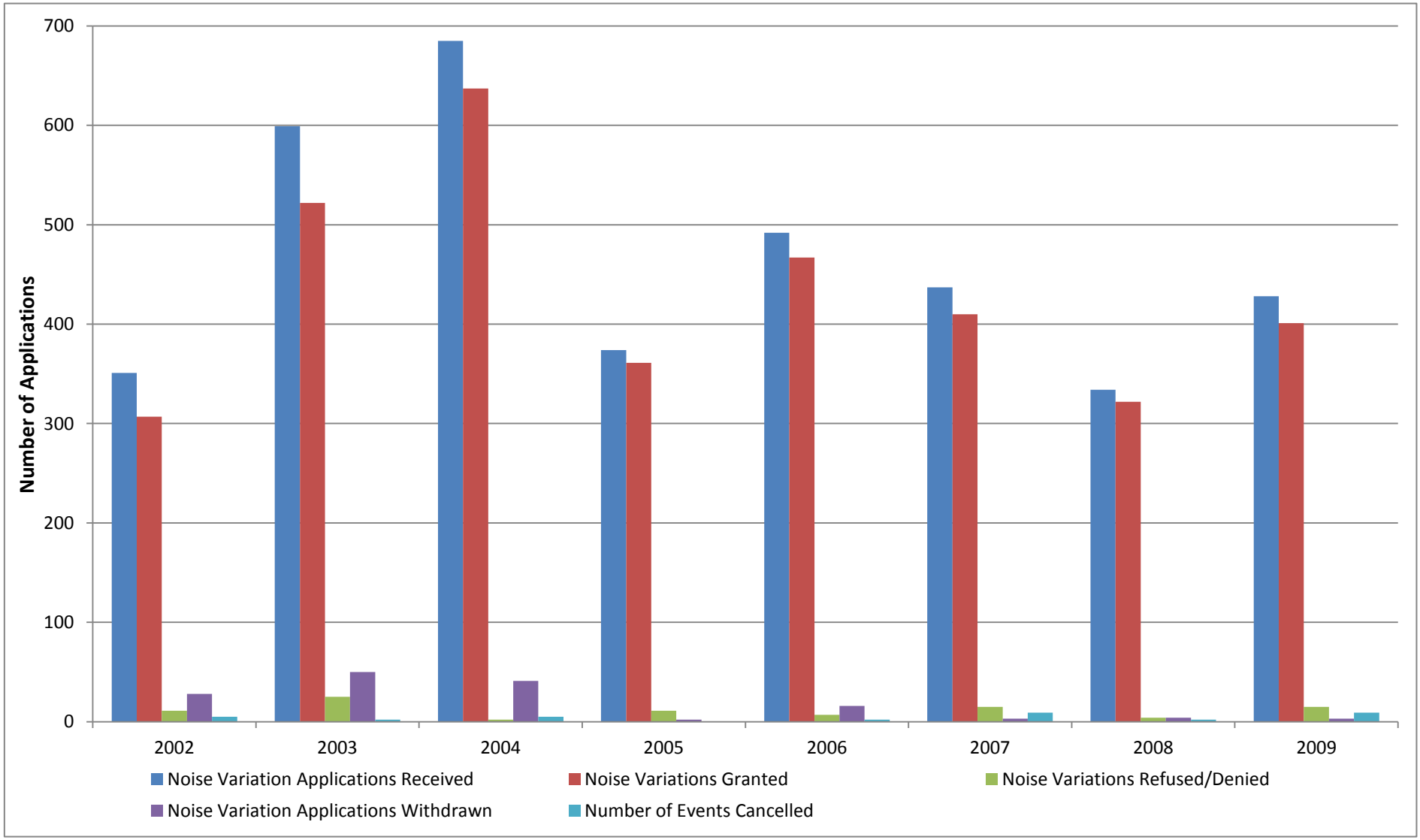
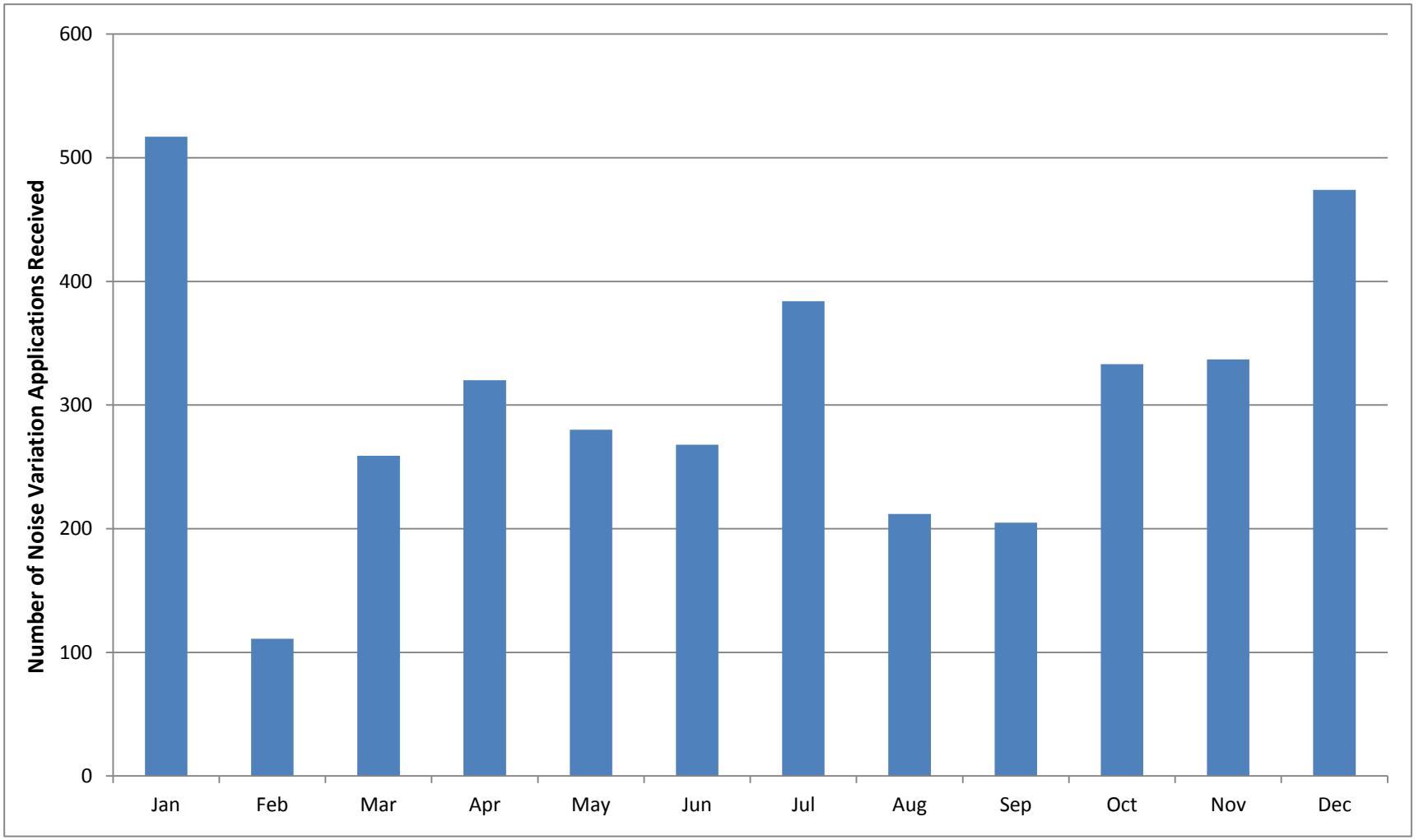


Figure 12 - Graph showing the collective number of noise variation applications received per month between 2002 and 2009



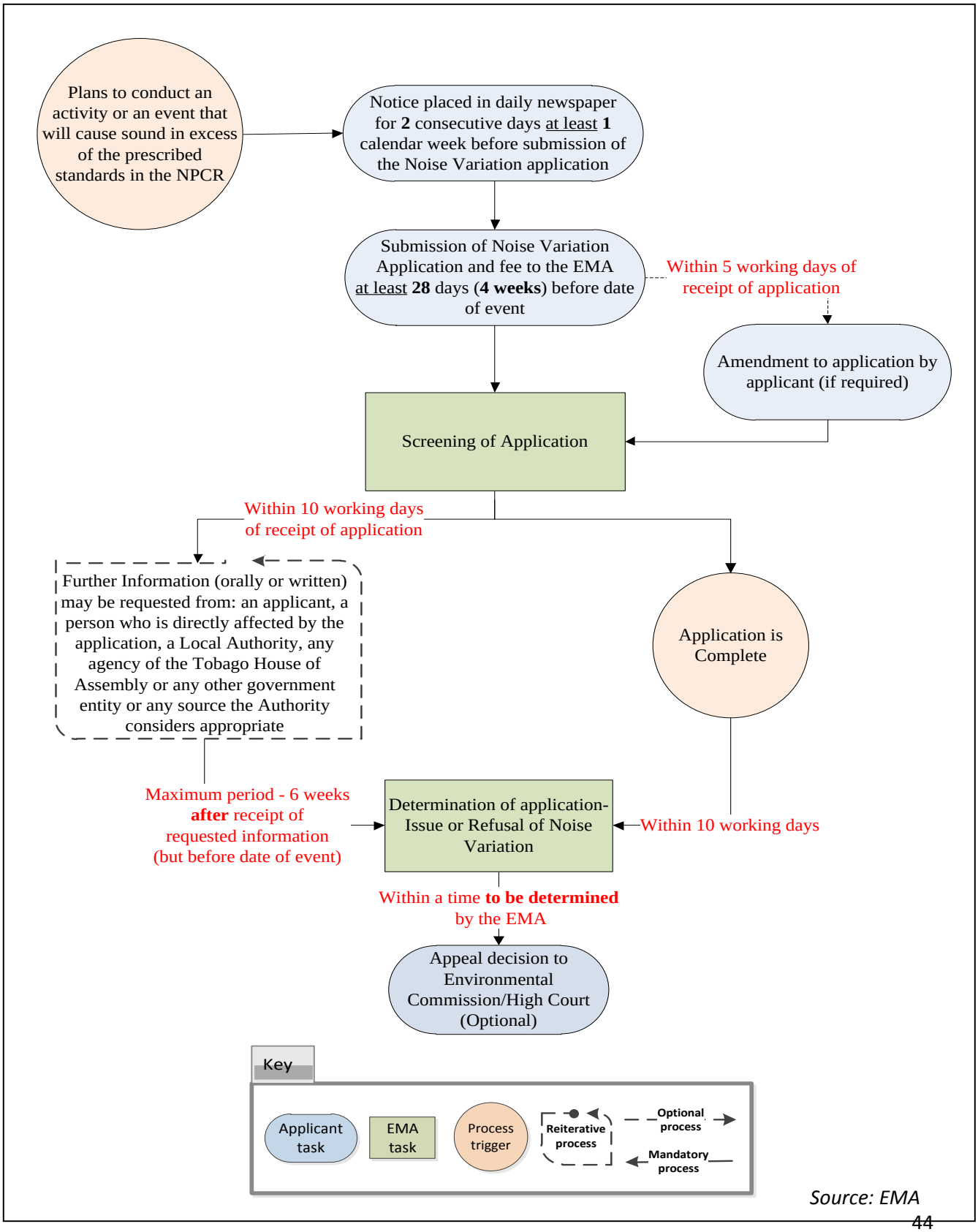
The graph above shows the number of VR applications received per month between 2002 and 2009. It is important to note that a VR application must be submitted four (4) weeks before the date of an event and a notice must be placed in a newspaper one (1) week before submission of an application. Therefore, the months indicating when applications are received signify events that will and/or may occur in the following month.

From Figure 11, a conclusion can be drawn that the public were becoming increasingly aware of the NPCR and the legal requirement of obtaining a VR for non-exempt activities. In 2003 and 2004, the second and third years immediately following the enactment of the NPCR resulted in the highest number of applications received of 599 and 685, respectively. The following years showed lower than average and/or a decrease in VR applications. This decrease can be attributed to the public becoming more conscious of their noise levels generated in their events or activities so as not to require a VR as well as an increased understanding of the requirements that would render an application for a VR. Of the 3,700 VR applications received between 2002 and 2009, approximately 93 percent were issued a VR. This indicates that most noise levels within T&T have been controlled and monitored by the EMA through the requirements of the NPCR.

Figure 12 shows the collective number of VR applications received by the EMA between 2002 and 2009 categorized by months. The graph illustrates which months of the year the EMA receives the most VR applications and furthermore, a clear indicator on when numerous events occur. The months of December and January yield the highest number of VR applications as a result of the Carnival Season which occurs from January to either February or March. October and November are also months where high volumes of VR applications are received as this time period represents the Christmas season when many occasions are held, e.g. Parang events. During the month of July, the EMA receives higher than average VR applications as well as this is a vacation period for all schools and higher than average events are scheduled.

Figure 13 illustrates, step-by-step, the VR application process. It includes deadlines within each step and identifies responsibility for each step, whether it is the EMA or the applicant. Before an applicant applies for a VR, an advertisement must be published in a daily newspaper for two consecutive days with information on the event. This is in order for the public to be informed of the presence of excessive noise anticipated from the event and allows a public comment period. It is important to note that for the purposes of the VR, the applicant is considered the person who is legally responsible for the event and for the noise being generated. Once an application is received by the EMA, the processing officer ensures all required information has been submitted. The screening of the application determines whether it is complete or if further information is required by the EMA. Once all relevant information has been received by the EMA, a determination of the application is made.

Figure 13 - A schematic diagram illustrating the procedure for applying for a noise variation



Source: EMA

4.4.2 Noise Complaints

The EMA receives noise complaints from the public which aids in attaining the desired goal of a better state of the environment. Complaints can be submitted to the EMA if there is continuous or instantaneous noise that is considered bothersome to a person. For example, the NPCR gives the EMA the ability to address complaints where the continuous noise levels in a general area noise zone being complained against exceeds 80 dBA and 65 dBA during the daytime and night-time respectively. The Complaint Form is found and submitted on the EMA's official website or at the EMA's head and satellite offices[73]. The form requests information such as location and source of the complaint, the best time to observe the complaint as well as the length of time the issue has been in existence. Once a complaint form is received, an investigating officer conducts a site visit and measures the sound pressure levels in order to determine whether or not there is a breach of the NPCR's prescribed limits. If a person is found to be in breach of the NPCR, they are served with a NoV and fined a sum at the discretion of the EMA in accordance with the EM Act Sections 62 and 63[74].

4.5 Limitations and Next Steps

The EMA investigates complaints to determine breaches of the NPCR and can only take action when a breach is found. The NPCR does not give the EMA the authority to stop the violator as enforcement within the EMA is a legal process that involves serving of Notices of Violation, entering into Consent Agreements and issuing Administrative Orders. Therefore, for a quicker and immediate relief of noise, the T&T Police Service can be contacted, as they legally possess the power to take action against excessive noise under other legislation[75] [76].

A limitation that the EMA faces is that its officers cannot investigate a breach of the NPCR if the event is completed, as noise is no longer being produced. Therefore, the EMA is currently developing a 24-hour hotline to provide relief of excessive noise by allowing for an immediate response to determine a breach in the NPCR. This will allow the public to aid in enforcement of the NPCR, as sources which are in breach of the prescribed levels can accurately and be more quickly identified.

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[73] Environmental Management Authority Website. Complaint Forms can be retrieved from http://www.ema.co.tt/new/index.php/complaint-form

[74] Environmental Management Act, Chapter 35:05. Sections 62 and 63 - Environmental Requirements Part VIII and Notice of Violation.

[75] Summary Offenses Act (rev. 1980). Sections 63 – Noise from Premises, Section 64(1) – Noisy Instruments and Section 120 – Operating Loud Speakers.

[76] Municipal Corporations Act (1990). Section 221(1) – Nuisance.

5.0 ENVIRONMENTALLY SENSITIVE AREAS RULES AND ENVIRONMENTALLY SENSITIVE SPECIES RULES

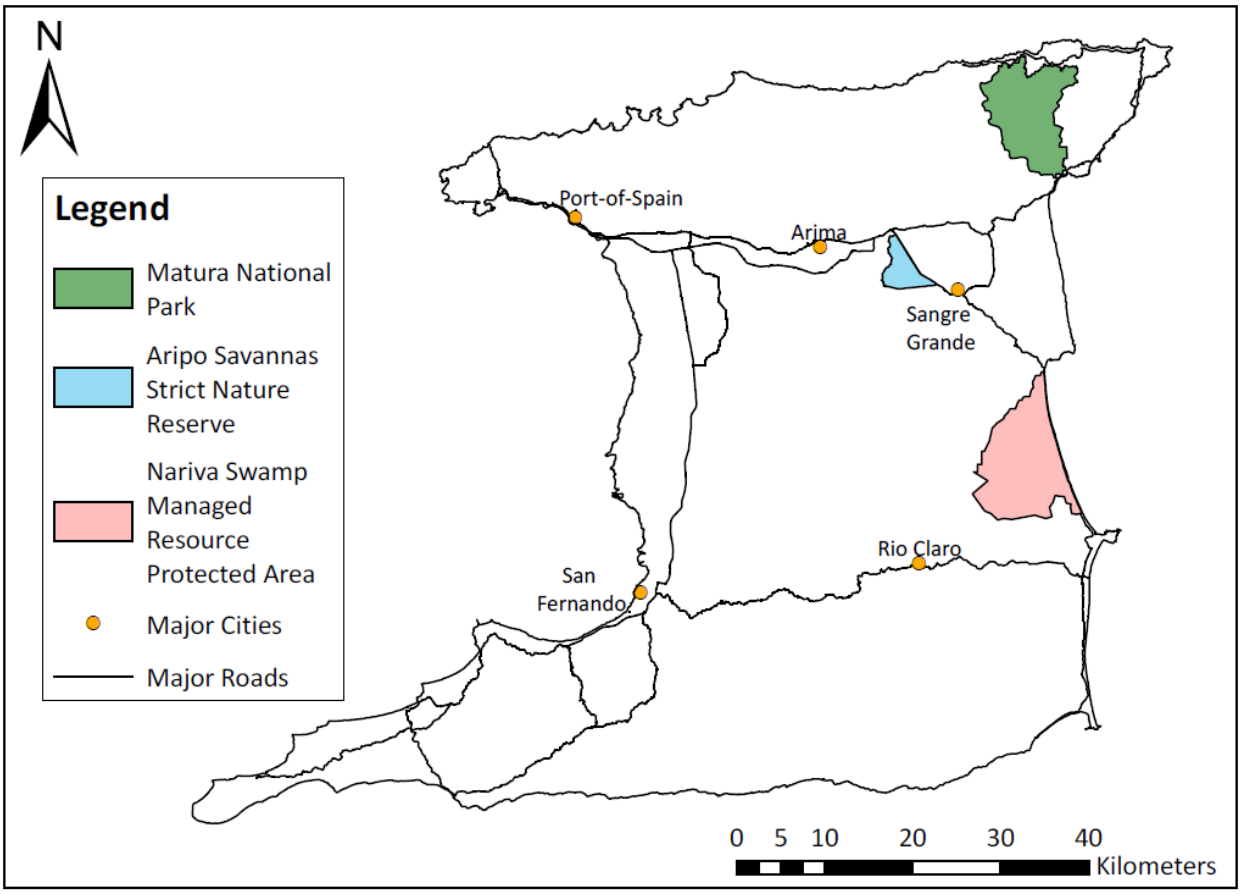
5.1 Overview

The Environmentally Sensitive Areas Rules (ESAR) and the Environmentally Sensitive Species Rules (ESSR) were enacted in 2001 under sections 26(e) and 41 of the EM Act. These rules seek to conserve areas and species that are under threat due to human practices and development. Environmentally Sensitive Areas (ESAs) and Environmentally Sensitive Species (ESS) are selected and designated by the EMA through appropriate research and participation by various stakeholders. Schedule 2 of the ESA Rules lists criteria for which an area can be considered for designation as an ESA, for example, it must possess unique features such as a main habitat for endangered or threatened species or is required to be protected for the purpose of meeting the Government's international obligations[77]. Species considered for designation fall under the criteria of having decreasing populations or face extinction, are indigenous to T&T or need to be protected in order to meet the Government's obligations to an international convention[78].

The purpose of designating ESAs and ESS is to meet three main objectives stated in Schedule 2 of both the ESAR and ESSR. These include: the conservation of natural resources and protection of the environment, sustainable economic and human development, and to offer logistical support such as environmental education and information sharing[79,80]. Currently, the following areas are designated as environmentally sensitive: the Aripo Savannas Strict Nature Reserve, Matura National Park and Nariva Swamp Managed Resource Protected Area (Figure 14). There are three species designated as environmentally sensitive and include: Trinidad Piping-Guan (Pawi) (*Aburriapipile/Pipilepipile*), West Indian Manatee (*Trichechusmanatus*) and White-tailed Sabrewing Hummingbird (*Campylopterusensipennis*).

[77] Environmentally Sensitive Areas Rules. (2001). Schedule 2, Part 3 - Guidelines for Environmentally Sensitive Areas.
[78] Environmentally Sensitive Species Rules. (2001). Section 3(1) - Standards and Guidelines for designation of "environmentally sensitive species".
[79] Environmentally Sensitive Areas Rules. (2001). Schedule 2, Part 1 - Guidelines for Environmentally Sensitive Areas.
[80] Environmentally Sensitive Species Rules. (2001). Schedule 2, Part 1 - Guidelines for Environmentally Sensitive Species.

Figure 14 - Map Showing the Locations of the Three Environmentally Sensitive Areas in Trinidad



Source: EMA

5.2 Designation Process

The EM Act gives the EMA the authority to designate any portion of the environment as an ESA and any plant or animal species as an ESS. There are several steps required before the designation of an area or species is accomplished. The EMA facilitated an ESA Consultation in 2002 and an ESS Consultation in 2006, both of which aimed to determine and prioritize threatened areas and species in T&T. At each of the consultations, stakeholders were invited to present on various areas and species which they considered to be environmentally sensitive and to be of high importance. The presentations included but were not limited to: reasons why the area or species should be designated, the threats facing them and the socio-economic benefits they provide. A voting period commenced once the presentations were completed where participants ranked their preferred areas and species. The areas and species with the

most votes were then placed on a list of priority areas and species to be designated as ESAs and ESSs using a phased approach.

