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of the Implementation of the National Sugar
Adaptation Strategy for Trinidad & Tobago
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ACRONYMS:

ADB	Agricultural Development Bank
AMSP	Accompanying Measures for Sugar Protocol Countries
CEC	Certificate of Environmental Clearance
ECLAC	Economic Commission for Latin America and the Caribbean
EMA	Environmental Management Authority
EMBDC	Estate Management and Business Development Company
EMDB	Estate Management and Development Board
FITUN	Federation of Independent Trade Unions and Non-Governmental Organizations
GORTT	Government of the Republic of Trinidad and Tobago
MALMR	Ministry of Agriculture, Land, Marine Resources
NAMDEVCO	National Agricultural Marketing Development Company
NAS	National Adaptation Strategy
RD TTL	Rum Distillers Ltd.
SEA	Strategic Environmental Assessment
SMCL	Sugar Manufacturing Company of Trinidad and Tobago
TTABA	Trinidad and Tobago Agribusiness Association
UNDP	United Nations Development Program
UWI	University of the West Indies
WASA	Water and Sewage Agency

1 Executive Summary

The Trinidad and Tobago National Sugar Adaptation Strategy (NAS) is receiving financial support from the European Commission. As a part of this financial support a Strategic Environmental Assessment (SEA) is being conducted to identify environmental concerns of stakeholders, to determine the extent of those concerns, and to identify measures to mitigate negative impacts and enhance positive effects. In preparation for the SEA, this Scoping Study has been conducted in order to meet with as many stakeholders as possible, identify how they are involved in or impacted by the NAS, and to identify the environmental issues to be addressed in the SEA. This Scoping Study is based on interviews with 20 different stakeholder groups, and it is intended to be a discussion document to initiate the work of the SEA.

The methodology employed in the Scoping Study involved identifying primary stakeholder groups, and conducting interviews about their roles, concerns, and involvement in the NAS. Interviews generally lasted between forty minutes and two hours. The findings of the interviews are summarized here, and concerns about environmental issues are aggregated in order to avoid repetition of concerns. The issues are arrayed according to the classifications established by the EC SEA Directive.

The primary environmental concerns centering around the NAS related to soil quality and fertility, water quality and quantity including access to infrastructure. There are believed to have been positive impacts on biodiversity, and air quality since the closing of Caroni (1975) Ltd. Future development will have additional impacts that will be addressed in the SEA, and are outlined here. These include impacts of flooding and climate change, soil erosion, soil contamination, and potential impacts on sensitive areas. These issues will be explored in more depth throughout the SEA via a baseline analysis, trend analysis and review of capacities.

The SEA for the NAS is strongly supported by the legal, institutional and policy structures of Trinidad and Tobago. Development objectives such as Vision 2020, institutional responsibilities pertaining to environmental management and oversight, and diversification of economic sectors suggest that the SEA will be a positive contribution to the NAS and GoRTT as they move towards developed nation status. Further at this critical juncture GoRTT has the option to outpace most developed countries in improving their sustainable development track record while simultaneously taking actions to reducing costly environmental externalities.

2 Description of the NAS

2.1 Background

In 2003 the Government of the Republic of Trinidad and Tobago (GORTT) implemented a policy decision to divest public sector ownership of sugar industry operations and assets within a five year time frame. Since then Government has funded a TT\$6 billion divestment programme that stopped state-owned production of sugar cane, including the termination of over 7,000 employees of the publicly-owned Caroni (1975) Ltd. The overall goal of Trinidad and Tobago's strategy is to contribute to the realization of specific priorities established in Vision 2020, the country's Development Plan to become a developed nation by the year 2020. These priorities include creating an environment of competitiveness, developing innovative people, fostering a caring society and improved government.

In 2006 the EC provided support under Accompanying Measures for Sugar Protocol Countries (AMSP) to GORTT for drafting the National Adaptation Strategy (NAS) for sugar. The outcome (March report, by Agrisystems) was founded on a combination of decisions already taken by GORTT regarding the current economic trends in Trinidad and Tobago, and the priorities established for advancing the Vision 2020 agenda in the related 2007 – 2010 implementation plan. It reflected the national policy position that future growth in revenue-generating sectors of the economy must be both private sector-led and sustainable.

The NAS design seeks to enhance competitiveness of a private sector-led sugar cane sector on a sustainable basis, facilitate informed sugar related decision making, facilitate private sector led investment in the industry, and support technological options for use of the sugar cane plant that leverage Trinidad and Tobago comparative advantage. This is to be done through promotion of economic diversification of sugar dependent areas via development of an exit strategy for sugar farmers, improvement of the enabling environment for economic diversification, and to address broader impacts related to social, environmental, community and area-based issues. This is intended to maintain environmental stability while providing sustainable social and economic support related to the socio-economic effects of transitioning out of the industry.