The list of areas and species generated from the consultations in 2002 and 2006 is used as a guide to designate each as an ESA and/or ESS in order of priority. Once a new area or species is due to be designated, the following steps take place (Box 5 summarizes these steps):

1. **A Legal Brief/Notice for the ESA or ESS is prepared by the EMA**. The Legal Brief includes the designation and description of the ESA/ESS, the reasons and objectives for the designation, limitations on use and activities for its protection and the permitted use and mitigation measures.

2. **Comment period for Stakeholders**. The draft version of the proposed Notice is sent to Ministries and Statutory Stakeholders for comments. The duration of the comment period is decided by the EMA and must last for a minimum of 30 working days.

3. **Comments are addressed by the EMA**. The comments are received and compiled in tabular form. The relevant comments are incorporated into the new draft of the Legal Notice which is then forwarded to the Legal Department for discussion.

4. **A request is sent to cabinet to proceed with the designation**. The request is in the form of a cabinet note and minute. It requests approval to continue with the designation and to proceed with the public comment period of the ESA or ESS.

5. **Administration Record is drafted and public comment period commences**. The Administration Record (AR) includes: the general description, major threats, existing policy framework, the justification for designation of the ESA/ESS and the revised Legal Notice. Information is also included on the locations of where the AR is available for public viewing, the length of the Public Comment period (duration is no less than 30 days), address of location/s to receive comments and literature cited.

Box 5 - Summary of the ESS and ESA designation process

6. **Revision of Legal Notice**. The draft version of the Legal Notice is revised based on comments received from the public. A Notice of Final Action is issued and submitted to the Board of the EMA for final input. Once it is finalized, the Final Notice is signed by the Chairman.

7. **Finalization of Notice**. A Final Notice is sent to the Chief Parliamentary Council (CPC) for finalization and formatting to which they return a final version to the EMA for signing. Once signed, the EMA returns the Notice of Final Action to the CPC to be included in the Gazette. The EMA then receives the Legal Notice with the date of when it will be included in the Gazette on which it becomes law.

5.3 The State of the Environment through the ESAR

5.3.1 Matura National Park

The Matura National Park was designated as an ESA in 2004 under the ESAR, 2001 due to its possession of untouched forest and several endangered animals. According to Schedule 2, Part B of the ESAR, a National Park is defined as:

> *"an area requiring: (i) the protection of the ecological integrity of one or more ecosystems for present and future generations, (ii) the exclusion of exploitation or occupation inimical to the purposes of designation of the area, and (iii) the provision of a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which are environmentally and culturally compatible"*

The Matura National Park spans an area of approximately 9,000 hectares and is located on the north-eastern end of Trinidad within the Northern Range[81]. Its fauna consists mainly of tropical forest, evergreen seasonal forest/Mora forest and montane forest that boasts over 200 species of trees and lianas[82]. It possesses the largest intact Mora forest within T&T and is considered a unique feature as the forest is dominated by a single species of Mora.

The main features of the Park include several rivers and waterfalls attracting many eco-tourists each year. It provides a habitat to an ESS, the Pawi, which is endemic to Trinidad. There are several endangered fauna found here including the Ocelot (*Leopardus pardalis*), Red Howler Monkey (*Alouatta sensiculus*), Yellow-crowned Parrot (*Amazona ochrocephala*) and Bullfinch

[81] Environmental Management Authority. (n.d.). Environmentally Sensitive Area: Matura National Park Trinidad and Tobago. Retrieved from http://www.ema.co.tt/new/images/pdf/matura_national_park.pdf
[82] Environmental Management Authority. (n.d.). Environmentally Sensitive Area: Matura National Park Trinidad and Tobago. Retrieved from http://www.ema.co.tt/new/images/pdf/matura_national_park.pdf

(*Oryzoborous angloensis*)[83]. A survey of the fauna of the Park is yet to be conducted to determine population sizes of the animals. Unfortunately, the Park is currently facing many negative impacts to its flora and fauna due to littering, squatting, quarrying and hunting[84].

A Stakeholder Management Committee (SMC) was formed by the EMA after the Park's designation as an ESA. They are responsible for protecting the ESA and assuring that it accomplishes the main objectives set in the ESAR. The SMC's strategy plan includes training to their members for proper protection of the Park, demarcation of the ESA, construction of a headquarter area for visitors, trail restoration and developing a public awareness programme[85].

5.3.2 Aripo Savannas Strict Nature Reserve

In 1980, the Aripo Savanna was proposed as a Scientific Reserve, and under the Forests Act in 1987, it was declared a Prohibited Area[86]. In 2007, the Aripo Savannas Strict Nature Reserve was declared an ESA under the ESAR, 2001. It is located between Arima and Sangre Grande and contains the largest area of natural savanna in the country securing its reasoning for declaration as an ESA. According to Schedule 2, Part B of the ESAR, a Strict Nature Reserve is defined as:

> *"an area requiring protection for science that possesses some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring"*

Dominant ecosystems found within the Savanna include Marsh Forest and Palm Marsh[87]. The flora and fauna within the Savannas are diverse and contains 90 species of plants and five resident species of birds, namely; Rufescent Tiger-heron (*Tigrisoma lineatum*), Red-bellied macaw (*Orthopsittaca manilata*), Epaulet Oriole (*Moriche*), Sulphury flycatcher (*Tyrannopsis sulphurea*) and the Fork-tailed Palm-swift (*Tachornis squamata*)[88].

The EMA contracted the Caribbean Natural Resources Institute to guide and develop management and conservation plans of the Aripo Savannas. The strategic plan involves several

[83] Environmental Management Authority. (n.d.). Environmentally Sensitive Area: Matura National Park Trinidad and Tobago. Retrieved from http://www.ema.co.tt/new/images/pdf/matura_national_park.pdf
[84] Environmental Management Authority. (n.d.). Environmentally Sensitive Area: Matura National Park Trinidad and Tobago. Retrieved from http://www.ema.co.tt/new/images/pdf/matura_national_park.pdf
[85] Environmental Management Authority. (n.d.). Environmentally Sensitive Area: Matura National Park Trinidad and Tobago. Retrieved from http://www.ema.co.tt/new/images/pdf/matura_national_park.pdf
[86] Environmental Management Authority. (n.d.). Environmentally Sensitive Area: Aripo Savannas Strict Nature Reserve Trinidad and Tobago Retrieved from http://www.ema.co.tt/new/images/pdf/aripo_savannas.pdf
[87] Environmental Management Authority. (n.d.). Environmentally Sensitive Area: Aripo Savannas Strict Nature Reserve Trinidad and Tobago Retrieved from http://www.ema.co.tt/new/images/pdf/aripo_savannas.pdf
[88] Environmental Management Authority. (n.d.). Environmentally Sensitive Area: Aripo Savannas Strict Nature Reserve Trinidad and Tobago Retrieved from http://www.ema.co.tt/new/images/pdf/aripo_savannas.pdf

stakeholders, including the Aripo Savannas Stakeholder Management Committee and the Forestry Division. The ESA Management Plan: A Framework for Participatory Management was developed and implemented in 2008 and listed two major objectives[89]:

1. Conservation of the natural resources and protection of the environment through:

(a) maintenance of the significance of the area in the national, regional and international context,
(b) protection, preservation, management and rehabilitation of an area that is fragile, threatened and degraded and
(c) protection of a significant assemblage of threatened species of plant and animal life

2. Logistic support such as environmental education, and information sharing including:

(a) Facilitation of relevant scientific research and environmental monitoring to improve understanding of the interactions between biotic and abiotic components of the environment, the processes involved and the attributes and potential of the area's resources,
(b) Dissemination of information particularly to local communities and stakeholders,
(c) Development of a database of information relevant to the ESA and maintaining public access to the information,
(d) Development of low impact eco-tourism opportunities particularly bird watching,
(e) Management of visitor use for inspirational, educational, and recreational purposes at a level which will maintain the area in a natural or near natural state,
(f) Recognition of the needs of local communities in so far as it does not adversely affect the objectives of the Management Plan and
(g) Provision of opportunities for research and studies related to its natural history.

5.3.3 Nariva Swamp Managed Resource Protected Area

The Nariva Swamp Managed Resource Protected Area was declared an ESA in 2006 under the ESAR, 2001. According to Schedule 2, Part B of the ESAR, a Managed Resource Protected Area is defined as:

[89] Environmental Management Authority. (2008). Aripo Savannas Environmentally Sensitive Area (ESA), A Framework for Participatory Management, ESA Management Plan. Retrieved from http://www.ema.co.tt/docs/public/comments/Aripo%20ESA%20Management%20Plan%20draft%2029%20feb%2008.pdf

"an area containing predominantly unmodified natural systems, that require sustainable use and management to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs"

It is located on the eastern side of Trinidad and spans 11,343 hectares in size[90]. Its ESA status stems from the fact that it is a habitat to over 319 plant species and 600 animal species[91]. The Swamp has a range of various ecosystems including swamp forest, upland forest and grass savanna/marshes[92].

The Swamp has a history of conservation efforts further securing its declaration as an ESA. In 1968 an area within the Swamp known as Bush Bush was declared as a Wildlife Sanctuary and then consequently a Prohibited Area in 1989. In 1992, the Swamp was declared as a Ramsar site indicating it is a wetland of international importance[93]. Unfortunately, such conservation efforts cannot prevent the Swamp from facing major threats such as forest fires, rice farming, squatting, overhunting and pollution of waterways.

In 2008 the EMA in collaboration with the Ministry of Planning, Housing and the Environment, and the Forestry Division of the Ministry of Agriculture, developed and initiated the Nariva Swamp Restoration Project (NSRP)[94]. The Project is funded by the Green Funding Execution Unit and it plans to restore 1,339 hectares of the Swamp which was destroyed by illegal rice farming[95]. The main objective of the NSRP is to restore and conserve the wetlands as it is a biodiverse ecosystem which provides important services such as acting as a carbon sink[96].

5.4 The State of the Environment through the ESSR

5.4.1 Trinidad Piping-Guan (Pawi)

[90] Environmental Management Authority. (n.d.). Nariva Swamp Managed Resource Protected Area. Retrieved from http://www.ema.co.tt/new/images/pdf/nariva_swamp.pdf
[91] Environmental Management Authority. (n.d.). Sensitive Areas, Nariva Swamp. Retrieved from http://www.ema.co.tt/new/index.php/sensitive-areas/nariva-swamp
[92] Environmental Management Authority. (n.d.). Sensitive Areas, Nariva Swamp. Retrieved from http://www.ema.co.tt/new/index.php/sensitive-areas/nariva-swamp
[93] Environmental Management Authority. (n.d.). Sensitive Areas, Nariva Swamp. Retrieved from http://www.ema.co.tt/new/index.php/sensitive-areas/nariva-swamp
[94] Environmental Management Authority. (n.d.). Sensitive Areas, Nariva Swamp. Retrieved from http://www.ema.co.tt/new/index.php/sensitive-areas/nariva-swamp
[95] Environmental Management Authority. (2008). Nariva Swamp Restoration Project. Retrieved from http://www.ema.co.tt/new/images/pdf/NSRP.pdf
[96] Environmental Management Authority. (n.d.). Sensitive Areas, Nariva Swamp. Retrieved from http://www.ema.co.tt/new/index.php/sensitive-areas/nariva-swamp

The Trinidad Piping-guan (Pawi) (Aburriapipile/Pipilepipile) was declared an ESS in 2005. The Pawi is considered a forest bird and its population is estimated to be 70-20097. It is endemic to Trinidad and the only known habitat is in the eastern area of the Northern Range. Its major threat is illegal hunting and habitat fragmentation for the purposes of timber extraction and conversion to plantation agriculture98. In 2007, it was categorized as Critically Endangered by the International Union for Conservation of Nature (IUCN)99.

To date, there have only been a couple of studies focused on the assessment of Pawi populations in Trinidad. These included research on its habitat use and distribution100. Future plans will be based on research on the ecological requirements and species and breeding biology with the use of radio-telemetry101. There will also be surveys done in areas where the Pawi is known to occur in order to determine and monitor population sizes102.

Environmentally Sensitive Species: Trinidad Piping-guan (*Aburria pipile/Pipile pipile*)[100]

[97] Government of Trinidad and Tobago. (2012). ESS – Aburriapipile/ Pipilepipile (Trinidad Piping-guan/Pawi) Retrieved from http://www.biodiversity.gov.tt/home/protected-areas-and-species/environmentally-sensitive-species-ess/trinidad-piping-guan-pawi.html

[98] International Union for Conservation of Nature. Pipile Pipile. Retrieved from http://www.iucnredlist.org/details/22678401/0

[99] International Union for Conservation of Nature. Pipile Pipile. Retrieved from http://www.iucnredlist.org/details/22678401/0

[100] Government of Trinidad and Tobago Website. ESS – Aburriapipile/Pipile pipile (Trinidad Piping-guan/Pawi). Retrieved from http://www.biodiversity.gov.tt/home/protected-areas-and-species/environmentally-sensitive-species-ess/trinidad-piping-guan-pawi.html

[101] Government of Trinidad and Tobago Website. ESS – Aburriapipile/Pipile pipile (Trinidad Piping-guan/Pawi). Retrieved from http://www.biodiversity.gov.tt/home/protected-areas-and-species/environmentally-sensitive-species-ess/trinidad-piping-guan-pawi.html

[102] Government of Trinidad and Tobago Website. ESS – Aburriapipile/Pipile pipile (Trinidad Piping-guan/Pawi). Retrieved from http://www.biodiversity.gov.tt/home/protected-areas-and-species/environmentally-sensitive-species-ess/trinidad-piping-guan-pawi.html

5.4.2 West Indian Manatee

The West Indian Manatee/Sea Cow (Trichechusmanatus) was declared an ESS in 2005. It is not endemic to Trinidad or Tobago but its population size is estimated to be between 25 and 30103. In 2007, it was categorized by the IUCN as Vulnerable and its major threats include habitat degradation and loss, hunting, entanglement in fishing gear, pollution, and human disturbance104.

Environmentally Sensitive Species: West Indian Manatee/Sea Cow (*Trichechus manatus*)[103]

The management plan of this ESS includes protecting and monitoring its habitat and status. These objectives are attained through restoring degraded habitat areas, providing appropriate training in coastal area management and conservation and effective research studies105.

5.4.3 White-tailed Sabrewing Hummingbird

The White-tailed Sabrewing Hummingbird (Campylopterusensipennis) was declared an ESS in 2005. Its population is estimated to range between 500 and 1,000106. It is found in the Main Ridge in Tobago in mature montane forest, edges of clearings and regenerating forest107. Its major threats are habitat loss and fragmentation and natural disasters. A research project is currently in progress to determine its behavioural patterns and population sizes108.

Environmentally Sensitive Species: White-tailed Sabrewing Hummingbird (*Campylopterus ensipennis*)[106]

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[103] Government of Trinidad and Tobago Website. ESS - Trichechusmanatus (West Indian Manatee/ Sea Cow). Retrieved from http://www.biodiversity.gov.tt/home/protected-areas-and-species/environmentally-sensitive-species-ess/west-indian-manatee.html

[104] International Union for Conservation of Nature. Trichechusmanatus. Retrieved from http://www.iucnredlist.org/details/22103/0

[105] Environmental Management Authority Website. Environmentally Sensitive Species: The West Indian Manatee (Trichechusmanatusmanatus). Retrieved from http://www.ema.co.tt/new/images/pdf/manatee.pdf

[106] Environmental Management Authority Website. ESS - Campylopterusensipennis (White-tailed Sabrewing Hummingbird). Retrieved from http://www.biodiversity.gov.tt/home/protected-areas-and-species/environmentally-sensitive-species-ess/white-tailed-saberwing-hummingbird.html

[107] Environmental Management Authority Website. ESS - Campylopterusensipennis (White-tailed Sabrewing Hummingbird). Retrieved from http://www.biodiversity.gov.tt/home/protected-areas-and-species/environmentally-sensitive-species-ess/white-tailed-saberwing-hummingbird.html

[108] Environmental Management Authority Website. ESS - Campylopterusensipennis (White-tailed Sabrewing Hummingbird). Retrieved from http://www.biodiversity.gov.tt/home/protected-areas-and-species/environmentally-sensitive-species-ess/white-tailed-saberwing-hummingbird.html

5.5 Summary of Current ESA and ESS Management Plans

As mentioned, it is imperative that each ESA and ESS acquires a management plan in order for its protection and conservation. The EMA has partnered with various governmental and non-governmental organizations to develop effective management plans. Table 7 shows which ESAs and ESS have management plans and what years they were developed. Currently, one ESS; the West Indian Manatee (Trichechusmanatus) and all three ESAs have management plans.

It is important to note that some management plans were developed before its designation as an ESA or ESS as these were created through previous efforts for the conservation of that area and/or species. The Government of T&T had to fulfil its obligation of protecting and conserving the Nariva Swamp as it was declared a Ramsar Site in 1994109. Therefore, the IMA developed a management plan for the Swamp in 1999 which is currently being implemented by its SMC110. The Matura National Park was originally prioritized as part of the World Bank National Parks and Watershed Management Project and a management plan was developed in 1998 for the area111. The West Indian Manatee (Trichechusmanatus) was previously protected under the Conservation of Wildlife Act of 1980112. In 2002, the Manatee Conservation Trust prepared and implemented a National Manatee Recovery Plan which was supported by the Caribbean Environment Programme of UNEP113. It is currently being managed through its SMC since it was designated as an ESS. The management plans for the remaining ESS (Trinidad Piping-guan (Pawi) (Aburriapipile/Pipilepipile) and White-tailed Sabrewing Hummingbird (Campylopterusensipennis)) are currently being developed by its respective SMC.

[109] Carbonell, M. & Nathai-Gyan, N. (2005). Nariva Swamp Ramsar Site, Trinidad and Tobago (West Indies) Wetland Habitat Restoration Initiative. USDA Forest Service General Technical Report PSW-GTR-191.
[110] Carbonell, M. & Nathai-Gyan, N. (2005). Nariva Swamp Ramsar Site, Trinidad and Tobago (West Indies) Wetland Habitat Restoration Initiative. USDA Forest Service General Technical Report PSW-GTR-191.
[111] Shand, E. (2001). Integrating Biodiversity Conservation into the Tourism Sector in Trinidad and Tobago – A Case of Effective Local Community Participation. Biodiversity Planning Support Programme (UNEP/UNDP/GEF).
[112] UNEP: Regional Management Plan for the West Indian Manatee (*Trichechus manatus)* compiled by Ester Quintana-Rizzo and John Reynolds III. CEP Technical Report No. 48. UNEP Caribbean Environment Programme, Kingston, Jamaica.
[113] UNEP: Regional Management Plan for the West Indian Manatee (*Trichechus manatus)* compiled by Ester Quintana-Rizzo and John Reynolds III. CEP Technical Report No. 48. UNEP Caribbean Environment Programme, Kingston, Jamaica.

Table 7 - Table showing the year ESAs and ESS were designated along with the year its management plan was developed

ESA/ESS Name	Year Designated	Year Management Plan Developed	Consultant Partner
Matura National Park	2004	1998	Caribbean Forest Conservation Association
Nariva Swamp Managed Resource Protected Area	2006	1999	Institute of Marine Affairs
West Indian Manatee (*Trichechusmanatus*)	2005	2002	Manatee Conservation Trust
Aripo Savannas Strict Nature Reserve	2007	2007	Caribbean Natural Resources Institute

5.6 Next Steps

For further conservation of the environment in T&T, other areas and species that exhibit the ability to achieve the objectives of the ESAR and ESSR should be considered for designation. This can be done through further consultations on ESAs and ESS which are due to occur.

Through Public Sector Investment Programme (PSIP) funding, the EMA has been able to develop or are developing management plans for the areas and species that have been designated as environmentally sensitive. Unfortunately, some of these management plans have not been implemented due to insufficient resources. Before other designations can be considered, all management plans of currently designated ESAs and ESS should be updated by its SMC and implemented to ensure increased research efforts, improved enforcement of legislation and increased public awareness of each ESA and ESS. Future awareness campaigns include the circulation of posters and photography and art competitions based on an ESA and/or ESS.

6.0 WATER POLLUTION RULES

6.1 Overview

The *Water Pollution Rules, 2001* as amended by the *Water Pollution (amendment) Rules, 2006* were formally enacted on February 27th 2007 in accordance with sections 26, 48, 52, 53 and 54 of the EM Act. Formally cited as the '*Water Pollution Rules, 2001 (as amended)*' the Water Pollution Rules (WPR) aim to safeguard environmental and human health by regulating the point-source discharge of pollutants from facilities into inland surface waters, groundwater and marine and coastal waters (including wetlands). Similar to the *Noise Pollution Rules, 2001* (NPRs), these rules regulate 'end of pipe' emissions and as such, are classified as "technology-based standards" under the umbrella of 'command and control' legislative tools.

The criteria used for water pollution regulation is described in the Second Schedule of the Water Pollution Rules. The First Schedule describes the amount, concentration and condition at which the 29 parameters/substances listed may be considered water pollutants. The Second Schedule outlines permissible levels at which these parameters/substances may be discharged into each of four receiving environments: (i) Inland surface waters[114] (ii) Coastal near shore[115] (iii) Marine offshore[116] and (iv) Environmentally Sensitive Areas (ESA)[117] and/or groundwater[118].

The criteria described in the First and Second Schedules can be seen in Tables 8 and 9 respectively.

[114] Defined in the WPR as "*water from rivers, creeks, tidal waters, estuaries, swamps, streams, lakes and impounded reservoirs that flows over or rests upon the land surface of Trinidad and Tobago and in dry conditions includes the area over which such waters flows or rested*".
[115] Defined in the WPR as "*the area of the marine environment which extends no more than three nautical miles from the high water mark*".
[116] Defined in the WPR as "*that area of the marine environment seaward of the coastal near shore*".
[117] Refers to areas designated as Environmentally Sensitive Areas under the Environmentally Sensitive Areas Rules, 2001.
[118] Defined in the WPR as "*the water below the earth's surface, usually in porous rock formations*".

Table 8 - Table showing the register of water pollutants described by the Water Pollution Rules, 2001 (as amended)

Water Pollution Rules 2001 (as amended)—FIRST SCHEDULE (Rule 3) REGISTER OF WATER POLLUTANTS		
No.	**Parameters or Substances Units in mg/L or otherwise specified**	**Condition or Concentration at which substance or parameter is likely to cause harm to human health and the environment [a]**
	Temperature	Maximum variation of 3^{o} C from ambient
	Hydrogen ion (pH)	<6 or >9
	Dissolved Oxygen Content (DO)	<4
	Five day Biological Oxygen Demand (BOD_5 at 20^{o}C)	>10
	Chemical Oxygen Demand (COD)	>60
	Total Suspended Solids (TSS)	>15
	Total Oil and Grease (TO&G) or n-Hexane Extractable Material (HEM)	>10
	Ammoniacal Nitrogen (as NH_3-N)	>0.01
	Total Phosphorus (as P)	>0.1
	Sulphide (as S)	>0.2
	Total Residual Chlorine	0.2
	Chloride (Cl^-)	>250
	Dissolved Hexavalent Chromium (Cr^{6+})	>0.1
	Total Chromium (Cr)	>0.1
	Dissolved Iron (Fe)	>1.0
	Total Petroleum Hydrocarbons (TPH)	NIAA
	Total Nickel (Ni)	>0.5
	Total Copper (Cu)	>0.01
	Total Zinc (Zn)	>0.1
	Total Arsenic (As)	>0.01
	Total Cadmium (Cd)	>0.01
	Total Mercury (Hg)	>0.005
	Total Lead (Pb)	>0.05
	Total Cyanide (as CN^-)	>0.01

Water Pollution Rules 2001 (as amended)—FIRST SCHEDULE (Rule 3) REGISTER OF WATER POLLUTANTS		
No.	**Parameters or Substances Units in mg/L or otherwise specified**	**Condition or Concentration at which substance or parameter is likely to cause harm to human health and the environment [a]**
	Phenolic Compounds (as phenol)	>0.1
	Radioactivity	NIAA
	Faecal Coliforms	>100
	Toxicity	NATE
	Solid Waste	No solid debris
[a] all units are in milligrams per litre (mg/L) except for temperature (°C), pH (pH units), turbidity (NTU), faecal coliforms (counts per 100 ml), radioactivity (Bq/L) and toxicity (toxic units). NIAA—no increase above ambient NATE—no acute toxic effects >greater than <less than		

Source: Water Pollution Rules, 2001 (as Amended)[119]

[119] The Water Pollution Rules, 2001 (as Amended) can be found at the EMA's website: http://www.ema.co.tt/new/images/pdf/water_pollution_rules2001.pdf

Table 9 - Table showing the permissible levels of parameters and substances under the Water Pollution Rules, 2001 (as amended)

Water Pollution Rules 2001, (as amended)—SECOND SCHEDULE (Rule 8) PERMISSIBLE LEVELS					
	Water Pollutants	**Receiving Environment**			
No.	**Parameters or Substances**	**Inland Surface Water**	**Coastal Nearshore**	**Marine Offshore**	**Environmentally Sensitive Areas and/or Groundwater**
	Levels or Conditions[a]				
	Temperature	35	40	45	NIAA
	Dissolved Oxygen	>4	>4	>4	>4
	Hydrogen ion (pH)	6-9	6-9	6-9	6-9
	Five day Biological Oxygen Demand (BOD_5 at 20^oC)	30	50	100	10
	Chemical Oxygen Demand (COD)	250	250	250	60
	Total Suspended Solids (TSS)	50	150	200	15
	Total Oil and Grease (TO&G) or n-Hexane Extractable Material (HEM)	10	15	100	No discharge
	Ammoniacal Nitrogen (as NH_3-N)	10	10	10	0.1
	Total Phosphorus (as P)	5	5	5	0.1
	Sulphide (as S)	1	1	1	0.2
	Chloride (as Cl^-)	250	NIAA	NIAA	NIAA
	Total Residual Chlorine	1	1	2	0.2
	Dissolved Hexavalent Chromium (Cr^{6+})	0.1	0.1	0.1	0.05
	Total Chromium (Cr)	0.5	0.5	0.5	0.1
	Dissolved Iron (Fe)	3.5	3.5	3.5	1.0
	Total Petroleum Hydrocarbons (TPH)	25	40	80	No discharge
	Total Nickel (Ni)	0.5	0.5	0.5	0.5
	Total Copper (Cu)	0.5	0.5	0.5	0.01
	Total Zinc (Zn)	2	2	2	1
	Total Arsenic (As)	0.1	0.1	0.1	0.01

Water Pollution Rules 2001, (as amended)—SECOND SCHEDULE (Rule 8) PERMISSIBLE LEVELS					
	Water Pollutants	**Receiving Environment**			
No.	**Parameters or Substances**	**Inland Surface Water**	**Coastal Nearshore**	**Marine Offshore**	**Environmentally Sensitive Areas and/or Groundwater**
	Levels or Conditions[a]				
	Total Cadmium (Cd)	0.1	0.1	0.1	0.01
	Total Mercury (Hg)	0.01	0.01	0.01	0.005
	Total Lead (Pb)	0.1	0.1	0.1	0.05
	Total Cyanide (as CN^-)	0.1	0.1	0.1	0.01
	Phenolic Compounds (as phenol)	0.5	0.5	0.5	0.1
	Radioactivity	NIAA	NIAA	NIAA	NIAA
	Toxicity	NATE	NATE	NATE	NATE
	Faecal Coliforms	400	400	400	100
	Solid Waste	NSD	NSD	NSD	NSD

[a] all units are in milligrams per litre (mg/L) except for temperature (°C), pH (pH units), faecal coliforms (counts per 100 ml), radioactivity (Bq/L) and toxicity (toxic units)

NIAA—no increase above ambient

NATE—no acute toxic effects

NSD—No solid debris

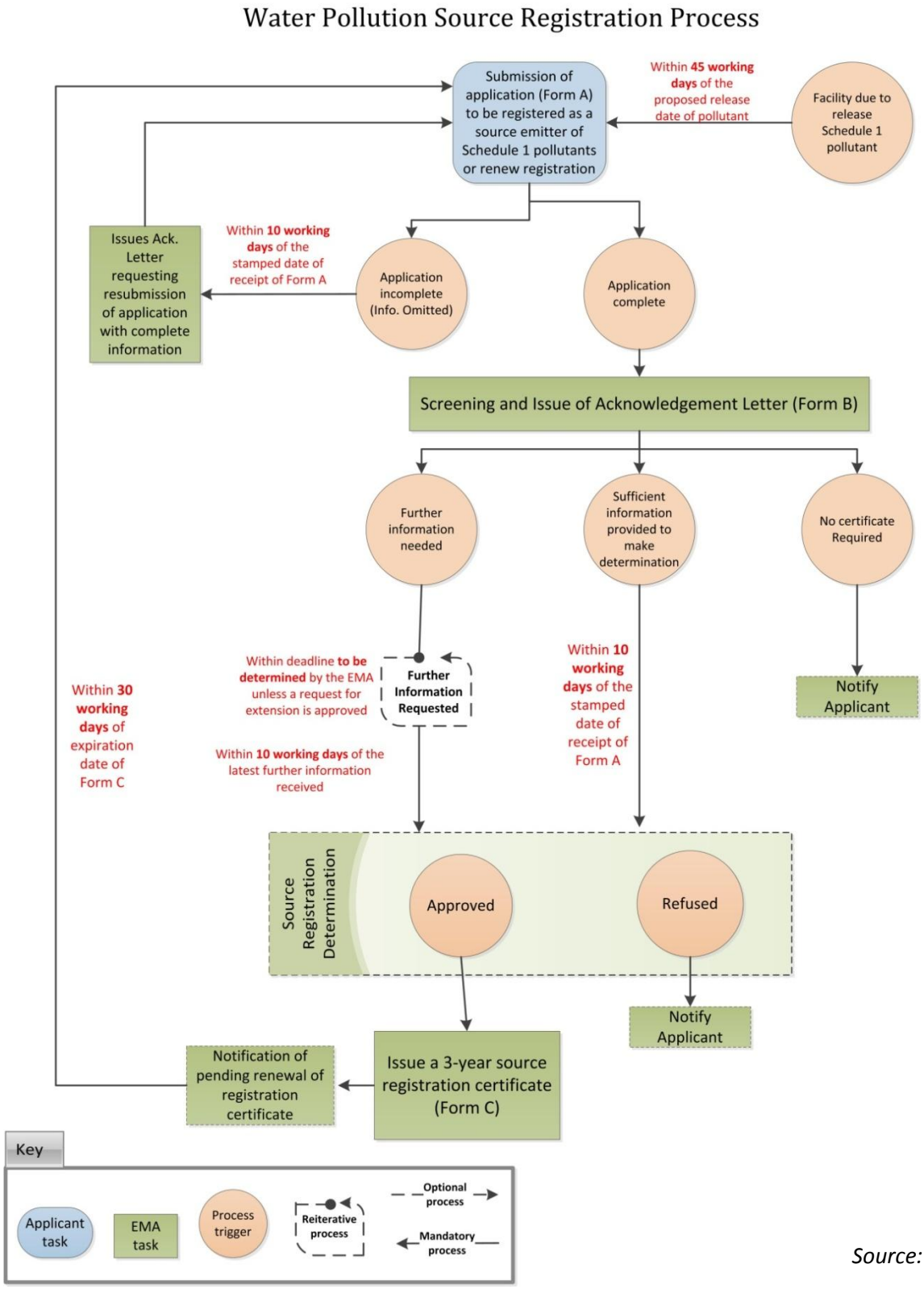
> greater than

Source: Water Pollution Rules, 2001 (as Amended)[120]

Commercial, industrial, agricultural, sewerage and institutional facilities are required to apply for a *Source Registration Certificate* (SRC) if they have a point source of effluent discharge. If their effluent concentration is outside of the criteria of the First Schedule, they are issued a SRC. If their effluent is outside of the limits set in the Second Schedule, the EMA may notify the facility to apply for a *Water Pollution Permit*. The processes of acquiring these documents are seen in Figure 15 and Figure 16, respectively. It should be noted that section 5(6) of the WPR exempts operational releases from motor vehicles, releases from households (except where coupled with commercial/industrial facilities) and releases authorized by a competent governmental entity into sewage facilities owned/operated by such competent governmental entity.

[120] The Water Pollution Rules, 2001 (as Amended) can be found at the EMA's website: http://www.ema.co.tt/new/images/pdf/water_pollution_rules2001.pdf

Figure 15 - A schematic diagram illustrating the process of acquiring a Source Registration Certificate



Source: EMA

In accordance with rule 4(1) of the WPR, registrable facilities that are (or will be) releasing pollutants listed the First Schedule of the WPR are required to submit an application form (form A) to be registered as a source emitter within 45 working days prior to release. In accordance with section 6(1)(d) of the WPR, the application should include:

i. Contact information for the applicant, owner and manager of the facility;
ii. Information on the geographical location of the site;
iii. Description of the facility and its processes;
iv. Quantification of its inputs and outputs;
v. Effluent quality monitoring data;
vi. Indication of existing or pending approvals from any other government entities required;
vii. Topographic map of the area and description of the surrounding environment in which effluent will be released;
viii. Description of a water pollution control programme;
ix. Other key information deemed necessary by the Authority

If applications are found to be lacking any of the aforementioned information, a request for resubmission with omitted information included is provided to the applicant within 10 working days of the initial receipt. When a completed application is received, it may take one of three determination pathways:

1. *No Source Registration Certificate required*
   This occurs when the applicant does not fall within range of registrable facilities or is not releasing substances in outside of the thresholds listed in the First Schedule to be considered a pollutant.

2. *Sufficient information to make a determination*[121]
   This occurs when the EMA believes that it has sufficient information to make a determination. A determination is typically made within 10 working days of the stamped date of receipt of Form A.

3. *Further Information Required*
   In some instances despite meeting the basic requirements of Form A, the EMA may seek clarification or additional information before making a determination. A series of communications are exchanged between the EMA and the applicant (and sometimes other stakeholders) to gather comprehensive facts. This process may take an indefinite amount of time and the timeframe for gathering this knowledge is set at the discretion

[121] "Determination" refers to the decision to issue or refuse a SRC application.

of the EMA. Once sufficient information is received, a determination is typically made within 10 working days of the last receipt of further information.

When a Source Registration Certificate is issued, it is valid for 3 years and the holder must display it in a prominent position within their facility. The certificate contains:

a) The name of the applicant and the facility
b) The location of the facility
c) A unique Source Registration Number
d) The date awarded and pending date of expiration

Holders of Source Registration Certificates are required to submit a renewal application for their certificates every three years, within 30 working days of the date of expiration. As the time for renewal approaches, the EMA issues a reminder to the certificate holder, though it is not mandated to do so under the WPR. Expired certificates remain in effect beyond its expiration date if the certificate holder has initiated the renewal process and until the effective date of the renewed Registration Certificate.

Source registration is important for the EMA as an inventory of substances entering our water ways, and to enable the calculation of pollutant loads. However, it is not the only tool utilised by the WPR. Facilities may be discharging water pollutants outside of the levels prescribed in the Second Schedule of the WPR. In such cases, knowing is not enough; measures must be taken to regulate the levels of pollutants entering the water system. Through section 8(1), the WPR seeks to achieve this through water pollution permits. The permitting process is summarised in Figure 14.

A water pollution permit is a license for a facility to discharge certain types of water pollutants at certain concentrations, from authorized discharge point/outfalls into a receiving water body, under controlled conditions. The main objective of the permit is to control the volume and concentration of effluent, over a specified timeframe, to meet the permissible levels established in the Second Schedule of the WPR.

Water pollution permits are valid for no more than 5 years and incur an annual fee to the permit holder. The conditions within a water pollution permit are described in rule 15 of the WPR and include, but are not limited to:

a) Water pollutants authorized to be released;
b) The quantity, conditions and concentrations the permittee may release;
c) The exact location of where the sampling and release may be performed;
d) Reporting requirements; and
e) Conditions to avoid and/or mitigate environmental impact of processes.

Permittees are required to retain and provide records and information specified within the permit to the EMA upon request in accordance with sub-rule 15(2) of the WPR. In addition, a permitted facility is to allow identified representatives of the EMA to enter and inspect the facility and/or records.

In instances where there may be breaches of permit conditions, permittees are required to notify the EMA within 48 hours of becoming aware of the circumstances of the non-compliance. Within 5 working days, permittees are to send a written report to the EMA describing the nature of non-compliance event including its cause, duration, clean-up and counter measures taken. If the breach of permit was believed to be due to an emergency, evidence must be provided as justification for this claim. If the non-compliance has not been corrected, permittees are expected to report on how long this breach is expected to continue.

After a WPP has been granted, numerous post-issuance processes may take place including: renewal, variation, transfer revocation and suspension. These processes and conditions are described in rules 17 - 22 of the WPR.

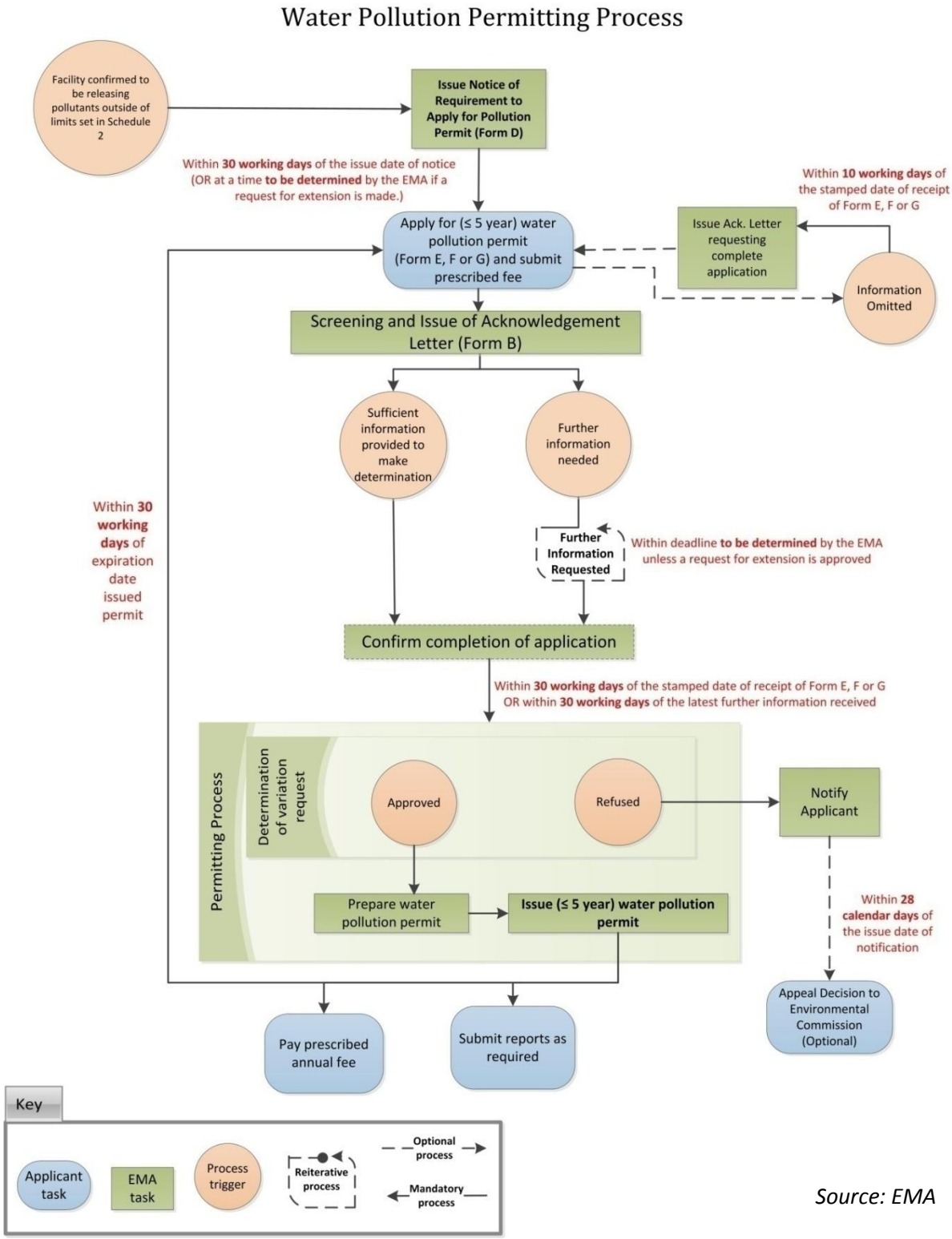
The EMA may refuse a water pollution permit if:

i. It is determined that the receiving medium of the discharge is used as a source of potable water;
ii. It is determined that the receiving medium of the discharge is likely to have severe impact on human health and wellbeing;
iii. Applicants fail to submit required information.

A decision of refusal may be appealed with the Environmental Commission within 28 calendar days of receiving a notification of decision.

The failure to adhere to any of the aforementioned conditions of permits and the WPR is considered a breach of an ‘environmental requirement’ under section 62 of the EM Act, and the legal enforcement process described in Section 7 of this report may be triggered.

Figure 16 - A schematic diagram of the water pollution permitting process described in the Water Pollution Rules, 2001 (as Amended)

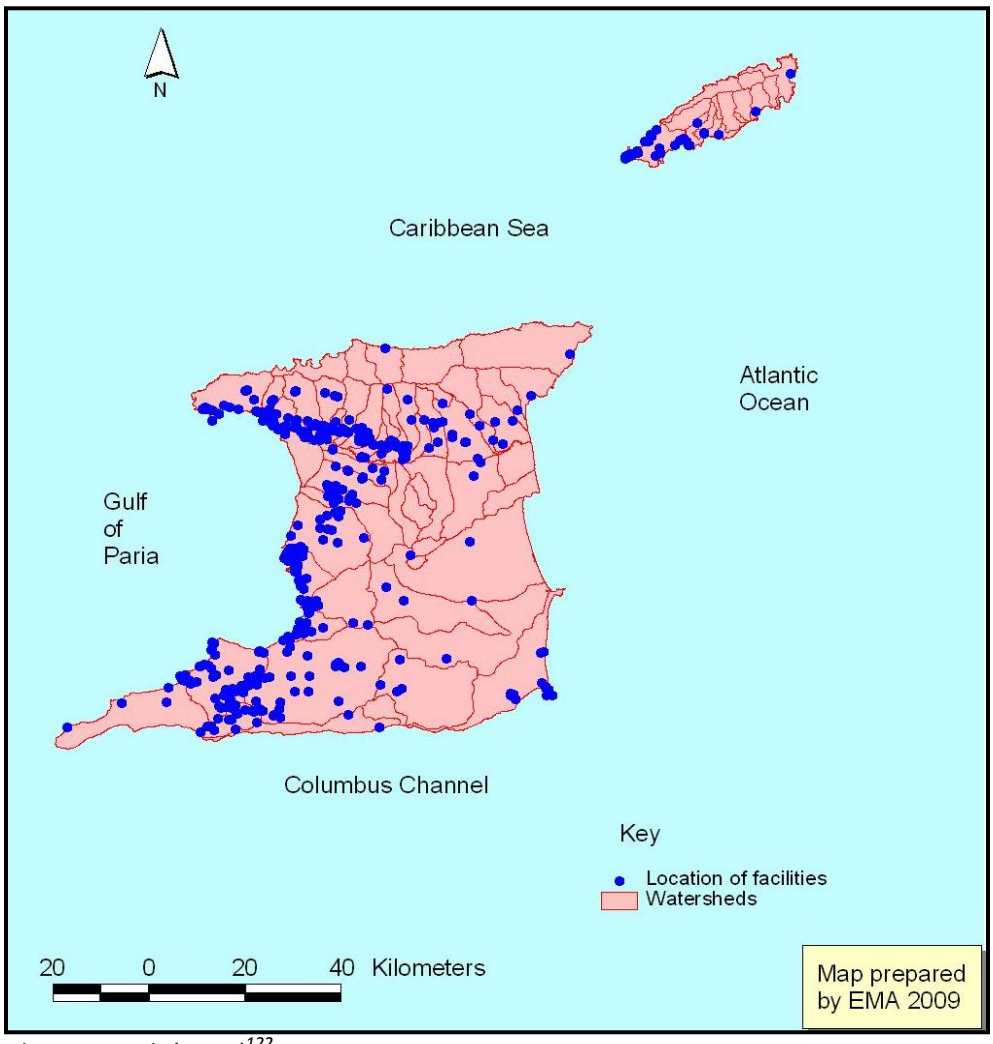


Source: EMA

6.2 The State of the Environment through the Water Pollution Rules 2001 (as amended)

The locations of Source Registered facilities and facilities holding water pollution permits can suggest the susceptibility of watersheds to pollution and thus, provide hints at the state of the environment regarding our water resources. Figure 17 shows the distribution of industrial, commercial and institutional (ICI) facilities extracted from the Source Registration Application Electronic Log (SRAEL) across the various watersheds in T&T.