2.2 Progress of NAS to date

The Caroni lands total 76,608 acres of which 38% (28,711 acres) are now, or are scheduled to be, non-agricultural (incl. 8,009 acres for building developments)

Of the 47,897 acres remaining, the 2ac plots account for 14,606 acres (2 X 7,303 acres) which are designed to accommodate 7,218 former Caroni employees referred to as Caroni worker farmers. These plots are arranged in 29 estates. It appears that currently 17 estates are in process of active formulation.

Most (6,666) plots have had their infrastructure developed but to date it is understood that only 3,519 plots have been subject to lease offers. Separately, there is a supplementary set of statistics for the 3,519 plots:

Positive response to lease offers	2,282
Lease prepared	1,926
Lease executed	639
Lease registered	458

The challenges with division of lands, surveying and allocation of plots, development of infrastructure, and overseeing legal arrangements has resulted in expected delays, however this is standard for large scale construction and infrastructure projects.

ii. Housing

In addition to the development of lands for agricultural purposes, both in terms of small 2 acre plots, and larger mega farms, plots for displaced Caroni workers are also being made available in residential sites as noted above. These plots are intended for former Caroni workers to be eligible to build homes upon, with bank loans supplemented by the government as needed to support the construction costs of the homes.

iii. Infrastructure

The GORTT is also providing supplemental infrastructure support that will be used for both the residential purposes and “to the gate” support for the mega farms. This infrastructure includes water, sewage, power, roads, and drainage. As the Caroni agricultural lands were not divided by roads it can be expected that in order to make all of the 2 Acre farms, and residential lands accessible by road that a significant amount of land will be dedicated to road bed and associated drainage areas. The total land mass which will be dedicated to road construction is not currently known, though efforts will be made to establish this in the next phase of the project.

iv. Industry

The intention of the NAS is to develop the industrial sector in line with the objectives set in Vision 2020. To date 6 applications have been made to the EMA for Certificates of Environmental Clearance (CECs). These are requests for clearing lands and building of infrastructure for industrial parks. These industrial parts will be for food manufacturing, light manufacturing assembly, fabrication/ construction and painting, and a technical development centre to develop and optimise technology and process for the production of car and truck wheels and car parts in aluminum.

There are additional plans, yet to be determined are for sites including a distillery, a sugar refinery in St. Madeline, and the decommissioned sugar refinery. Additional plans are under discussion for these facilities and sites, but to date, these have not been confirmed.

v. In addition to agricultural, housing, infrastructure and industry uses, there are some acres available for conversion from cane lands and associated holdings. Some ideas under development by various government ministries include the citing of an Orange Grove campus for University of Trinidad and Tobago, additional industrial and agricultural sites, possible tourism development, and other uses yet to be determined.

3 Overview of the policy, institutional and legislation framework

3.1 Vision 2020 Development Strategy

The National Adaptation Strategy, as outlined above sets the objectives of divesting from all sugar land holdings and properties of the Caroni (1975) Ltd. Within this, the guidance for the SEA are couched firmly within the parameters defined for this. There are also other policies, institutional and legislation which will provide support for the development of the SEA, and which are expected to be largely complimentary to the objectives of the SEA in improving social, environmental and economic benefits to the country resulting from the NAS.

The main driver of the GORTT development policy is Vision 2020, a set of goals and objectives intended to bring Trinidad and Tobago to “developed nation” status by the year 2020. With a focus on agricultural development, diversification of the economy, social infrastructure improvements, education, sound environmental management and sustainable development, Vision 2020 has a wide range of direct applications to the SEA, especially as it pertains to the shift away from the sugar sector to other uses of the natural resources of Trinidad and Tobago.

The Vision 2020 Development Pillar for “Investing in Sound Infrastructure and Environment” has a goal that the “environment will be valued as a national asset and conserved for the benefit of future generations and the wider international community”. This goal is complimented by objectives for 2010 to:

- Prevent, reduce or where possible recycle all forms of waste
- Treat wastewater in accordance with world standards
- Conserve and enrich the vitality and diversity of our natural environment
- Create environmental infrastructure that enhances the quality of life of all citizens
- Promote judicious national physical development and the sustainable use and management of environmental resources
- Instill an attitude of care and respect for environment among all citizens
- Empower stakeholders including communities to care for their own environments
- Integrate the principles of sustainable development into national policies and programs.

In Vision 2020 there is also a Development Pillar for Enabling Competitive Business that includes the objective of reversing the decline in agriculture through increasing the profitability of the agricultural sector and improving food security. This is to be done through increasing production of food crops, increasing commodification marketing and agricultural extension efforts, create linkages with other sectors including manufacturing and government for agro processing and marketing, revitalize the cocoa sub-sector, and increase cultivation of root crops, small ruminants, aquaculture, and dairy.

These goals and objectives set a fairly high standard to be realized, however the attention to these issues suggests a robust appreciation for the role, both socially and economically of healthy ecosystems as an integral part of development planning. Within this context the SEA is well situated to move forward and should find support within the government planning processes.