Figure 17 - A map showing the distribution of industrial, commercial and institutional (ICI) facilities across the various watersheds of Trinidad and Tobago



Source: Rajkumar et al. (2009)[122]

[122] Rajkumar, W.S., Buckradee, A., deRoche, S., & Prince, K. (2009). Watershed Vulnerability Assessment Using the WRASTIC approach for Trinidad and Tobago. Port of Spain: EMA.

In 2009, an evaluation of the sensitivity of T&T's watersheds to surface contamination was done using a modified version of the "WRASTIC watershed vulnerability assessment" that incorporates ICI facility information attained through the WPR. The study found that in Trinidad, 7 percent of the watersheds had a low risk of contamination, 77 percent had a moderate risk and 16 percent had a high risk, whereas Tobago's watersheds were judged to be 7 percent, 86 percent, 7 percent for low, moderate and high risk of contamination respectively[123]. Watershed vulnerability maps for T&T are shown in Figure 18 and Figure 19.

Box 6 - The WRASTIC Index

Developed for the United States Environmental Protection Agency (US EPA) by the American Water Works Association (AWWA), the WRASTIC Index was developed to assist planners, administrators and managers in evaluating the relative vulnerability of watersheds to surface contamination from various sources of pollution. It is a screening tool for identifying potential problems before the development and implementation of pollution management plans. WRASTIC is an acronym that stands for:

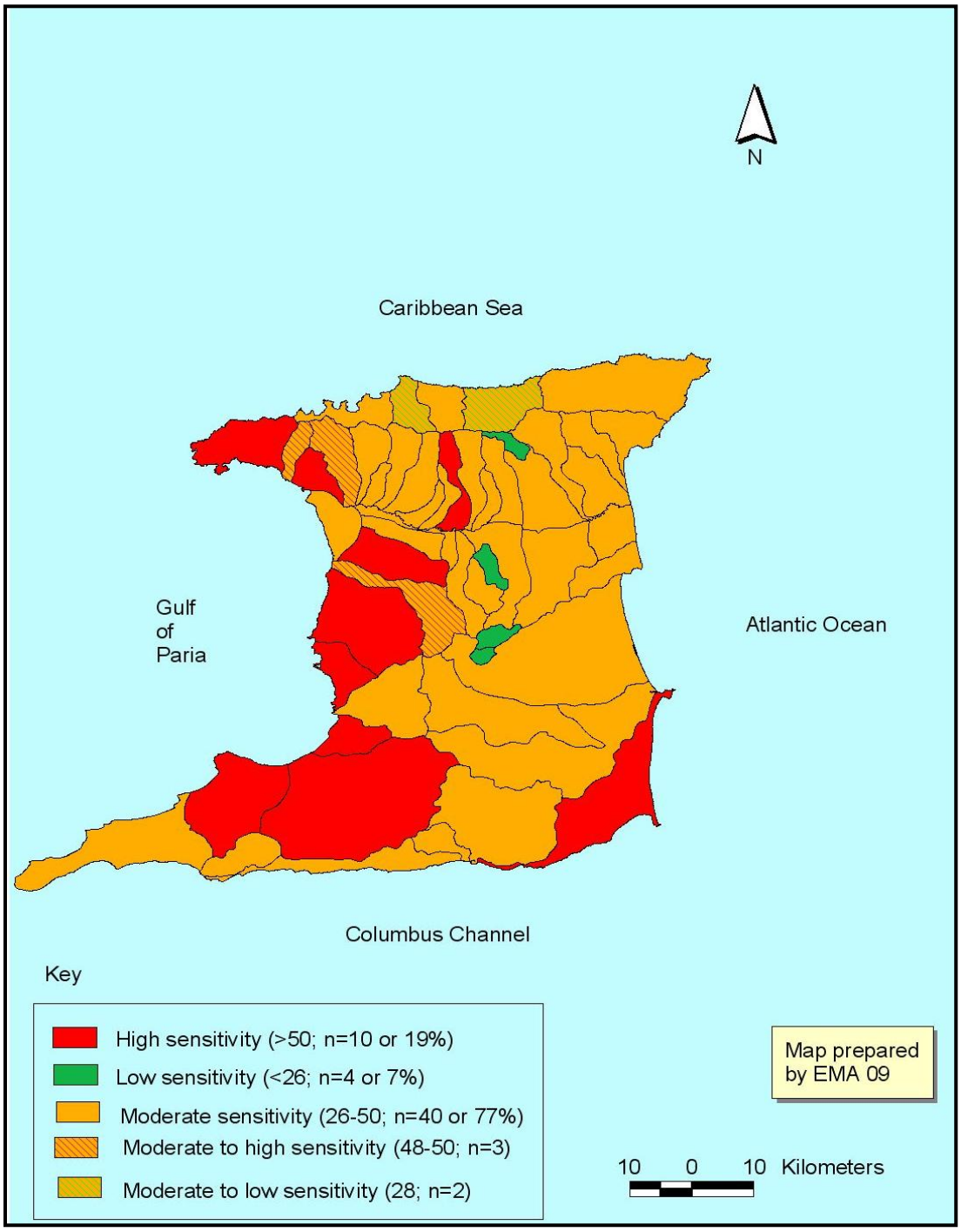
- Wastewater discharge (W);
- Recreational Land Use (R);
- Agricultural land use impacts (A);
- Size of Watershed (S);
- Transportation avenues (T);
- Industrial land use impacts (I); and
- Vegetative ground cover (C)

The aforementioned parameters are weighted and combined for each watershed to produce a vulnerability score. A greater score indicates a more sensitive watershed. The Index categorizes the scores into three tiers: low, medium and high.

While the WRASTIC Index may accurately suggest the vulnerability of inland surface waters to contamination, it does not indicate the *actual* degree of pollution. It is quite possible for a moderately or highly susceptible watershed to have negligible concentrations of pollutants. Conversely, it is possible for watersheds found to have low susceptibility to have increased concentrations of pollutants. The actual degree of pollution cannot be gleaned through the WPR without a thorough analysis of the samples conducted at various sites throughout T&T. However, it is reasonable to believe that the geographic distribution of pollution is consistent with the findings of the WRASTIC maps based on existing knowledge of land use activities and previous studies done regarding water quality. That is to say: water pollution is likely to be most extensive along the western halves of T&T since most of the source registered facilities are located in these moderately to highly vulnerable watersheds; and Trinidad is more likely to have more polluted watersheds due to the greater population, prevalence of manufacturing and light industries and larger economies of scale relative to Tobago.

[123] Rajkumar, W.S., Buckradee, A., deRoche, S., & Prince, K. (2009). *Watershed Vulnerability Assessment Using the WRASTIC approach for Trinidad and Tobago*. Port of Spain: EMA.

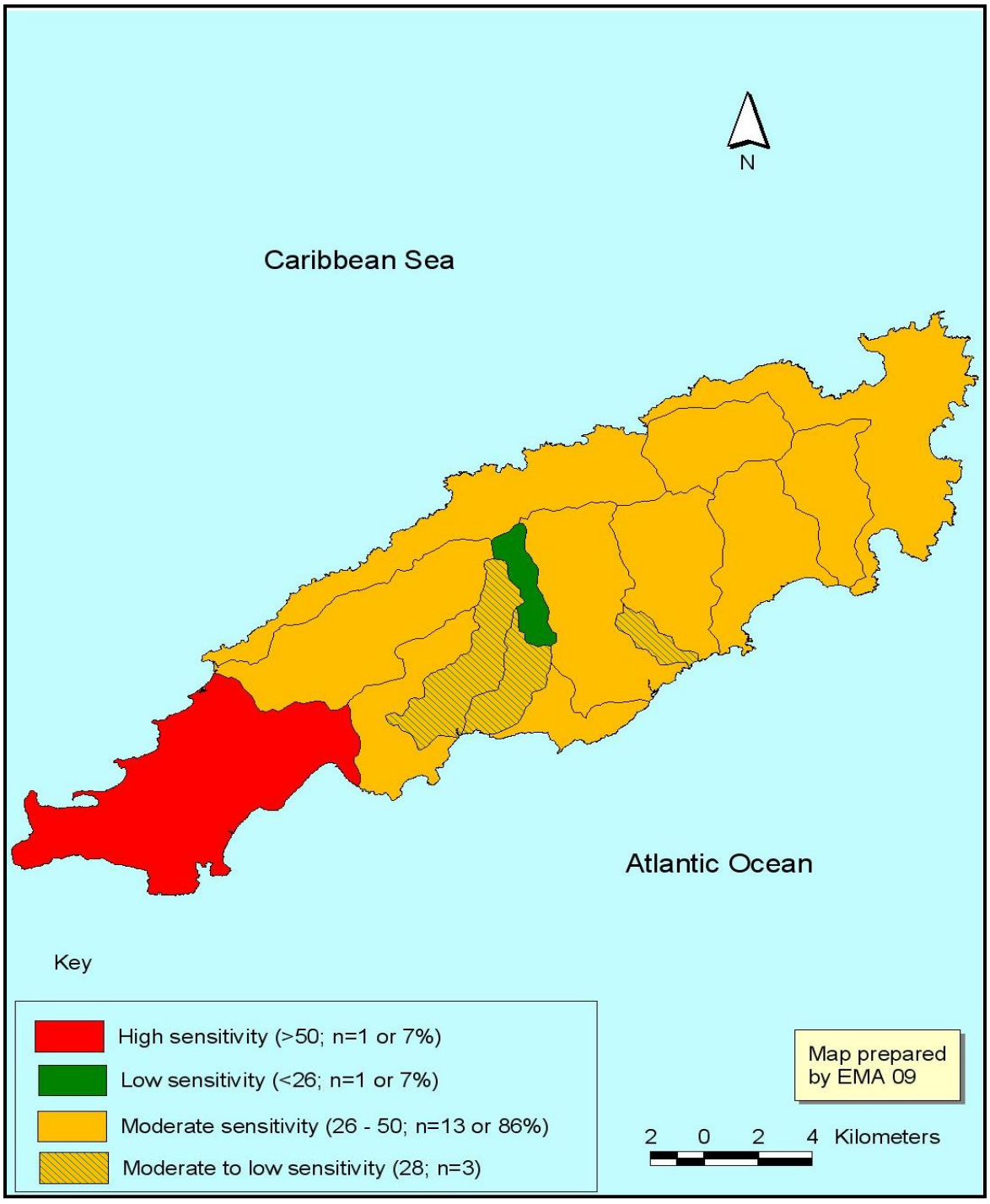
Figure 18 - A map showing the sensitivity of watersheds in Trinidad based on the WRASTIC approach



Source: Rajkumar et al. (2009)[124]

[124] Rajkumar, W.S., Buckradee, A., deRoche, S., & Prince, K. (2009). Watershed Vulnerability Assessment Using the WRASTIC approach for Trinidad and Tobago. Port of Spain: EMA.

Figure 19 - A map showing the sensitivity of watersheds in Tobago based on the WRASTIC approach



Source: Rajkumar et al. (2009)[125]

[125] Rajkumar, W.S., Buckradee, A., deRoche, S., & Prince, K. (2009). Watershed Vulnerability Assessment Using the WRASTIC approach for Trinidad and Tobago. Port of Spain: EMA.

6.3 Next Steps

In its current state, the water pollution rules are faced with a number of limitations that impact on their effectiveness as a tool for safeguarding T&T's water systems.

The first is that the responsibility falls on the EMA to identify which facilities are required to apply for a WPP, rather than having non-compliant facilities proactively apply for a WPP. As such, many facilities may be outside of the Second Schedule standards and may continue to do so unless they are targeted by the EMA. The permitting process is significantly more time and labour intensive on the EMA than the source registration process and so, the current system benefits the EMA by allowing the regulation of permit applications based on available processing capacity. Given the limited resources the Authority has at its disposal, and in lieu of ambient water standards, heavily discharging facilities are strategically prioritized to minimize environmental impact. If capacity can be increased in the Water Unit, a possible adjustment in the way forward for the Water Pollution Rules could be to amend the WPR so that the onus on acquiring a permit falls on the polluter rather than the Authority.

A second limitation is the nonspecific standards used the Second Schedule. These standards, while they may provide a good foundation, are not tailored to the local, heavily-industrialized context of T&T. Cognisant of this, the EMA is making a conscientious effort to use data gathered through the WPR to develop more detailed, industry based standards for the WPR.

Under rule 22 of the Environmental Management Act Chap. 35:05, officers may only enter a facility upon consent of the facility occupier or manager. Inspections must be scheduled with the facility occupier/manager ahead of time. Consequently, this allows some operators to temporarily modify their process (and resultant effluent output) to avoid penalties. A possible adjustment to the EM Act in the future may allow for greater scrutiny and enforcement of source registered polluters.

Another limitation is that households which do not contain commercial or industrial activities are not considered registrable facilities under sub-rule 4(6) of the WPR. Even without commercial or industrial activity residential households are an important point source of pollutants. Increasing the reach of legislation to residential housing can also increase the efficacy of the WPR provided the EMA also increases in its capacity to monitor and regulate these cases. However, given the abundance of households and that pollutants in their effluent may not be captured in the WPR, alternative policy instruments (such as product bans or outreach campaigns) may actually be more viable.

Within the upcoming years, the EMA hopes to partner with other agencies to increase the breadth of water protection provided by the WPR by:

1. *Creating ambient water quality standards*
   Ambient water quality also known as 'environmental water quality'[126] refers to open water bodies *viz.* lakes, streams and rivers as opposed to closed water systems *viz.* treated water and waste water distribution networks. Ambient water tends to be the primary receptor of point source and non-point source effluents and as such, can be considered the truest reflection of the state of water quality. Ambient water quality standards compliment and inform the administration of point source standards and permits since they ensure that the assimilative capacity of water bodies is not crossed.

2. *Developing non-point source management regulations*
   Non-point source (NPS) water pollution can be considered the loading of pollutants into ambient water from diffuse sources such as land run-off, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification. Particular NPS offenders include urbanised areas and areas with high agricultural or mineral extraction activity. Regulations to guide the management of NPS pollution are critical for ensuring healthy water sheds and informing the administration of the WPR.

3. *Develop an inventory of all registrable facilities*
   Given the limited resources to commit to enforcement, it is likely that registrable facilities may be unregistered. Similarly, facilities may be discharging pollutants not in keeping within the WPR without a permit. As it stands, the only data available for monitoring the impact to the environment under the WPR comes from the distribution and emissions of the most compliant facilities. Developing an inventory of all possible registrable facilities closes this gap by allowing a strategic reallocation of resources to enhance the effectiveness of the WPR.

[126] Poor, J.P., Pessagno, K.L., & Paul, R.W. (2007). Exploring the hedonic value of ambient water quality: A local watershed study. Ecological Economics, 60, 797 – 806.

7.0 LEGAL ENFORCEMENT OF THE ENVIRONMENTAL MANAGEMENT ACT CHAPTER 35:05, 2000

7.1 Overview

To understand the legal enforcement of the EM Act it is important to first understand the actors involved in the legal enforcement process surrounding environmental issues. These actors, as noted in the EM Act are:

1. The Environmental Management Authority (EMA)
   The primary role of the EMA established as a corporate entity, is the development and implementation of standards and programs for the management of the environment in accordance with the purpose of the EM Act. Further, the Authority is a regulatory body empowered by the EM Act to, among other things:
   a. Gather information;
   b. Require payment of prescribed charges and fees;
   c. Appoint inspectors who have the power of entry and inspection of vehicles and premises;
   d. Take environmental samples;
   e. Undertake emergency response activity during environmental emergencies;
   f. Implement schemes and programs regulating activities that affect the environment

2. The Environmental Commission (EC)
   The EC is a superior court of record with the power to enforce its orders, judgments and to punish contempt. The primary jurisdiction of the EC is to hear appeals on decisions taken by the EMA which can include, but is not limited to:
   a. Applications for enforcement;
   b. Assessments of compensation;
   c. Complaints brought by private parties
   d. Determination of permits and certificates

Contrary to popular belief, the EMA is restricted to operating within the parameters of the EM Act (and its subsidiary legislation) and does not have the jurisdiction to enforce against any and all environmental trespasses. The EMA cannot enforce against offenders for environmental pollutants for which subsidiary rules are not enacted. For example, in lieu of Air Pollution Rules

'visible emissions' from vehicles may fall under the jurisdiction of the municipal corporation[127], licensing authority and police services[128] rather than the EMA. In instances where subsidiary rules have been created to govern a particular pollutant, enforcement is not possible if the offense falls outside the purview of the legislation. For example, the *Noise Pollution Control Rules, 2001* do not regulate noise from vehicles and thus excessively loud vehicles fall under the jurisdiction of municipal corporations[129]. Part VI of the EM Act, which describes provisions for compliance and enforcement, only empowers the EMA to enforce against an individual or entity if sufficient evidence indicates that the alleged offender(s) has failed to adhere to one or more of 12 'environmental requirements' described in section 62. These 'environmental requirements', as cited in the EM Act are:

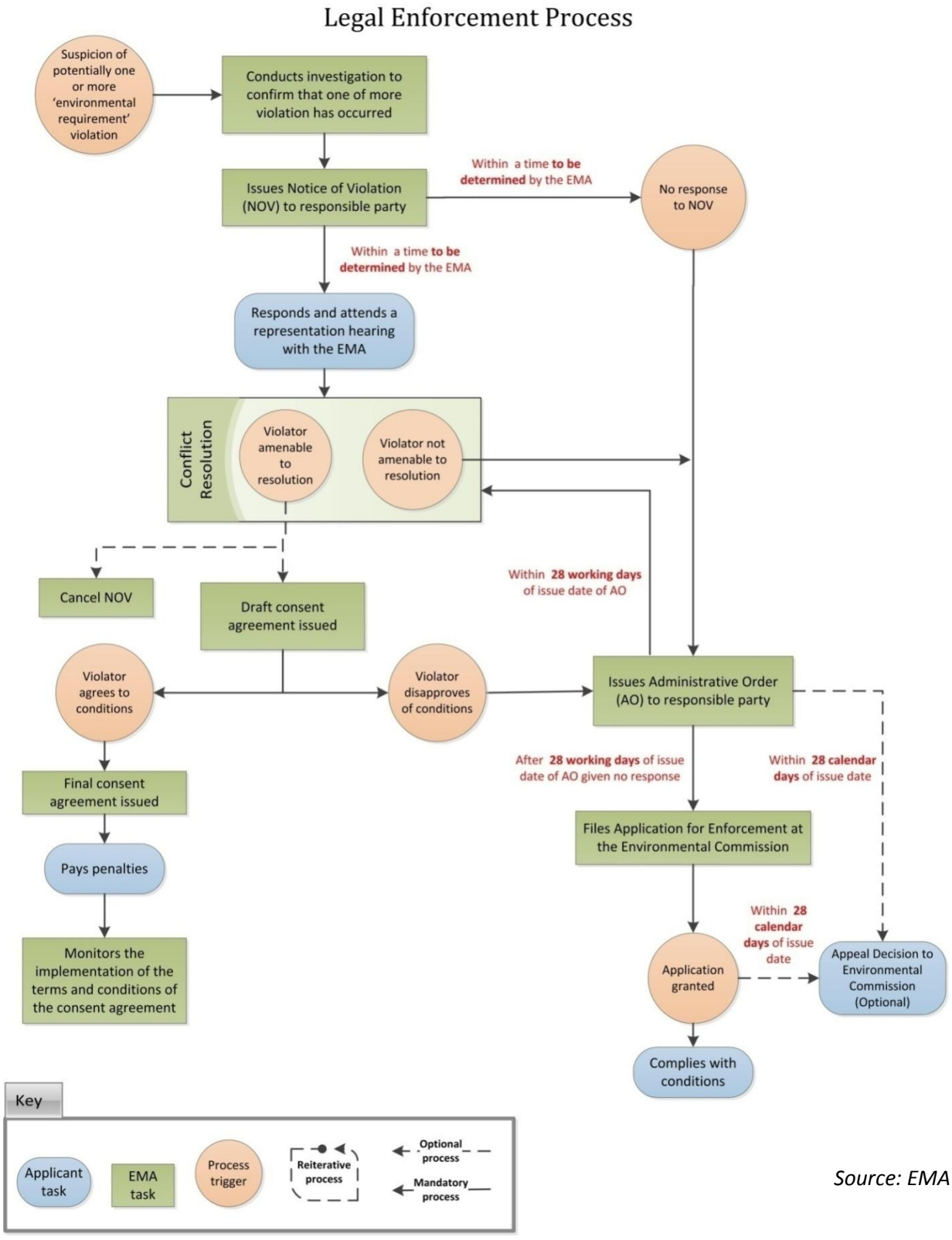
a) *Comply with the procedures for the registration of sources from which pollutants may be released into the environment;*
b) *Comply with the procedures and standards with respect to permits or licenses required for any person to install or operate any process or source from which pollutants will be or may continuously be released into the environment;*
c) *Provide in a timely manner complete and accurate information in any required submission to or communication with the Authority or in response to any inspection or request for information by the Authority;*
d) *Refrain from any unauthorized activities impacting on the environment in an 'environmentally sensitive area' or with respect to an 'environmentally sensitive species';*
e) *Comply with the performance standards, procedures, licensing or permitting requirements established for the handling of hazardous substances;*
f) *Apply for an obtain a Certificate of Environmental Clearance;*
g) *Comply with the conditions and mitigation measures in any such certificate;*
h) *Comply with the procedures and standards with respect to the periodic or continual monitoring of pollution or releases of pollutants or conditions required under a permit or license;*
i) *Provide timely and accurate notification with respect to an accidental or unauthorized release of a pollutant, or other incident with respect to a hazardous substance;*
j) *Control the release of pollutants in such a manner as to comply with any permit or license granted under section 50(1), 53(a), 57(1) or 60(1);*
k) *Submit timely payment of required fees or charges payable to the authority; and*

[127] Seen as 'nuisance' under the Public Health Ordinance (1950), Sections 69 and 70; 'nuisance' under the Municipal Corporations Act (1990), Section 222(1).
[128] 'Visible emissions' can earn a penalty of TT$60.00 under the Motor Vehicles and Road Traffic Regulations made pursuant to the Motor Vehicles and Road Traffic Act (rev. 1980), Regulation 38, Rule 13.
[129] Seen as 'nuisance' under the Public Health Ordinance (1950), Sections 69; 'nuisance' under the Municipal Corporations Act (1990), Section 222(1); directly addressed under the Motor Vehicles and Road Traffic Act (rev. 1980), Regulation 38, Rule 12(1), 43 and 49.

l) Comply with all other procedures, standards, programmes and requirements in such a manner as may be prescribed by rule or regulation.

Where the EMA believes that a person has violated one of these environmental requirements, the legal and enforcement process described in Figure 20 is triggered.

Figure 20 - A schematic diagram of the legal enforcement process as described in the EM Act



Source: EMA

If an investigation by the EMA reveals that at least one environmental requirement may have been breached, a notice of violation (NOV) is issued to the alleged violator to alert them to the issue and invite them to participate in a representation meeting within a specified timeframe. There are typically three outcomes of this meeting:

I. *Withdrawal of the NOV*

If the breaches of 'environmental requirements' can be sufficiently justified at the representation meeting, the EMA may cancel the NOV. Typical examples of this are instances where technically breaches are made during an emergency response. For instance, if a landslide occurs and renders a roadway impassable, the Ministry of Works may excavate and stockpile the fallen earth (technically within the scope of Designated Activity 8) without applying for a CEC. Though their action violates Section 62(f) of the EM Act, the prioritization of timely protection human welfare over the bureaucracy of the CEC process is understandable and may be absolved.

II. *Enter into Consent Agreement*

If the Violator cannot sufficiently justify their failure to adhere to the breach, they may enter into a consent agreement. The consent agreement allows them to continue their existing operations under conditions prescribed by the EMA that can include modification to practices, payment of fees and/or the attainment of permits. The EMA monitors activities under consent agreement to ensure conditions are upheld.

III. Issue an Administrative Order (AO)

An AO is issued to the Violator if they fail to attend a representation meeting or is not amenable to a consent agreement. An AO may contain, among other things:

a. Cease and desist directives;
b. Directives for the remediation of environmental damages;
c. Directives for carrying out investigations, monitoring and/or record keeping;
d. Administrative civil assessments for compensation[130];
e. Directives for compliance under a specific provision of the Act.

Upon receipt of the AO, the Violator has a window of time to (re)consider entering into a consent agreement. If they opt not to, an application of enforcement of the AO is filed with the EC and if granted, becomes law. Failure to comply with orders of the EC may result in

[130] Compensatory fees levied are detailed under section 62(3) of the EM Act. Where an individual is liable, charges may range from TT$5000.00 per violation + TT$1000.00/day for continuous violations. Where an entity is liable, charges may range from TT$10,000.00 per violation + TT$5000.00/day for continuous violations.

imprisonment. A Violator may appeal an AO within twenty eight (28) days of being served, to the EC.

Given that the EM Act is centred on sound management of the environment in the context of sustainable development, the primary legal enforcement process is not designed to swiftly punish Violators of 'environmental requirements' within the EM Act. Rather, the process gives Violators multiple opportunities to reach a compromise and adopt environmentally responsible practices. There may, at times, be incidents of extreme environmental peril for which the previously described legal enforcement process may be too slow and more drastic action must be taken. Alternatively, it may be reasonable to believe that occurring activities will likely result in the violation of an environmental requirement. The EM Act caters for these circumstances under section 68 by granting the EMA the power to seek from the EC:

i. Restraining orders or Injunctions;
ii. Orders of closure of facilities;
iii. Prohibitions of operations; or
iv. Any other remedy available under law

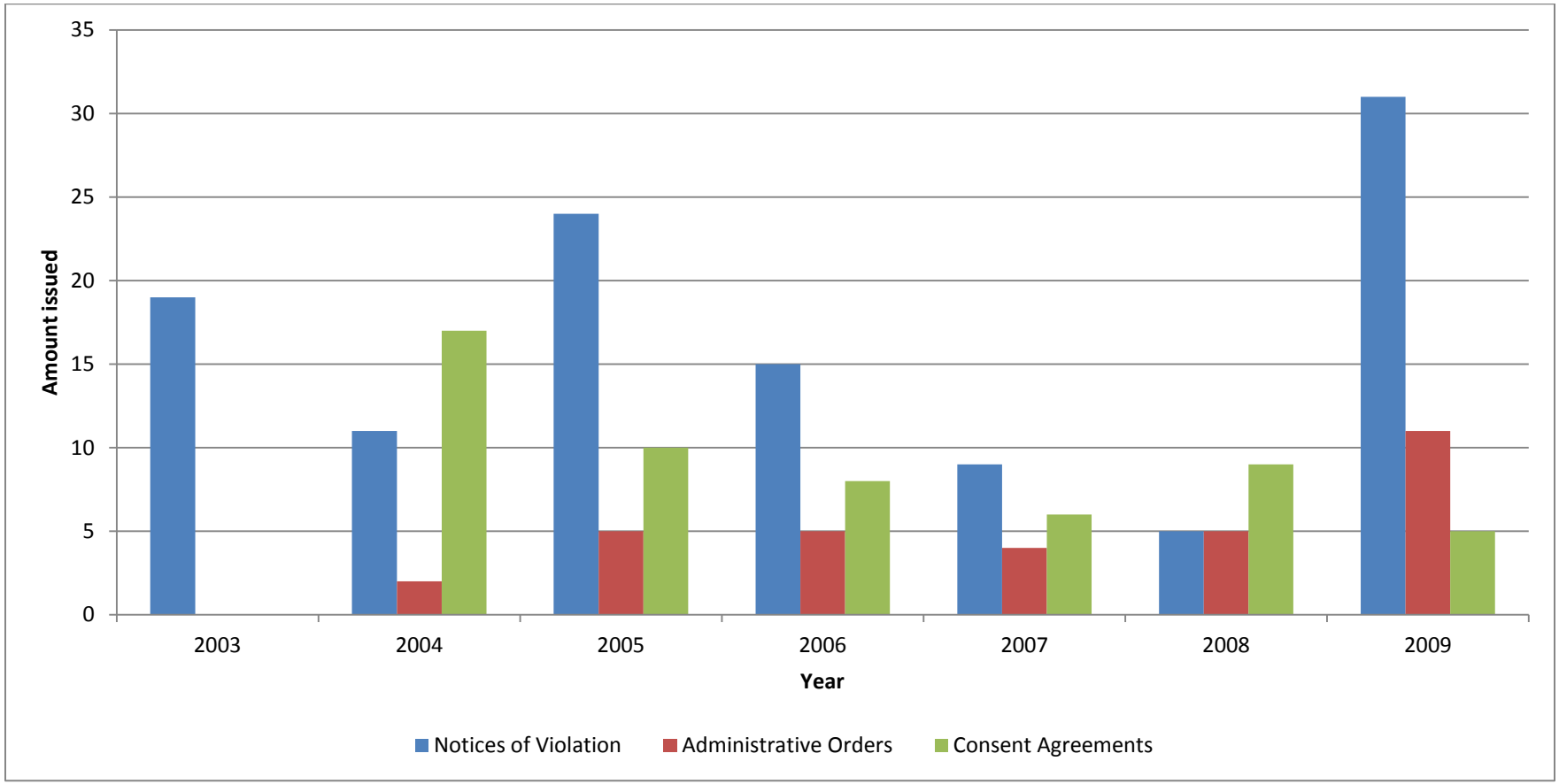
These actions are considered *ex-parte* as the violator is not given notice or an opportunity to resolve the matter *before* enforcement is dealt. Unlike the NOV to AO legal process, it is not collaborative. *Ex parte* actions are thus, typically restricted to cases where there might be, or threat of, extremely high environmental impact and are not commonly opted for by the EMA.

7.2 The State of the Environment in the Context of Legal Enforcement

The EM Act provisions for the dispense of NOVs for failing to submit timely documents or paying prescribed fees, though in practice NOVs are typically issued for matters where environmental impact is occurring (or will likely occur) rather than for administrative/process *faux pas*. As such, analysis of the trends in NOVs, consent agreements and AOs dispensed can hint to the state of the environment of T&T by highlighting the degree to which environmentally responsible development is occurring each year. Further to that, they can also allude to the state of environmental awareness among the citizenry as many potential breaches are discovered as a result of complaints received by the public.

Figure 21 shows legal enforcement statistics surrounding breaches in 'environmental requirements' related to CEC matters from 2003 - 2009. Caution should be made when interpreting this data, as the legal enforcement process is not bound to discrete annual intervals. Thus, while a NOV may be issued in one year, the AO or consent agreement following that NOV may be issued in a subsequent year.

Figure 21 - A graph showing the number of NOVs, AOs and consent agreements issued over CEC related violations during the period of 2003 - 2009



Gradually decreasing numbers of consent agreements issued over the 7 year period imply that fewer violations were significant enough to warrant modification or penalty each year. Similarly, it reveals an increasing number of 'justifiable' offenses occurring each year. The year 2009 can be seen as evidence of those conclusions: showing the highest number of NOVs issued to date along with the fewest consent agreements entered into to date. However, it is also feasible that many of the NOVs issued in 2009 are yet to be processed and upcoming years may show higher number of consent agreements stemming from this backlog (similar to what was observed between 2003 and 2004).

7.3 Next Steps

Presently legal enforcement of the EM Act faces a couple of challenges which limits its effectiveness as a mechanism to foster greater environmental stewardship.

Firstly, the absence of clear and quantifiable definitions for key terms within some subsidiary legislation makes it difficult conclusively determine whether or not an 'environmental requirement' has been breached. For instance, there is no clear definition for what "establishment" means within the context of the CEC Rules and as such, ambiguity exists around how much work on a project can be conducted before it is argued that 'establishment' has occurred. To cope with this and similar situations, internal policies would be developed to reduce the degree uncertainty in determining breaches. Ultimately, the EM Act and its subsidiary legislation would have to be revised to formally address this shortcoming.

Another legal enforcement limitation is the given limits on compensatory penalties levied against violators under section 62(3) of the EM Act. These limits vary from TT$5000.00 and TT$10,000.00 for individuals and persons other than individuals respectively. However, these maximum penalties have not kept pace with economic growth and inflation. For example, the average household income in 1997/1998 was $TT4417.00 per month while in 2008/2009 it had risen to $TT9201.00 per month or a rise of 108% in nominal terms. Concurrently, the GDP grew from TT$51.3 billion in 2000 to TT$163.3 billion in 2008. With such economic growth, the fixed limits established in 2000 are becoming increasingly inadequate as a deterrent against poor environmental management. In coming years, the EMA will seek to comprehensively examine the actual economic damages and benefits derived from breaching environmental requirements to better inform new maximum limits for penalties. These findings will then be considered when the EM Act is to be revised.

8.0 FINANCIAL AND ECONOMIC POLICY INSTRUMENTS

Financial and Economy policy instruments are also referred to as *market-based instruments* (MBI) since these techniques depend on market forces to alter the behaviour of consumers and producers[131]. The Center for Environmental Economics (2008) further defines MBIs as approaches that "*provide continuous inducements, monetary and near-monetary to encourage polluting entities to reduce releases of harmful pollutants*". As noted in *Section 1 - Introduction* many policy instruments can be sorted in many ways but typically, economic policy instruments are dichotomously separated into:

i. Price-based instruments –
   These are designed to adjust the price or cost of either a polluting activity or a mitigating activity. Priced based approaches are ideally used when the quantity of the service provided is not critical and it is desirable to maintain the existing system of property rights[132]. Examples of price-based instruments include: taxes, charges, levies, subsidies, competitive tenders and deposit-refund systems.

ii. Quantity-based Instruments –
   This approach usually involves the creation of a new market cultivated by the setting of an imposed limit or cap on a tradable item. Quantity based instruments work because entities are encouraged to find the most cost-effective method of meeting the limit. This approach only works if the property rights to the tradable item can be clearly defined, verifiable, enforceable, valuable and transferable[133]. Significant research must be done prior to establishing a new market since its success may be predicate don low scientific uncertainty and low sovereign risk[134]. Examples of quantity-based instruments include: emission trading schemes and tradable green certificates.

Though in the early 1980s, a deposit-refund system was implemented by a local glass distributer to recover used glass bottles[135], price-based approaches were notably absent from T&T's environmental management landscape prior to the creation of the EM Act. Since the first

[131] US Environmental Protection Agency. (2008). *Economic Incentives.* Retrieved from the National Center for Environmental Economics: http://yosemite.epa.gov/EE%5Cepa%5Ceed.nsf/webpages/EconomicIncentives.html
[132] Burnett Mary Regional Group. (2005). *Selecting market-based incentives for natural resource management*. Queensland: Central Queensland University.
[133] Burnett Mary Regional Group. (2005). *Selecting market-based incentives for natural resource management*. Queensland: Central Queensland University.
[134] Murtough, G., Aretino, B., & Matysek, A. (2002). *Creating Markets for Ecosystem Services*. Productivity Commission Staff Research paper.
[135] United Nations Office for South-South Collaboration. (1998). *Sharing Innovative Experiences Vol. 2*. UNOSSC.

drafting of the Act in 1995, the use of MBIs have been advocated for through various environmental legislation. Most notably:

i. Section 19(2) of the Environmental Management Act Chap. 35:05[136]
Speaking to the drafting of the national Environmental Code[137], this section states:
"*…the Authority shall consider and where appropriate, seek to incorporate –*

a. *The imposition of product charges where the product manufacturing process or usage is a significant source of pollution; and*
b. *The adjustment of direct government subsidies or the establishment of tax differentiation or tax incentives, to encourage beneficial environmental activities or to ensure that pricing reflects environmental costs more adequately*."

ii. Section 2.3 of the National Environmental Policy (2006)[138]
Speaking to the basic principles that should guide future environmental policy, this section states:
"*Resource conservation, waste minimization and recycling must be promoted as a way of life. Economic incentives, environmental taxes and "green" consumer movements must become an accepted part of environmental management strategy.*"

AND

"A *key Principle of pollution control policy is that the cost of preventing pollution or of minimizing environmental damage due to pollution will be borne by those responsible for pollution. The principle seeks to accomplish the optimal allocation of limited resources. Important elements of the principle are:*

a. *Charges are levied as an application or processing fee, purchase price of a license or permit, which entitle the holder to generate specific quantities of pollutants; and*
b. *Money collected will be used to correct environmental damage.*"

iii. Chapter 6 of the National Environmental Policy (2006)[139]
Dealing specifically with the subject of financial and economic instruments, this chapter advocates the use of MBIs to achieve the goals of the NEP. Specifically, it calls for:

[136]The EM Act Chap. 35:05 can be found at the EMA's website: http://www.ema.co.tt/docs/legal/cur/Act_3_of_2000.pdf
[137] The Draft Environmental Code is a document that consolidates evaluates all environmental legislation prior to the EM Act and attempts to rationalize and modernize them. Copies of the draft environmental code are available for purchase at the EMA's head office in Port of Spain.
[138] The NEP (2006) can be found on the EMA's website:http://www.ema.co.tt/new/images/policies/national-environmental-policy2006.pdf
[139] The NEP (2006) can be found on the EMA's website:http://www.ema.co.tt/new/images/policies/national-environmental-policy2006.pdf

a. Deposit-refund taxes for beverage containers, tyres, batteries, fluorescent bulbs, appliances, used oil, and automobiles;
b. A tax on energy consumption;
c. A fuel tax on diesel;
d. Revision of legal standards of liability so that polluters are held responsible for the financial consequences of their actions.

While MBIs are heavily suggested, their application in T&T has been very limited.

The most significant environmental policy instrument using market forces to date has been the establishment of the *Green Fund* and *Green Fund Levy (GFL)* under the Finance Act of 2000[140]. This was amended by Act No. 5 of 2004 followed by the Green Fund Regulations in 2007. The purpose of the Green Fund is to:

i. Enable grants to be made to community groups and organization primarily engaged in activities related to remediation, reforestation, and conservation of the environment;
ii. Undertake or do all such things as are incidental or conducive to the attainment of the purpose referred to above.

The green fund is capitalized by the GFL; a 0.1% tax on the gross sales or receipts of all companies carrying on business in T&T payable quarterly in each year of income. Given the purpose of the Green Fund is to mitigate the cost of environmental remediation and restoration, the GFL can be considered a price-based instrument for environmental management.

After the GFL went into effect on January 1st, 2001, the first contribution was received on March 31st, 2001. As of Dec. 31st, 2009 the fund holds approximately TT$1,900,000,000.00. Funds have yet to be dispersed since the implementation Green Fund only become operational in 2008 with the establishment of the Green Fund Executing Unit (GFEU) and Green Fund Advisory Committee (GFAC) under the Ministry of the Planning, Housing and Environment (MOPHE). At present two projects are under consideration:

a. The "Sustainable Community Reforestation Initiative" proposed by the Fondes Amandes Community Reforestation Project (FACRP)
b. The "Nariva Swamp Restoration, Carbon Sequestration and Livelihoods Project" proposed by the Environmental Management Authority (EMA)

[140] The Finance Act of 2000 amended section 6(1) of the Miscellaneous Taxes Act Chap. 77:01 to include the GFL. As such, it is imposed under the Miscellaneous Taxes Act Chap. 77:01.

The benefits to the environment due to the GFL have yet to be seen, however, it is expected that in the upcoming years, NGOs and CBOs would make use of the fund to roll out large scale pollution abatement and restoration projects.

Another price-based environmental management instrument currently being developed is a national beverage container deposit-refund system (DRS). In 1998, the EMA conducted a feasibility study of introducing such a system and subsequently a bill, titled '*The Beverage Container Bill*', was drafted to reduce the prolific littering of plastic and glass containers in T&T. Presently, the EMA is working assiduously to have the bill lain before Parliament.

The GFL and proposed DRS can be seen as softer forms of MBI. The former does not directly encourage a change in behaviour by the individual or company since the amount levied is not tied to negative environmental impact associated with the company. The latter has a stronger influence over the behaviour of individuals and companies but still involves a degree of voluntary compliance to be effective. Harder forms of MBI such as direct taxes tied to pollution output or subsidies for sustainable practices face a great obstacle in T&T's subsidization of energy (fuel). For environmentally sustainable policies to take precedence the dominant energy policy must be revised, however this requires significant political will and support from the population. Moving forward the EMA in conjunction with partnering agencies is committed to creating conditions for which a more sustainable energy portfolio and a 'green economy' may thrive.

9.0 NON-LEGISLATIVE TOOLS

9.1 Strategic Plan

The Environmental Management Authority (EMA) engages in activities beyond the requirements of the EM Act for further management of pollution and reduction in negative environmental impacts. Since its inception, the EMA creates Strategic Plans (SP) that lists objectives to be achieved within a specified timeframe. The SPs created for the periods 1996-2000 and 2000-2004 aimed to establish the presence and purpose of the EMA with respect to the environmental landscape[141]. The most recent SP is applicable for the years 2004-2008 and its mission was to develop effective management strategies in relation to clean air, clean water, healthy ecosystems, less noise and improved waste management[142]. The targets that are self-established by the EMA require collaborations between governmental and non-governmental organizations and several research studies to assess the state of the environment in T&T (T&T) in order to achieve the strategic goals. Objectives in the SP for 2004-2008 in which the EMA developed and which they are not mandated by the EM Act include[143]:

(a) Clean Air objectives:
- Develop differential vehicle taxation rates and registration fees for incorporation into the Regulations for the Motor Vehicle and Road Traffic Act. This is to promote the purchase of fuel-efficient cars by the public.
- Phase out of lead in gasoline
- Promote use of cleaner/alternative fuels

(b) Clean Water objectives:
- Develop watershed management programmes for three (3) watersheds
- Develop a Non-Point Source pollution programme

(c) Waste Management objectives:
- Develop non-oil spill response plan by December 2005
- Complete characterization of lead contaminated sites by June 2005
- Clean up of two contaminated sites per year

[141] Strategic Plan 2004-2008. Introduction. Environmental Management Authority: Trinidad.
[142] Strategic Plan 2004-2008. Introduction. Environmental Management Authority: Trinidad.
[143] Strategic Plan 2004-2008. Clean Air, Clean Water and Waste Management Sections. Environmental Management Authority: Trinidad.

9.2 Awareness Programmes

Another voluntary measurement the EMA has adopted is raising awareness and encouraging positive attitudes towards the environment and its processes to the public through various media. The Corporate Communications and Public Education Department is responsible for communicating messages across T&T on environmentally related matters. The main avenues for increasing environmental awareness at the EMA are through the generation of print material such as: newspaper ads, posters, booklets and brochures, along with developing electronic material such as: video and audio. Each educational material promotes awareness of ESAs and ESS, air, water, waste and noise pollution, and other environmental aspects.

The EMA is also responsible for organizing tours to various places in T&T and facilitating nationwide competitions to further raise positive environmental awareness. The workshops, competitions and programmes the EMA has developed since its establishment include:

1. In 1998, the EMA established an Environmental Club Programme which encourages participation from schools and community groups to improve their environments through initiative efforts[144]. This was an effort to improve environmental awareness and stewardship on a national level by involving students and the public.
2. In 2008, the EMA in collaboration with the Ministry of Education held a Secondary Schools Eco-song Competition. This competition awarded students the opportunity of expressing their views on the environment through music.
3. In 2008, the EMA strived to create awareness among the youth of T&T through the initiation of the Environmental Youth Workshop[145]. It is designed for Sixth Form students who carry a passion for protecting the environment. Each workshop is based on a different theme and held in a different location in T&T. In 2008, the theme was "People and the Northern Range" and in 2009, the theme was "Island Biodiversity for Sustainable Development". The products of these workshops included newsletters and films developed by the participants.
4. The EMA offers lectures/presentations on environmental topics to those interested.

The EMA is currently looking to expand their outreach campaigns by adding a Youth Ambassadors Programme. This will aim to continue the promotion of awareness among participants of the Environmental Youth Workshops. This will provide for greater environmental awareness through different arts and thereby encouraging those around us to become more environmentally-friendly.

[144] Environmental Management Authority Website. Environmental Club Programme. Retrieved from http://www.ema.co.tt/new/index.php/education/programmes/schools-programmes/enviro-club
[145] Environmental Management Authority Website. Environmental Workshop. Retrieved from http://www.ema.co.tt/new/index.php/education/programmes/youth-programmes/environmental-workshop

10.0 WAY FORWARD

Over the past 14 years, the landscape of environmental policy instruments (EPI) in T&T has transitioned from a fragmented array of stand-alone legislations to a coherent structured system with a coordinating entity (the Environmental Management Authority (EMA)) and a shared national goal with respect to the environment (the National Environmental Policy (NEP)). Through the EM Act, a new generation of 'command-and-control' type legislation has been introduced to cope with noise, water, development, environmentally sensitive species and environmentally sensitive areas; economic policy tools that use market signals to alter attitudes to the environment are being developed in the beverage container bill; and national educational and awareness campaigns have been implemented by the EMA. However, while it is fine to reflect on the achievements made thus far, we must cast an eye towards what is still to be done.

10.1 Regulatory (Command and Control) Policy Instruments

Part V of the Environmental Management Act Chap. 35:05 mandates the creation of various subsidiary legislation to safeguard the environment. Of those prescribed, 5 have been implemented while 2 others currently exist in draft form. The outstanding rules are:

i. The Draft Air Pollution Rules (DAPR)
   These rules provide a framework for monitoring and controlling air pollution from industrial, commercial and other minor (e.g. health facilities, education facilities) sources. Air pollutants to be monitored under the DAPR fall into 4 categories: particulates, non-metallic inorganic pollutants, metallic pollutants and organic pollutants. Between 2005 to date, the DAPR has undergone several revisions but has yet to be enacted by Parliament. Once enacted, the DAPR would *not* supplant existing legislation regarding motor vehicles or nuisance due to emissions.

ii. The Draft Waste and Hazardous Substances Management Rules
   Currently being developed, these rules hope to define hazardous and non-hazardous wastes and provide a framework for monitoring and regulating the generation, transport and disposal of solid and hazardous waste in T&T.

Even among the enacted legislation, there is still room for improvement – both in comprehension and implementation – as noted in the previous chapters. Cognizant of this, the

EMA has, and will, continue to revise enacted legislation periodically while simultaneously streamlining processes to ensure that they are applied to their full capacity.

10.2 Economic and Financial Policy Instruments

Given the politically entrenched climate surrounding the national energy policy and practices, particularly the subsidization of energy, economic instruments adapted to date have been mostly indirect ventures. The most promising is the Draft Beverage Container Bill which creates a framework for a cash-refund system for plastic and glass beverage containers in T&T. Not only will the EMA continue to strive for its enactment, but we will also endeavour to foster an atmosphere where 'green businesses' can thrive in T&T.

10.3 Voluntary Instruments

The EMA will continue to engage the public through education and awareness campaigns to ensure that the wider public develops a keen sense of environmental responsibility and eco-consciousness. Future efforts will be focused on connecting people to our diverse ecosystems to enrich their sense of place and environmental worth.

10.4 Assessing the State of the Environment

Understanding what environmental pressures and drivers are not addressed by legislation, either due to a lack of legislation or shortcomings in their design and enforcement, allows one to make fair assumptions about the state of the environment. For instance it is not farfetched to believe that significant stress is placed on the environment by solid and hazardous waste due to the absence of solid waste rules and the lack of enforcement of legislation that may address them. Scrutiny of existing legislation can also yield hints to the state of the environment based on the data gathered under those legislations. For instance, we have seen that watersheds in which there are higher numbers of source registered facilities are more vulnerable to water contamination. Similarly, it can be assumed that areas where more CECs have been issued would experience greater stresses on all receiving media (air, water and land) than if no development were to have occurred. However, while examining the current and future EPIs of T&T provides a good proxy for the state of the environment, more accurate assessments for the state of the environment can be done using specific indicators closer tied to other elements of the DPSIR framework.

In lieu of this, the upcoming SOE reports will focus specifically on measured data within a selected theme. So, while the assessment of CECs categorized, at least in part, as designated activity 8 in this SOE report can hint to land use change (LUC), the 2010 SOE will look exclusively at LUC using aerial maps and geographic information system (GIS) data to delve into the extent of LUC over time. Furthermore, in 2011 we will examine solid and hazardous waste to verify assumptions about the extent of this pollution type on the environment.

PART B: ACTIVITIES, ACCOMPLISHMENTS AND GOALS OF THE EMA

ACCOMPLISHMENTS AND ACTIVITIES FOR 2009

STRATEGIC PRIORITIES

Clean Air

Air Pollution Rules 2009

Pursuant to Section 49 (1) of the Environmental Management Act, Chap 35:05, the Authority together with the United Nations Development Programme (UNDP) commissioned the Pollutant Inventory Study for Trinidad and Tobago. The study attempted to identify significant sources of pollutant discharges in the form of air emissions. Of the potential sources of air pollution surveyed in the Study, about 54 per cent were point source emitters, with 46 per cent as non-point sources. Consequently, the EMA from 2000 began the process of developing the Air Pollution Rules in order to fulfill its mandate under Sections 49-51 to manage, permit and prohibit air pollution.

The Draft Air Pollution Rules (2009) seek to introduce a registration and permitting system to authorize any process releasing air pollutants. It provides for a First and Second Schedule which lists the substances that are air pollutants and provides for the establishment of a Register of Air Pollutants by the Environmental Management Authority. The Rules also apply to new & existing facilities.

Therefore, these Rules seek to set the limits for pollutants that may be released into the ambient air by various sources in order to protect public health and the environment from the adverse effects of air pollution.

Legal Services, in conjunction with Technical Services and the Chief Parliamentary Counsel's Department of the Ministry of the Attorney General, finalised the draft of Air Pollution Rules 2009 which were submitted to the Ministry responsible for the Environment for review and further action.

Challenge: Delays in finalising the Rules were often attributable to slow feedback from stakeholders.

Clean Water

Develop a National Non-point Source (NPS) Pollution Management Programme

The Water Pollution Rules came into effect in May, 2007 with the aim of getting industries in Trinidad and Tobago to reduce both the volumes and concentrations of pollutants discharged in their wastewater, improving the quality of receiving waters. The implementation of these rules generally, does not address the problem of non-point source pollution.

NPS pollution comes from many diffuse sources and is caused by rainfall moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into ponds, rivers, wetlands, coastal waters, and even into underground sources of drinking water.

The Authority considers the impacts caused by NPS pollution as a serious problem that must be treated in our effort to achieve clean water for human use and to maintain healthy ecosystems. For this reason it is deemed necessary to develop a national NPS pollution management programme to compliment the Water Pollution Rules.

The purpose of the project is to develop a comprehensive NPS pollution management programme with the long term goal of protecting and restoring water quality from NPS pollution through assessment, implementation, and education.

The NPS pollution management programme will include strategies to achieve the following objectives:

- Collect data to monitor the condition of surface and ground waters.
- Assess data to determine the water quality status and identify any impairment in watersheds.
- Prioritize watershed to be targeted for protection and restoration based on the degree of impairment or the potential for impairment and value of the watershed.
- Focus NPS abatement efforts, implementation strategies, and available resources in watersheds identified as impacted by NPS pollution.
- Support the implementation of local programmes to reduce and prevent NPS pollution through assessment, implementation, and education.
- Develop partnerships, relationships, memoranda of agreement, and other instruments to facilitate collective, cooperative approaches to manage NPS pollution.
- Enhance public participation and outreach to facilitate forums for citizens and industry to contribute their ideas and concerns about the water quality management process.
- Develop relevant legislation for the prevention of NPS pollution, if so required.
- Develop a public education and awareness raising campaign

For the period October 09 – Sept 10 the following outputs are expected:

- Finalised NPS pollution management programme report document.
- Public education and awareness materials published in newspapers.

Waste Management

National Hazardous Waste Inventory 2009: Priority and Emerging waste streams- PCBs, E-wastes, heavy metals, Bio-medical

The Government of the Republic of Trinidad and Tobago (GORTT) acceded to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention) in 1994. The purpose of the Basel Convention is to *inter alia*:

- Minimise the generation of hazardous wastes in terms of quantity and hazard;
- Dispose of them as close to the source of generation as possible; and
- Reduce the movement of hazardous wastes.

Each country that is a Party to the Basel Convention is required to report annually to the Basel Secretariat on the quantities of hazardous waste generated and their movement (export/import/transit). To date the GORTT has completed inventories and reported to the Secretariat for the years 2003 through 2008. The 2009 Hazardous Waste Inventory will collect the data required for reporting to the Basel Convention Secretariat for the year 2009 and gather relevant and current information on priority waste streams and emerging hazardous waste streams of global importance for specific attention. These priority and emerging waste streams include: Biomedical Wastes, Electronic or E-wastes, Polychlorinated Biphenyls (PCBs), Lead and its compounds, Mercury and its compounds, Cadmium and its compounds, spent catalysts, persistent organic pollutants, and Hydrocarbons.

The purpose of this project is to

- Obtain information on generation, movement and disposal of hazardous wastes in Trinidad and Tobago for reporting to the Basel Convention Secretariat.

  Obtain information on national hazardous waste streams focusing on priority and emerging waste streams to better inform development of national policy and legislation governing hazardous wastes.

Healthy Ecosystems

Capacity Building of the Stakeholder Management Committees (SMCs) for ESAs and Coordination for implementation of management plans

Stakeholder Management Committees (SMC) have been established for several of the ESA's, including Matura National Park, Buccoo Reef Marine Area, the Aripo Savannas Scientific Reserve and Nariva Swamp. Support of these committees was initiated in previous fiscal years and this project description represents a continuation.

Management committees comprise stakeholders from differing backgrounds. To enable these committees to function as a team and to understand the requirements of protected area management, capacity building is necessary. Strategic training workshops have been held for three SMCs - Matura, Buccoo Reef and Aripo Savannas.

During the last strategic plan, the EMA's focus was on the designation of ESAs and ESSs. The EMA also addressed the need to set up SMCs, commission baseline research in Matura and Aripo and conduct a management planning exercise for the Aripo Savannas. The EMA is now entering an implementation phase in terms of the actual management of the ESAs, and there is a need for all stakeholders to make the transition to actual implementation of the management plans.

Management Plans exist for:

- Matura (CFCA 1998),
- Nariva Swamp (IMA 1999),
- Aripo Savannas (CANARI 2008).
- Buccoo Reef (IMA 1995),

Implementation of the management plans for the ESAs may be accomplished through:

- Recruitment of ESA Coordinators for each area to manage the process;
- Seminar / workshops on implementing the management plans for the SMCs;
- Development of legal and enforcement manuals for each of the ESAs;

The objectives of this project are:

- Continue recruitment of ESA Coordinators for each area, (Matura, Nariva and Aripo Savannas. THA will recruit Park Manager for the Buccoo Reef);
- Provide seminar / workshops on implementing the management plans for the SMCs;
- Increase understanding of the legal responsibilities of overlapping jurisdictions in the ESAs;

Communications and public awareness campaign for the International Year for Biodiversity 2010

Trinidad and Tobago ratified the Convention on Biological Diversity on August 1, 1996 and as an enabling activity engaged in planning a national strategy for Biodiversity. The EMA coordinated this National Biodiversity Strategy and Action Plan (EMA 2001), which elaborated priority actions for Trinidad and Tobago to enhance its conservation and management of the country's living flora and fauna. Education and awareness of biodiversity (ecosystems, species and genes) was identified as one of the leading priorities from all sectors of stakeholder groups during this exercise.

In response to the recommendation adopted by the Conference of the Parties to the Convention on Biological Diversity (CBD), 2010 has been proclaimed as the International Year of Biodiversity (IYB).

In April 2002, the Parties to the Convention on Biological Diversity (CBD) committed themselves to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth.

This target was subsequently endorsed by the World Summit on Sustainable Development and the United Nations General Assembly and was incorporated as a new target under the Millennium Development Goals.

A 2009 consultancy would have produced a communication strategy for this five year campaign. The development of this strategy would have been guided by best practices and tried and tested measures from around the world (CBD, CEPA and others), to produce a comprehensive communications and public education plan for T&T to begin implementation in 2010**.** While implementation will begin in IYB 2010, the plan is expected to detail 5-years of communications on biodiversity for the Trinidad and Tobago population, in order to sustain the effort and heighten such awareness over this 5-year period. This plan entails the following:

- Use of the Education, Interpretive Working Group (EIWG) to assist in guiding the process

- Utilise research and management planning documents from the Environmentally Sensitive Areas (ESAs) and Environmentally Sensitive Species (ESSs) for use in the communication strategy
- Utilise the Stakeholder Management Committees (SMCs) and relevant geographical communities of the Environmentally Sensitive Areas (ESAs) as target audiences for development and implementation of communication strategies and products
- Utilisation of the EMA Schools' competitions
- Networking with CBO's NGO's and the private sector to encourage and coordinate biodiversity communication activities

Implementation of the Updated Management Plan for the Aripo Savannas Environmentally Sensitive Area

Work on this project was initiated in the 2006 - 2007 fiscal year and this project description represents a continuation of the work to be carried out. An outline Management Plan was prepared for the Aripo Savannas 26 years ago. In 2006 CANARI was contracted to update the existing management plan from 1980 and undertake a comprehensive management planning exercise for the Aripo Savannas. This exercise was completed in 2009. This project is therefore to continue with the implementation of priorities that were identified in the management planning project.

The Aripo Savannas management planning process clearly identified several issues which can be prioritized into activities. The process involved a wide cross-section of stakeholders and priorities such as research, education and awareness emerged, particularly in the communities surrounding the ESA.

To achieve the project objectives, park management staff will be hired to implement the management plan. This will entail:

- Working with the Aripo Savannas SMC and the Forestry Division;
- Developing education and awareness programmes for the Aripo Savannas ESA for targeted publics;
- Drafting TORs for implementation of aspects of the Management Plan including the site planning and architectural drawings for a Visitor Center;
- Recruitment of consultants to implement work programmes.

- Continuation of Participatory Research in the Aripo Savannas ESA.

Nariva Swamp – Implementation of the Nariva Swamp Restoration and Carbon Sequestration Initiative and Management Plan.

The Nariva Swamp Restoration and Carbon Sequestration Initiative is a collaborative project being undertaken by the Forestry Division - Ministry of Agriculture, Lands and Marine Resources, the University of the West Indies and the EMA.

The EMA will be coordinating the implementation of the restoration plan for Nariva, and will be liaising with all agencies, seeking funding and involving stakeholders in the execution of this project.

The Nariva Swamp is the largest inland freshwater ecosystem in Trinidad and Tobago and was declared the country's first Ramsar Site (1992). In 2006 the EMA designated the Nariva Swamp an Environmentally Sensitive Area (Managed Resource Protected Area (11,343 ha).

The surrounding communities of Plum Mitan, Kernahan, Cascadou and Biche, use the biological resources of Nariva to support their livelihoods and diets, including catching of cascadous, river conchs, harvesting of forest products, hunting and farming etc. The Institute of Marine Affairs (IMA) was commissioned to develop a Management Plan for the area (1999). IMA found that the resources of the wetland upon which surrounding communities relied were often over-exploited and in need of sustainable management regimes.

The Nariva Swamp Restoration and Carbon Sequestration Project has as its objective the rehabilitation and reforestation of degraded lands as part of a larger project of management of the wetland. The Nariva Restoration Initiative aims at achieving the complete restoration of the landscape and ecological characteristics of Nariva through reforestation, hydrologic (hydrology and hydraulics) rehabilitation, fire management and improved agriculture practices.

The implications of the Reforestation Scheme for carbon sequestration were considered to be an important benefit of restoration, in the context of climate change. The project was seen as eligible for inclusion in the World Bank BioCarbon Fund (BioCF) Portfolio, of the Clean Development Mechanism (CDM) of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC).

The Management, Restoration and Reforestation Plans involve a number of interdependent projects that require national coordination, facilitation, and overview. Timely and productive communication will be essential to maximise outputs and meet work plan objectives. It is vital

to establish and maintain effective institutional coordination and reporting for the delivery of all activities.

ENABLING STRATEGIES

Communication

World Environment Day

Friday June 5th, 2009 marked the 14th anniversary of the Environmental Management Authority and the commemoration of the United Nations (UN) designated World Environment Day (WED). The EMA paid tribute to the day by hosting a Stakeholder symposium and exhibition at the Crowne Plaza, to focus on sustainable development as it relates to specific economic sectors.

The day's agenda examined sustainable development in the context of Infrastructural Development, Alternative Energy, Food Security, Sustainable Tourism, Sustainable Economic Development and Manufacturing.

This UN's theme for WED 2009 is, '*Your Planet needs You – UNite to Combat Climate Change'*. The EMA through the stakeholder approach will be encouraging all to do their part to safeguard their environment as they aim to renew and strengthen relationships with agencies and government ministries that became signatories to a Memorandum of Understanding (MOU) signed in 1996. Additionally the EMA recognised the need to have a sound agreement at the Climate Change Convention to be held in Copenhagen in December this year.

Secondary Schools' Eco-Song Competition 2009

The finals and Prize-Giving Ceremony of the Secondary Schools' Eco-Song Competition came to an exciting end on Nov 11th. A total of thirteen schools participated in the competition with Barrackpore West Secondary emerging as the winner. The attendance at the finals also improved when compared to 2008. Once again, the preparatory workshop for the finalists proved to be very instrumental in improving the performances of the finalists. Both teachers and students commended the use of local artistes for mentoring to the participants. The new venue also enhanced the overall production. However, some improvements will be made for the 2010 competition. The use of this event to showcase the outcomes of the 2009 Youth Environmental Workshop was successful and was quite effective in reaching the audience. Quite notable this year was also the increased media coverage that the competition received. This year's results were as follows:

First place winner - Talia Jackson, Barrackpore West Secondary School song titled, “Let’s save sweet T&T”.

Second place winner - Reena Rajkumar, Parvati Girls’ Hindu College, sing titled, “I thank you”.

Third place winner - Clar Francis, East Mucurapo Secondary School song titled, “Wat a Madness”

Salybia ICC 2009

On Saturday 19th September 2009, the EMA hosted over 200 volunteers at Salybia Bay as they participated in the International Coastal Clean-up or ICC. The Ocean Conservancy’s ICC, which started in 1986, is the world’s largest volunteer event of its kind that allows people to remove garbage from the beaches and waterways, whilst identifying the sources of the garbage with the hope of changing the behaviours that cause the pollution.

The day was not just about cleaning the beach and recording the trash collected. The EMA used this international event to educate the volunteers about marine conservation, island biodiversity and marine pollution. The Deputy Permanent Secretary of the Ministry of Planning, Housing & the Environment, Joseph Howard, and Ministry staff members were also on hand to assist in the clean-up. The EMA coordinated exercise enabled 208 volunteers to collect and record 8030 items of rubbish, which fit into 316 garbage bags weighing 2263 lbs on Salybia Beach.

Primary Schools’ ‘Hands-On’ Competition 2009

This year the Environmental Management Authority’s (EMA) Primary School Hands-On competition, was organised in collaboration with the Water and Sewerage Authority (WASA) and the Ministry of Education. The competition was designed to allow students to be directly involved in projects based on the theme ‘W.A.T.E.R (Working towards Achieving Total Environmental Responsibility) For Life. It provided an opportunity for primary schools of Trinidad and Tobago to explore the management and sustainable use of our water resources. Workshops were held with a total of eight (8) schools in Tobago and fifty five (55) in Trinidad attended the opening workshop of the Primary Schools’ “Hands-On” competition. Thirty schools eventually participated with the following results:

First place - New Grant Government Primary for their sustained (tree planting) project since 2004 and outreach work with the Princes Town Regional Corporation, to erect signs with environmental messages along the Taska Main Road.

Second place - San Fernando TML Primary School examined the impact of water on all aspects of life through class projects. Students investigated the sources of water, how it is utilized and

how it can be conserved. They disseminated information about water pollution and water-borne diseases through educational models, flyers and cultural presentations. Also, **Riverside Hindu Primary School** launched a 'Leak Stoppers' campaign to identify and fix leaks at the school and in the neighbouring community.

Third place - Montrose Government Primary School students looked at conserving pipe-borne water in the home, school and community. They did projects on diseases caused by contaminated water, as well as the difference between recycled water and reclaimed water.

The EMA's Youth Environmental Workshop 2009

The Environmental Management Authority hosted its second residential Youth Workshop during August 9th to 15th in Grande Riviere. This workshop served to promote the understanding of environmental management and youth involvement in environmental decision-making in Trinidad and Tobago. Fifteen students participated in the workshop in August, six of which were finalists of the EMA's Secondary Schools' Dramatic Envirologue Competition 2009.

The students were exposed to daily workshop sessions consisting of lectures, films, participatory sessions, field trips, hikes, educational games and other environmental education techniques. The students were divided into groups and each group was required to develop and deliver one of the following: dramatic performances, a film and a Newsletter each depicting issues relevant to the workshop theme.

Organisational Development

ENVIRONMENTAL ASSESSMENT UNIT

Strengthening of EAU Administrative Procedures and Systems

The Environmental Assessment Unit (EAU) has experienced rapid growth and changes over the last 12 to 18 months as a result of an increase in the number of Certificate of Environmental Clearance (CEC) applications received by the Environmental Management Authority (EMA). This exercise is intended to carry out a comprehensive review and assessment of the administrative system within the EAU to identify issues and challenges that affect the efficiency of the Unit and to address these matters by implementing the necessary systems and procedures.

The efficient and effective operation of the EAU will result in even better customer service to the thousands of CEC applicants. It will also ensure that resources allocated to the EAU are utilised in an efficient, effective and cost conscious manner.

Expansion of CEC Data Log and Development of Environmental Impact Assessment (EIA) Database (Phase I)

The Environmental Assessment Unit (EAU) was set up in 2001 to process Certificate of Environmental Clearance (CEC) Applications in accordance with the requirement of the CEC Rules, 2001 and CEC Order as amended. To date, the Unit has received over 2500 applications which are logged in a Microsoft Excel spreadsheet.

The existing system captures basic information related to each application however it does not allow for the conduct of detailed queries which is often required when analysing trends related to CEC applications and assessing the performance of the EAU. Bearing this in mind, it is imperative that the existing system be upgraded to include more information in order to conduct in-depth analysis of CEC datasets from 2001 to present. In addition, the system will also allow for analyzing the rate and type of development occurring in geographic locations in Trinidad and Tobago. The upgraded system will also allow the EAU to identify areas which require attention in order to increase the efficiency of the CEC process.

The upgraded system will then be used to develop a framework for recording selected information related to all Environmental Impact Assessments (EIA) received by the EMA. The EIA Database (phase 1) would be designed for public use with the aim of promoting public awareness and accessibility to the various CEC applications that require an EIA. This database would be accessible via the EMA's website and as such provide the public with an avenue to easily view a synopsis of the Environmental Impact Assessments submitted. Easier accessibility is also intended to generate greater participation in public consultations related to the EIA process.

Systems/ Legislative Review

The Legal Services Department ('the Department') continued to persistently exercise its mandate in accordance with the statutory requirements as well as the policies of the Department. More particularly, the Department continued its diligent pursuit of enforcement in order to bring environmental law violators/polluters into compliance with the relevant environmental requirements. Special emphasis was placed on handling each enforcement action with a sense of urgency and the importance of having them satisfactorily resolved.

Likewise, the Department placed emphasis on having matters cordially resolved through mediation in order to save both time and costs for all parties involved.

The Legal Services Department operated in conjunction with the Technical Services Department and the Environmental Police Unit in order to have the relevant enforcement actions precisely and expeditiously executed.

Additionally, members of the Department continued to represent the Authority (EMA) before the Courts in this jurisdiction and the Environmental Commission with the Authority's best interests at the forefront.

The heavy emphasis on securing compliance through enforcement and/or alternative dispute resolution was a significant accomplishment for the Department as many cases of serious threats to the environment were tackled vigorously. These enforcement matters not only serve as a deterrent to repeated violations of the Act, but also achieve the co-operation of violators to reduce the negative environmental impacts of their activities.

The Department also continued work on several pieces of legislation proposed for enactment which are described below.

Environmentally Sensitive Species designations

In accordance with the power vested in the Authority under Section 41 of the EM Act and further, the Environmentally Sensitive Species Rules, to designate any species of living plant or animal as an environmentally sensitive species (ESS), the EMA proceeded with the designation of the Golden Tree Frog and the Ocelot as environmentally sensitive species. In compliance with Section 27-28 of the EM Act, the Golden Tree Frog and Ocelot Legal Notices were submitted for public and stakeholder comments which were received up to April 2009.

Following the 'public comments' phase the EMA engaged in a comprehensive review of the Draft Legal Notices, which have since been revised and pending finalization before submission to the Ministry of Housing and the Environment for further action.

Enforcement matters related to section 35(2) of the EM Act and the CEC Rules 2001

During the year 2008-2009, the Authority was actively engaged in enforcing the CEC Rules and addressing the problem of an increase in the number of development projects which required a CEC but which proceeded without the developer having obtained the requisite CEC. About nineteen (19) matters occupied the Authority's attention.

The following entails a summary of the enforcement action taken during the period 2009:

Nineteen (19) Notices of Violation (NOVs) relating to breaches of Sections 35(2), 62(f) and (g) which relate to the CEC were served. Further, six (6) NOVs were served with regard to breach of the Noise Pollution Control Rules (NPCR).

It must be noted that a few of the NOVs were related to Activity 43(a) which pertains to the establishment (*inter alia*) of a garage /auto body shop. There is an apparent increase in the number of persons operating such premises unmindful of the CEC Rules and the CEC (Designated Activities) Order as well as persons in clear breach of CECs pertaining to such establishments. Other NOVs addressed breach of Activity 8 which deals with (*inter alia*) the clearing of land.

The following are examples of some enforcement matters handled by the Authority:

- **NV/CEC 100/2009**

  Kent Investments (Trinidad) Limited began construction of a hotel (Cara Suites Hotel) before applying for a CEC. Designated activities engaged in included the following:

  Activity 8 (c) – the clearing, excavation, grading or land filling of any area with a gradient of 1:4 or more;

  Activity 11 – the establishment, modification, expansion, decommissioning or abandonment (inclusive of associated works) of: a hotel, inn, etc. with a capacity of 30 rooms or more;

  Activity 40 (a) – the establishment, modification, expansion, decommissioning or abandonment (inclusive of associated works) of pipeline distribution systems for the delivery of potable, process water or sewage; and

  Activity 41 (a) – the establishment, modification or expansion (inclusive of associated works) of a land drainage or irrigation scheme for a parcel of land of more than 1 hectare during a two year period.

The violating company admitted liability and paid costs and damages amounting to $115,219.68.

- **Mas Construction Limited**

The EMA also successfully enforced against **Mas Construction Limited** for proceeding to conduct designated activities 8(b) and 8(c) with respect to works related to a housing development at Morne Coco Road, Diego Martin. In this instance, the violating company admitted liability for breaches of section 35(2) of the Act and the CEC Rules and paid costs and damages in the amount of $115,351.84.

- **NV/CEC 96/2009 Policy Consultants Ltd.**

NOV served in mid-April 2009 in relation to a residential development at Upper Moraldo Road, Santa Cruz. Designated activities proceeded while an application for CEC was still being processed. Due to commencement and continuation of works the baseline conditions of the site changed and accordingly, the CEC was refused.

Activities included:

Activity 8 (a) **-** the clearing, excavation, grading or land filling of an area of more than 2 hectares during a two year period;

Activity 8 (c) - the clearing, excavation, grading or land filling or any area within a gradient of 1: 4 or more and;

Activity 41 (c) - the realignment or modification of drainage or river systems.

This NOV was very critical in that the Violator was engaging in activities which involved extensive clearing of land and realignment or modification of drainage or river systems.

The matter was successfully resolved by a Consent Agreement. The Violator agreed to pay the EMA's administrative civil assessment of costs and damages of $1,036,555.60 (the highest civil penalty achieved by the Authority since its inception). The Consent Agreement is also an accomplishment in that it reflects the parties' co-operation in arriving at mutually acceptable terms regarding mitigation measures to be implemented at the Site.

Enforcement matters related to Noise Pollution Control Rules 2001

For the year 2008-2009, Legal Services was able to resolve approximately nineteen (19) [146] of twenty-six (26) Notices of Violations which were served for breaches of the NPCR[147].

All but one[148] of these Notices of Violation were resolved through consent agreements either under Section 63 of the Act or by consent orders before the Environmental Commission in respect of enforcement applications made under Section 67 of the Act. Final administrative civil

[146] NV/NPCR 114/2005, NV/NPCR 104/2006, NV/NPCR 106/2006, NV/NPCR 107/2006, NV/NPCR 116/2006, NV/NPCR 117/2006, NV/NPCR 129/2006, NV/NPCR 139/2007, NV/NPCR 140/2007, NV/NPCR 142/2008, NV/NPCR 143/2008, NV/NPCR 144/2008, NV/NPCR 145/2008, NV/NPCR 146/2008, NV/NPCR 148/2008, NV/NPCR 149/2008, NV/NPCR 150/2008, NV/NPCR 151/2008 and NV/NPCR 154/2009.

[147] This figure reflects only noise matters resolved and not the total number of noise enforcement matters attended to during this fiscal year

[148] One NOV was cancelled.

assessments of costs and damages paid or currently being paid by violators totalled $173,131.51.

The majority of these Notices of Violations were served against small bar operators whose establishments are located in close proximity to residential properties. Other Violators included owners of venues used for Carnival events, e.g. Hasely Crawford Stadium, Jean Pierre Complex and YWCA.

Resolution of noise complaints by means of agreement with violators is a significant achievement of the Authority in addressing noise pollution and securing co-operation in implementing appropriate mitigation measures at venues to reduce noise pollution.

At the end of the relevant period, the remaining 7 NOVs were:

1. NV/NPCR/153 of 2009- Reynold Jairam / JJJ Bar
2. NV/NPCR/154 of 2009- Ricky Ramjass/ Electric Blue Bar
3. NV/NPCR/155 of 2009- Joann & Shermin Emmanuel/ K's Rec. Club & Bar
4. NV/NPCR/156 of 2009- Mala and Ganesh Dwarika
5. NV/NPCR/157 of 2009- Charles Bernard
6. NV/NPCR/158 of 2009- Ramnarine Sammy/ Atlantic Rest. & Bar
7. NV/NPCR/159 of 2009- Paul Precilla/ Blue Amazon Club

LITIGATION

Alutrint -Cv 2007 - 02263

Application for Judicial Review brought by People United Respecting the Environment (PURE) and Rights Action Group (RAG) against the Environmental Management Authority (EMA), Alutrint Limited and The Attorney General

2) Application for Judicial Review between Smelta Karavan against the Environmental Management Authority (EMA), Alutrint Limited and The Attorney General

3) CV 2007- 02272 Application for Judicial Review brought by Chatam/Cap-de-Ville Environmental Protection Company against the Environmental Management Authority (EMA), Alutrint Limited and The Attorney General

On April 2, 2007, the EMA granted CEC 1033/2005 to Alutrint Limited to carry on at Union Industrial Estate, Main Site 'B', La Brea designated activity 21 listed in the Schedule to the CEC

Designated Activities Order 2001. The application was made by Alutrint Limited in 2005 for the establishment of an Aluminium Smelter Complex with a target capacity of 125, 000 metric tonnes per annum.

Activity 21 relates to the establishment of a facility for the production and reforming of metals or related products.

On June 29, 2007, several claimants filed applications for leave to apply for judicial review of the decision of the EMA to grant a CEC1033/2005 to Alutrint Limited for the construction of the Aluminium Smelter at Union Village, La Brea. On September 13, 2007 the Court granted leave to all the intended Claimants to proceed for judicial review in the terms of the relief sought and upon the grounds stated in their respective Notices of Application. On the same date, the Court further granted special leave to the Attorney General to participate in the actions and further directed that "the EMA be named as the Defendant and Alutrint Limited and the National Energy Corporation be named as the Interested Parties."

As the named defendant, the EMA prepared its submission in response the judicial review application which was heard before Justice Mira Dean-Armorer during the period spanning October 6, 2008 to December 1, 2008.

On June 16th, 2009, the High Court delivered its judgment in the matter, quashing the grant of the CEC to Alutrint Limited and remitting the decision to the EMA for re-consideration. The EMA filed its appeal against the Court's verdict, the hearing of which took place during the period September 2009 to November 2009 before the Court of Appeal.

EMA v South West Tobago Fishermen's Association Civil Appeal #219/2009

In these matters, the CoA was asked to determine the proper interpretation of Section 81(5)(a) of the EM Act, which states as follows*:*

'The Commission shall have jurisdiction to hear and determine appeals from decisions or actions of the Authority as specifically authorized under this Act'

The question for determination was whether the words *'as specifically authorized under this Act'* qualify the words *'appeals'* or the words *'from decisions or actions of the Authority'*.

On June 28, 2010, the Court of Appeal (CoA) delivered its judgments on both matters and allowed the appeals.

It was the opinion of the CoA that the Commission was wrong in law to construe sub-section 81(5)(a) as conferring jurisdiction on the Commission to hear appeals from all or any decisions

or actions of the Authority. Section 81 (5) (a) was to be interpreted as only granting limited jurisdiction to the Commission to hear and determine specified appeals.

Matters at the Environmental Commission

The Department also undertook several matters at the EC where compliance and/or resolution could not be achieved out of court.

- EAA 005 of 2009 – EMA v Fizul Khan
- EAA 006/2009- EMA v. Jack Farah & Company
- EAA 010/2009 EMA v. Allan Warner
- EAA 001/2010 EMA v. Learie Neil
- EAA 003/2010 EMA v. Sean Caruth
- EAA 004/2010 EMA v. Ramnarine Sammy
- EAA 006/2010 EMA v. Dread and Zena
- EAA 008/2010 EMA v. National Gas Company of Trinidad and Tobago
- EAA 001/2009 EMA v. Oliver Granthume – s. 67 application to enforce an AO re noise NOV
- EAA 002/2009 EMA v. Yoland and Michelle Lashley/Isa's Lounge- s. 67 application to enforce an AO re. noise NOV
- EAA 003 of 2009- EMA v. Terrence Mendoza- s. 67 application to enforce an AO re. noise NOV
- EAA 004/2009 EMA v. Molly Jaimungal– s. 67 application to enforce an AO re. noise NOV

CHALLENGES

Throughout this reporting period, human resource constraints presented a critical challenge facing the department as the enforcement component of the Department's work increased considerably.

PLANS FOR 2010

TO PROTECT & RESTORE THE WATER QUALITY OF INLAND & COASTAL WATERS TO SAFEGUARD HUMAN HEALTH & ECOSYSTEMS HEALTH

Develop a National Non-Point Source (nps) Pollution Management Programme (NPSPMP)

This programme will complement the work of the water pollution rules, 2001. The primary objective of a NPSPMP is to protect the surface and ground water sources from non-direct or diffuse sources of water pollution and restore their quality to established water quality criteria.

Beverage Container Bill

This Bill was initially developed and issued for public comment in November 2000. Since then, the Bill underwent a series of reviews. The EMA's Legal Services Department will recommence the drafting of the Beverage Container legislation.

TO PROTECT COMMUNITIES AND ECOSYSTEMS FROM HEALTH CONSEQUENCES OF HAZARDOUS CHEMICALS SPILLS AND THE UNSAFE HANDLING & DISPOSAL OF SOLID & HAZARDOUS WASTES

Remediation of lead contaminated sites

Remediation of lead at Nurse Trace, Guayaguayare commenced on December 14th 2009 and works will continue into 2010.

TO PROTECT, CONSERVE AND/OR RESTORE SELECTED ECOSYSTEMS AND SPECIES TO ENSURE THAT THE BIODIVERSITY OF TRINIDAD AND TOBAGO IS SUSTAINED

The Aripo Savannas Implementation Programme

Work on this project was initiated in 2006 and is guided by the management plans developed by Canari. The Aripo Savannas Stakeholder Management Committee (ASSMC) in conjunction with the Forestry Division and the EMA overview the implementation process. Work will continue on this initiative from 2009 onwards.

2010 International Year of Biodiversity (IYB)

In response to the recommendation adopted by the 8th meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD); 2010 was proclaimed as the International Year of Biodiversity. In 2010, exhibitions and events will be held by the EMA to raise awareness on the International year of Bio-diversity. This will include all EMA schools'

competitions, Environmental Commemorative Day celebrations and the biennial Green Leaf Awards.

In commemoration of the IYB 2010, the EMA will launch a five year long education and awareness campaign, beginning in 2010 to raise awareness on the threats to biodiversity and on conservation programmes being implemented in Trinidad and Tobago.

Invasive Alien Species

Invasive alien species (IAS) are a major threat to the vulnerable marine, freshwater and terrestrial biodiversity of Caribbean islands and the people who depend upon it for their livelihood. As such, Caribbean States have recognised the need for developing an integrated regional strategy. The EMA endorsed the regional project "Mitigating the Threats of Invasive Alien Species in the Insular Caribbean," proposed by Centre for Agriculture and Bio-Sciences International (CABI) through UNEP for funding by the Global Environment Facility (GEF) in 2009.

In 2010, the EMA will attend the first meeting of the National Steering Committee for the Trinidad and Tobago element of the UNEP/GEF project "Mitigating the Threats of Invasive Alien Species in the Insular Caribbean."

It is expected that the draft National Invasive Alien Species Strategy (NISS) will be prepared with input from the EMA, along with a final list of Invasive Alien Species (IAS) for Trinidad and Tobago.

TO MODIFY AND/OR DEVELOP LEGISLATION, POLICIES, PROCEDURES AND SYSTEMS TO FACILITATE THE WORK OF THE EMA.

The EMA will undertake an initiative to introduce a more direct hands-on approach in reviewing all CEC related documents to identify areas requiring improvements. As part of this initiative to streamline the CEC process, a system will be set up to document, communicate and implement approved operational and policy changes.

Environmental Impact Assessment (EIA) Frequently Asked Questions (FAQS) Booklet

An Environmental Impact Assessment (EIA) - Frequently Asked Questions (FAQs) Booklet will be developed by the EMA in 2010 to sensitise the general public on the EIA process and to assist them in better understanding their role in the process.

ATTRACT, RETAIN AND DEVELOP COMPETENT STAFF

At the EMA the Human Resource (HR) function continues to meet the needs of management and staff for information for decision making to advance the work of the Authority. HR does this by addressing a range of issues which supports the objectives of the Authority as outlined

in the Draft Strategic Plan 2009 - 2012. Human Resource has identified a series of projects for implementation, to support the strategic objectives outlined by the Authority.

CULTIVATE POSITIVE ATTITUDES TO ENVIRONMENTAL PROTECTION AND CONSERVATION THROUGH AWARENESS BUILDING, EDUCATION AND EFFECTIVE COMMUNICATION

The EMA will commence activities along the lines of the theme for the year, International Year of Biodiversity (IYB). Activities will include the Green Leaf Awards, Green Lifestyle Show, IYB Stamp Launch, ICC and regular public educational school activities.

APPENDIX 1

Board of Directors

As at December 31, 2009

- Mr. Robert Green – Chairman
- Ms. Nadra Nathai – Gyan - Deputy Chairman
- Ms. Esme Rawlins- Charles – Member
- Ms. Akilah Jaramogi – Member
- Ms. Jacqueline Jack – Member
- Ms. Barbara Lodge – Johnson – Member
- Dr. Rene Leon Monteil – Member
- Ms. Ethyln John – Member
- Mr. Narine Gupte Lutchmedial – Member
- Dr. Ian Popplewell - Member

Board of Trustees of the Environmental Fund:

- Mr. Robert Green
- Ms. Barbara Lodge – Johnson
- Ms. Nadra Nathai – Gyan
- Ms. Ethyln John
- Ms. Akilah Jaramogi

Members of Human Resource Committee:

- Ms. Barbara Lodge – Johnson
- Mr. Narine Gupte Lutchmedial
- Ms. Jacqueline Jack
- Managing Director/CEO
- Assistant Manager, Human Resources

Members of Tenders Committee:

- Mr. Robert Green
- Dr. Rene Leon Monteil

PART C: ENVIRONMENTAL TRUST FUND AUDITED FINANCIAL REPORT FOR THE YEAR ENDED: SEPTEMBER 30, 2009

REPORT OF THE AUDITOR GENERAL OF THE REPUBLIC OF TRINIDAD AND TOBAGO ON THE FINANCIAL STATEMENTS OF THE ENVIRONMENTAL MANAGEMENT AUTHORITY - ENVIRONMENTAL TRUST FUND FOR THE YEAR ENDED 2009 SEPTEMBER 30

The accompanying Financial Statements of the Environmental Management Authority - Environmental Trust Fund for the year ended 2009 September 30 have been audited. The Statements as set out on pages 2 to 16 comprise a Balance Sheet as at 2009 September 30, a Statement of Income, a Statement of Movement of Funds and a Statement of Cash Flows for the year ended 2009 September 30 and Notes to the Financial Statements numbered 1 to 14.

2. The audit was conducted by a firm of Accountants appointed by the Board of Directors with the written consent of the Auditor General. Their Report dated 2010 February 02 which is attached refers.

SUBMISSION OF REPORT

3. This Report is being submitted to the Speaker of the House of Representatives, the President of the Senate and the Minister of Finance in accordance with the provisions of sections 116 and 119 of the Constitution of the Republic of Trinidad and Tobago.

2012 August 02

REPUBLIC OF TRINIDAD AND TOBAGO
LP
2012 August 02
AUDITOR GENERAL

SHARMAN OTTLEY
AUDITOR GENERAL

PKF

Chartered Accountants
& Business Advisors

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

FINANCIAL STATEMENTS

30 SEPTEMBER 2009

PKF

Chartered Accountants
& Business Advisors

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

INDEX

PKF

Chartered Accountants
& Business Advisors

INDEPENDENT AUDITORS' REPORT

Environmental Management Authority -
Environmental Trust Fund

We have audited the accompanying financial statements of Environmental Management Authority – Environmental Trust Fund, which comprise the balance sheet as at 30 September 2009, the statements of income, movement of funds and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory notes.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with International Financial Reporting Standards. This responsibility includes: designing, implementing and maintaining internal control, relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of Environmental Management Authority – Environmental Trust Fund as of 30 September 2009, and of its financial performance and cash flows for the year then ended in accordance with International Financial Reporting Standards.

PKF

Port of Spain
2 February 2010

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Partners Ainsley A. Mark ¦ Michael G. Toney ¦ Reneé-Lisa Philip ¦ Mark K. Superville

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

BALANCE SHEET

ASSETS

	Notes	30 September 2009	2008
Cash Resources:			
Cash in hand and at bank	5	$ 7,769,015	$ 7,350,892
Short-term investments	6	5,513,360	11,350,125
Total Cash Resources		13,282,375	18,701,017
Other Assets:			
Accounts receivable and prepayments	7	2,299,882	1,330,718
Fixed assets	8	27,605,733	28,281,447
Total Other Assets		29,905,615	29,612,165
Total Assets		**$ 43,187,990**	**$ 48,313,182**

LIABILITIES AND FUNDS

Liabilities:			
Overdrawn current account	9	$ -	$ 39,533
Accounts payable and accruals	10	4,396,429	6,680,575
Total Liabilities		4,396,429	6,720,108
Funds:			
GORTT Fund		34,058,032	36,283,290
UNDP Fund		720,804	649,916
IBRD Fund		3,537,216	3,888,680
Other Fund		475,509	771,188
Total Funds		38,791,561	41,593,074
Total Liabilities and Funds		**$ 43,187,990**	**$ 48,313,182**

Trustee

Trustee

(The accompanying notes form part of these financial statements)

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

STATEMENT OF INCOME

	For the year ended 30 September 2009	2008
Income:		
Government Fund	$ 38,898,521	$ 36,070,000
UNDP Fund	536,907	2,090,300
IBRD Fund	-	1,232,815
Other Fund income	10,919	422,569
Interest income	484,822	809,833
Activities income	1,171,833	1,403,019
Profit on disposal of fixed assets	346,056	-
Gain on foreign exchange	98	997
	41,449,156	42,029,533
Project expenses	(7,226,209)	(10,196,930)
Income after project expenditure	34,222,947	31,832,603
Expenditure:		
Advertising and promotions	1,069,533	752,538
Audit fees	196,500	59,400
Conference costs	67,679	50,537
Contract services	675,076	285,226
Depreciation	1,638,600	1,569,902
Directors' fees	386,300	314,800
Interest and bank charges	10,754	12,270
Insurance	434,977	333,948
Loss on disposal of fixed assets	-	341,488
Motor vehicle expenses	396,917	313,987
Maintenance contracts	570,386	570,385
Management fees	16,500	19,500
Office and general expenses	109,158	110,251
Permitting and compliance costs	2,356,318	3,084,148
Professional fees	411,384	28,217
Publication costs	112,979	6,000
Reference and research cost	131,431	154,959
Rent	1,420,792	1,337,292
Repairs and maintenance	353,705	1,065,815
Salaries and benefits	23,370,680	17,016,209
Security	757,633	617,569
Selection and recruitment costs	84,967	88,332
Supplies	843,154	685,490
Training	310,319	433,869
Travel	74,812	185,264
Utilities	1,195,692	1,184,151
	36,996,246	30,621,547
Net (deficit)/surplus for the year	**$ (2,773,299)**	**$ 1,211,056**

(The accompanying notes form part of these financial statements)

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

STATEMENT OF MOVEMENT OF FUNDS

For the year ended 30 September 2009

	GORTT Fund	UNDP Fund	IBRD Fund	Other Fund	Total
Balance as at 1 October 2007	$ 36,505,155	$ (140,175)	$ 4,178,917	$ 619,967	$ 41,163,864
Equity adjustment	(781,846)	-	-	-	(781,846)
Funds received	36,070,000	2,090,300	1,232,815	422,569	39,815,684
Interest income	805,725	-	4,108	-	809,833
Activities income	1,403,019	-	-	-	1,403,019
Gain on foreign exchange	997	-	-	-	997
Loss on disposal of fixed assets	(341,800)	-	-	-	(341,800)
Other expenditure	(37,377,960)	(1,300,209)	(1,527,160)	(271,348)	(40,476,677)
Balance as at 1 October 2008	36,283,290	649,916	3,888,680	771,188	41,593,074
Equity adjustment	-	(28,219)	-	-	(28,219)
Funds received	38,898,521	536,907	-	10,919	39,446,347
Interest income	484,667	-	155	-	484,822
Activities income	1,171,833	-	-	-	1,171,833
Profit on disposal of fixed assets	346,056	-	-	-	346,056
Gain on foreign exchange	98	-	-	-	98
Expenditure	(43,126,433)	(437,800)	(351,619)	(306,598)	(44,222,450)
Balance at 30 September 2009	**$ 34,058,032**	**$ 720,804**	**$ 3,537,216**	**$ 475,509**	**$ 38,791,561**

(The accompanying notes form part of these financial statements)

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

STATEMENT OF CASH FLOWS

	For the year ended 30 September 2009	2008
Cash Flows from Operating Activities:		
Net (deficit)/surplus for the year	$ (2,773,299)	$ 1,211,056
Adjustments:		
Depreciation	1,638,600	1,569,902
(Gain)/loss on disposal of fixed assets	(346,056)	341,488
Equity adjustment	(28,219)	(781,846)
	(1,508,974)	2,340,600
(Increase) in accounts receivable and prepayments	(969,164)	(750,099)
(Decrease)/increase in accounts payable and accruals	(2,284,146)	5,039,599
Cash (used in)/provided by Operating Activities	(4,762,284)	6,630,100
Cash Flows from Investing Activities:		
Purchase of fixed assets	(971,607)	(5,666,870)
Proceeds from sale of fixed assets	354,782	32,003
Cash (used in) Investing Activities	(616,825)	(5,634,867)
(Decrease)/increase in cash and cash equivalents	(5,379,109)	995,233
Cash and cash equivalents, beginning of year	18,661,484	17,666,251
Cash and cash equivalents, end of year	**$13,282,375**	**$18,661,484**
Represented by:		
Cash in hand and at bank	$ 7,769,015	$ 7,350,892
Short-term investments	5,513,360	11,350,125
Overdrawn current account	-	(39,533)
	$13,282,375	**$18,661,484**

(The accompanying notes form part of these financial statements)

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

NOTES TO THE FINANCIAL STATEMENTS

30 SEPTEMBER 2009

1. **Registration and Activities:**

The Environmental Management Authority (the Authority) is a Statutory Authority established when Parliament assented to the Environmental Management Act, 1995 on 7 March 1995. The Authority was established to develop and implement institutional arrangements for the regulation and management of the environment in the Republic of Trinidad and Tobago.

The Environmental Trust Fund was established by the Act to fund the operations of the Authority and is administered by five members of the Board of Directors, designated by the President to act as Trustees.

The Environmental Management Act, 1995 was repealed on 8 March 2000 and replaced by the Environmental Management Act 2000. The new Act changed the financial year end of the Authority to 30 September.

2. **Summary of Significant Accounting Policies:**

(a) Basis of financial statements preparation -

These financial statements are prepared in accordance with International Financial Reporting Standards (IFRS), and are stated in Trinidad and Tobago dollars. The historical cost basis is used, except for the measurement at fair value of available-for-sale investments and certain other financial instruments.

b) New Accounting Standards and Interpretations

i) The Authority has not applied the following International Accounting Standards (IASs), International Financial Reporting Interpretations Committee Interpretations (IFRICs) and specific amendments that became effective for accounting periods beginning on or after 1 January 2009, as either they do not apply to the activities of the Authority or have no material impact on the financial statements:

IAS 1	Presentation of Financial Statements.
IAS 23	Borrowing Costs
IFRS 8	Operating Segments
IFRIC 15	Agreements for the Construction of Real Estate.

ENVIRONMENTAL MANAGEMENT AUTHORITY
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NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

2. Summary of Significant Accounting Policies (continued)

(b) New Accounting Standards and Interpretations (cont'd) -

ii) The Authority has not applied the following IFRSs, IASs, IFRICs and specific amendments which are effective for accounting periods beginning on or after 1 July 2009, as either they do not apply to the activities of the Authority or have no material impact on the financial statements:

IFRS 1	First-time Adoption of International Financial Reporting Standards.
IFRS 3	Business Combinations.
IAS 27	Consolidated and Separate Financial Statements.
IFRIC 16	Hedges of a Net Investment in a Foreign Operation.
IFRIC 17	Distributions of Non-cash Assets to Owners.
IFRIC 18	Transfer of Assets from Customers.

iii) The Authority has not applied the following IFRIC that became effective for accounting periods beginning on or after 1 July 2010, as either it does not apply to the activities of the Authority, has no material impact on the financial statements or the Authority has not opted for early adoption:

IFRIC 19	Extinguishing Financial Liabilities with Equity Instruments.

iv) The Authority has not applied specific amendments to the following IAS that became effective for accounting periods beginning on or after 1 January 2011, as either it does not apply to the activities of the Authority, has no material impact on the financial statements or the Authority has not opted for early adoption:

IAS 24	Related Party Disclosures.

v) The Authority has not applied the following IFRS that became effective for accounting periods beginning on or after 1 January 2013, as either it does not apply to the activities of the Authority, has no material impact on the financial statements or the Authority has not opted for early adoption:

IFRS 9	Financial Instruments - Classification and Measurement of Financial Assets.

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NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

2. Summary of Significant Accounting Policies (continued)

(c) Fixed assets and depreciation -

Land and buildings comprise offices occupied by the Authority and include land purchased for construction of new offices in Trincity, stated at historical cost, less depreciation. Historical cost includes expenditure that is directly attributable to the acquisition of the items.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Authority and the cost of the item can be measured reliably. All other repairs and maintenance are charged to the Statement of Income during the financial period in which they are incurred.

Depreciation is calculated on the reducing balance method to write off the cost of assets to their residual values over their estimated useful life as follows:

Building	-	2% - 20% per annum
Furniture and fittings	-	10% per annum
Office equipment	-	20% per annum
Motor vehicles	-	25% per annum
Computer equipment	-	25% per annum
Library/Information	-	10% per annum

Land is not depreciated as it is deemed to have an indefinite life.

Where the carrying amount of an asset is greater than its estimated recoverable amount, it is written down immediately to its recoverable amount.

Gains and losses on disposal of property, plant and equipment are determined by reference to their carrying amounts and are included in the Statement of Income.

(d) Foreign currency -

Monetary assets and liabilities denominated in foreign currencies are expressed in Trinidad and Tobago dollars at rates of exchange ruling at the Balance Sheet date. All revenue and expenditure transactions denominated in foreign currencies are translated at the rates of exchange ruling at the date of the transaction and the resulting profits and losses on exchange from trading activities are recorded in the Statement of Income.

(e) Taxation -

The Authority is exempt from taxation under the Environmental Management Act of 2000, Part VII Section 76.

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

2. Summary of Significant Accounting Policies (continued)

(f) Use of estimates -

The preparation of the financial statements in conformity with International Financial Reporting Standards, requires management to make estimates and assumptions that affect the reported amount of assets and liabilities. Also required is the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

(g) Financial instruments -

Financial assets and financial liabilities are recognised on the Authority's Balance Sheet when the Authority becomes a party to the contractual provisions of the instrument.

Cash and cash equivalents

Cash and cash equivalents consist of highly liquid investments with original maturities of three months or less and are carried at cost, which approximates market value.

Trade payables

Trade payables are stated at amounts due.

(h) Income and funding -

Funding was provided to the Environmental Management Authority Environmental Trust Fund as follows:

(i) Proceeds of a loan of US$6.25 million from the IBRD to the Government of the Republic of Trinidad and Tobago (GORTT). The loan facility closed on 31 December 2000. During the financial year ended 30 September 2009, the EMA received grant funds from the IBRD to facilitate the Nariva Reforestation Initiative Project.

(ii) Ongoing funding from the GORTT to cover recurrent and development programme expenditure. Government Grants are accounted for using the income approach. Under this approach, the grant is recognised in profit or loss on a systematic basis over the periods in which the entity recognises as expenses, the related costs for which the grant is intended to compensate.

(iii) Grant funds are provided by the United Nations Development and Environment Programmes (UNDP and UNEP) to fund specific activities that are set out in the relevant multilateral agreements. The main projects administered by the Environmental Management Authority Environment Trust Fund during the financial year ended 30 September 2009 are the Second National Communication to the Convention on Climate Change; Phase V of the Institutional Strengthening Programme for the Phase-out of Ozone Depleting Substances; and Phase II of the Terminal Management Plan for the Phase-out of CFC's.

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

3. Financial Risk Management:

Financial risk factors

The Authority is exposed to liquidity risk, currency risk, operational risk, compliance risk and reputational risk arising from the financial instruments that it holds. The risk management policies employed by the Authority to manage these risks are discussed below:

(a) Liquidity risk -

Liquidity risk is the risk that arises when the maturity of assets and liabilities do not match. An unmatched position potentially enhances net surplus for the year, but can also increase the risk of losses. The Authority has procedures with the object of minimising such losses such as maintaining sufficient cash and other highly liquid current assets.

(i) Risk management

The matching and controlled mismatching of the maturities and interest rates of assets and liabilities are fundamental to the management of the Authority. The Authority employs various asset/liability techniques to manage liquidity gaps. Liquidity gaps are mitigated by the liquid nature of a substantial amount of the Authority's assets as well as securing sufficient cash from the Government of the Republic of Trinidad and Tobago.

To manage and reduce liquidity risk the Authority's management actively seeks to match cash inflows with liability requirements.

(b) Currency risk -

Currency risk is the risk that the value of financial instruments will fluctuate due to changes in foreign exchange rates. Currency risk arises when future commercial transactions and recognised assets and liabilities are denominated in a currency that is not the Authority's measurement currency. The Authority is exposed to foreign exchange risk arising from various currency exposures primarily with respect to the United States dollar. The Authority's management monitors the exchange rate fluctuations on a continuous basis and acts accordingly.

(c) Operational risk -

Operational risk is the risk that derives from deficiencies relating to the Authority's information technology and control systems, as well as the risk of human error and natural disasters. The Authority's systems are evaluated, maintained and upgraded periodically.

(d) Compliance risk -

Compliance risk is the risk of financial loss, including fines and other penalties, which arise from non-compliance with laws and regulations of the State.

ENVIRONMENTAL MANAGEMENT AUTHORITY
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NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

3. **Financial Risk Management (Cont'd):**

(e) Reputational risk -

The risk of loss of reputation arising from the negative publicity relating to the Authority's operations (whether true or false) may result in a reduction in its revenue from government funding.

4. **Critical Accounting Estimates and Judgements:**

The preparation of financial statements in accordance with International Financial Reporting Standards requires management to make judgements, estimates and assumptions in the process of applying the Authority's accounting policies.

Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The Authority makes estimates and assumptions concerning the future and actual results could differ from those estimates as the resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below:

Changes in accounting estimates are recognised in the Statement of Income in the period in which the estimate is changed, if the change affects that period only. If the change affects a prior period, the Authority recognizes this change in the Statement of Movement of Funds in the current period.

The critical judgement, apart from that involving estimations, which has the most significant effect on the amounts recognised in the financial statements, is as follows:-

(i) Which depreciation method for buildings and equipment is used.

(ii) Whether fixed assets are measured at cost or revalued amount.

The key assumption concerning the future and other key sources of estimation uncertainty at the Balance Sheet date (requiring management's most difficult, subjective or complex judgements) that has a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year is with respect to buildings and equipment. Management exercises judgement in determining whether future economic benefits can be derived from expenditures to be capitalised and in estimating the useful lives and residual values of these assets.

ENVIRONMENTAL MANAGEMENT AUTHORITY
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NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

5. **Cash in Hand and at Bank:**

	30 September 2009	2008
Petty cash	$ 13,069	$ 8,940
Republic Bank Limited -		
Operating account	5,586,869	5,002,686
Nariva Carbon Assessment Grant	7,759	245,448
First Citizens Bank Limited -		
Permit income account	587,255	1,037,849
RBTT Bank Limited -		
Institutional strengthening	142,634	107,801
Other projects	246,273	246,273
Biodiversity	14,062	41,934
Biosafety	97,490	224,633
NCSA	512	76,512
UNFCCC	407,442	-
Scotiabank Trinidad and Tobago Limited -		
Terminal Phaseout Management Plan	638,087	338,674
Fleet Card	27,563	20,142
	$ 7,769,015	$ 7,350,892

6. **Short-term Investments:**

Available-for-Sale:	30 September 2009	2008
Republic Bank Limited Pool Bond	$ 2,012,174	$ 2,921,378
Trinidad and Tobago Unit Trust Corporation	1,432,249	3,871,760
RBTT Bank Limited	1,172,719	2,570,513
ROYTRIN climate change	894,951	1,986,474
RBTT Bank Limited US$ Account	1,267	-
	$ 5,513,360	$ 11,350,125

7. **Accounts Receivable and Prepayments:**

	30 September 2009	2008
Accounts receivable	$ 13,750	$ 40,000
VAT receivable	2,035,938	1,088,689
Other receivables	101,958	100,306
Prepayments	148,236	101,723
	$ 2,299,882	$ 1,330,718

ENVIRONMENTAL MANAGEMENT AUTHORITY
ENVIRONMENTAL TRUST FUND

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

8. **Fixed Assets:**

Cost	Land	Building	Furniture and fittings	Office equipment	Motor vehicles	Computer equipment	Library/ Information	Total
Balance as at 1 October 2008	$13,729,868	$ 11,336,082	$ 3,435,040	$ 4,132,047	$ 2,614,639	$3,704,008	$ 332,331	$ 39,284,015
Additions	-	-	95,195	187,499	340,000	348,913	-	971,607
Disposals	-	-	-	-	-	(11,391)	-	(11,391)
Balance as at 30 September 2009	13,729,868	11,336,082	3,530,235	4,319,546	2,954,639	4,041,530	332,331	40,244,231
Accumulated Depreciation								
Balance as at 1 October 2008	-	3,059,069	1,316,716	2,504,845	1,394,896	2,508,847	218,195	11,002,568
Charge for the year	-	259,157	214,685	347,558	458,913	346,872	11,415	1,638,600
Disposals	-	-	-	-	-	(2,670)	-	(2,670)
Balance as at 30 September 2009	-	3,318,226	1,531,401	2,852,403	1,853,809	2,853,049	229,610	12,638,498
Net Book Value								
Balance as at 30 September 2009	$13,729,868	$ 8,017,856	$ 1,998,834	$ 1,467,143	$ 1,100,830	$1,188,481	$ 102,721	$ 27,605,733
Balance as at 30 September 2008	$13,729,868	$ 8,277,013	$ 2,118,324	$ 1,627,202	$ 1,219,743	$1,195,161	$ 114,136	$ 28,281,447

ENVIRONMENTAL MANAGEMENT AUTHORITY
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NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

9. Overdrawn Current Account:

	30 September 2009	2008
RBTT Bank Limited - UNFCCC	$ -	$ 39,533

10. Accounts Payable and Accruals:

	30 September 2009	2008
Accounts payable	$ 1,470,471	$ 1,791,678
Other payables	426,141	96,637
Accruals	1,527,845	1,066,685
Violations payable	197,803	1,833,813
Ministry of Public Utilities and the Environment - National Forest Inventory Project	774,169	1,891,762
	$ 4,396,429	$ 6,680,575

11. Funding:

Funds received during the year ended 30 September 2009 are as follows:

		30 September 2009	2008
External Funding			
UNDP	TT$	$ 536,907	$ 2,090,300
IBRD	TT$	-	1,232,815
Other	TT$	10,919	422,569
Core Funding			
GORTT	TT$	38,898,521	36,070,000
Activities Income	TT$	1,171,833	1,403,019

ENVIRONMENTAL MANAGEMENT AUTHORITY
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NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

12. Fair Values:

Fair value is the amount for which an asset could be exchanged, or a liability settled between knowledgeable, willing parties in an arm's length transaction. The existence of published price quotation in an active market is the best evidence of fair value. Where market prices are not available, fair values are estimated using various valuation techniques, including using recent arm's length market transactions between knowledgeable, willing parties, if available, current fair value of another financial instrument that is substantially the same and discounted cash flow analysis.

The following methods have been used to estimate the fair values of various classes of financial assets and liabilities:

Current assets and liabilities -

The carrying amounts of current assets and liabilities are a reasonable approximation of the fair values because of their short-term nature.

13. Related Party Transactions:

Parties are considered to be related if one party has the ability to control the other party or exercise significant influence over the other party in making financial decisions.

Key management personnel are those persons having the authority and responsibility for planning, directing and controlling the activities of the Authority.

A number of transactions are entered into with related parties in the normal course of business. These transactions were carried out on commercial terms at market rates.

Balances and transactions with related parties and key management personnel during the year were as follows:

	30 September 2009	2008
Other expenses		
Directors' fees	$ 386,300	$ 314,800
Key management compensation		
Short-term benefits	2,412,513	2,490,046

ENVIRONMENTAL MANAGEMENT AUTHORITY
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NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

30 SEPTEMBER 2009

14. **Equity Adjustment:**

The equity adjustment of **$28,219** was in respect of funds requested and returned to the UNDP for Project #00015003 – INS Phase III (**$361**); and Project #00025421 – Biodiversity Action Plan (**$27,858**).

PART D: FINANCIAL ASSISTANCE OF OTHER SUPPORT

There are no qualifying activities under Section 14 (1d) of the Environmental Management Act, 2000, for the year 2009.

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