3.2 Environmental Policy and Institutional Framework

The institutional support that is specific to environmental protection and sustainable development stem from a wide range of advanced measures pertaining to policy, institutions and legislative frameworks. Within the Ministry of Planning, Housing, and Environment there is also an Environmental Policy and Planning Division responsible for making directives on

policy implementation from the Minister to the EMA, and bringing recommendations from the EMA on needed legislation to the Minister. This body provides support to the EMA, as well as the full Ministry by overseeing compliance with regional and international environmental agreements, environmental policy development, and liaising with other government bodies.

The Environmental Act of 2000 empowers the Environmental Management Authority (EMA) within the Ministry of Planning, Housing and Environment. The EMA has authority to conduct SEAs and is required to provide Certification of Environmental Clearance (CECs) for agricultural activities on areas above 2 hectares, housing, building, infrastructure, industry and development efforts in the country. They also require regular follow up and monitoring on compliance with the CECs. These provide basic Environmental Impact Assessment (EIA) characteristics at the project level and must be obtained prior to all works undertaken. Additionally, the CEC is required for decommissioning of sites, including the Brechin Mill Castle Sugar Refinery. The specific activities covered by this are outlined in The Certificate of Environmental Clearance Order 2001- Legal Notice No.103, and the procedures are outlined in The Certificate of Environmental Clearance Rules 2001 - Legal Notice No. 104.

In addition to the CEC and SEA functions supported by the GORTT, there are significant environmental laws in place pertaining to aspects of environmental damages, use of natural resources, and development measures, these include a series of acts specific to issues of water, forestry, and agricultural products, as well as use of pesticides and toxic chemicals. A unique and very advanced component of the GORTT Environmental Protection Measures is the formation of the Environmental Commission. The Environmental Commission is the court of record, established to resolve issues of environmental justice. The Court is an impartial body, separate from the EMA and Ministry of Planning Housing and Environment and the bench includes experts in environmental law, environmental and public health, and environmental engineering. The presence of such a court reflects the GORTT advanced dedication to environmental management issues, as most developed countries has yet to establish such bodies.

The environmental legislation of Trinidad and Tobago is based on a set of national laws, which applies to the NAS and SEA in a wide range of areas and sectors being addressed. These laws are:

- The Water Pollution (Fees) (Amendment) Regulations, 2007
- The Water Pollution (Fees) Regulations, 2001
- The Water Pollution (Amendment) Rules, 2006
- The Water Pollution Rules, 2001
- Environmental Management Act 2000
- Environmentally Sensitive Areas Rules 2001 - Legal Notice No. 37
- Environmentally Sensitive Species Rules 2001 - Legal Notice No. 6
- The Certificate of Environmental Clearance Fees Charges Regulations 2001 - Legal Notice No. 91
- The Certificate of Environmental Clearance Order 2001- Legal Notice No.103
- The Certificate of Environmental Clearance Rules 2001 - Legal Notice No. 104
- Noise Pollution Control Rules 2001- Legal Notice No. 60
- The Noise Pollution Control (Fees) Regulations 2001- Legal Notice No. 51
- The Environmental Commission Rules of Practice and Procedure 2001

The Environmental Commission is also reviewing all laws of Trinidad and Tobago to determine where codes are updates and it is possible that drafts of these updated codes will be available during the timeframe of the SEA.

The specific applications of this legislation to the NAS and SEA will be detailed in the next phase of the SEA, as they pertain to specific sectoral activities and options.

Recently there has been a restructuring of the government since 2007 that has segmented some aspects of environmental management. For example water quality and water quantity are now under water resources within the Water and Sewage Authority (WASA) under Ministry of Public Utilities. The Forestry Division was formerly under the purview of the Ministry of Public Utilities and Environment, and is now under Ministry of Agriculture, Lands, and Marine Resources. Additionally, Town and Country Planning within Ministry of Local Government works in tandem with EMA, for granting permits for any land use changes, also support authorization for any development.

There is also a Town and Country Planning Act from 1969 which is intended “to make provision for the orderly and progressive development of land in both urban and rural areas and to preserve and improve the amenities thereof . . . “ (35:01). This gives authority to the Government to over see all planning, control of development of land, and acquisition and disposal of land for planning purposes. This authority provides the Government rights to develop the Caroni (1975) Ltd. lands, as they see fit.

3.3 Agricultural Policy and Institutional Framework

Presently, GORTT interest/concern focuses upon food crops. The sector is expected to increase its contribution to food self-sufficiency through greater production of intensively cultivated rice and horticultural produce, plus livestock. Both exportation and import substitution benefits are envisaged.

Other food crops, such as cassava, are seen as occupying less fertile land. Previously agro-forestry has not been a high priority due to food security issues: these and tree crops, incl. cocoa, are not neglected but are viewed as long-term options.

It is appreciated that sector operatives need support and technical assistance. This latter focuses on training and extension with entities like the Agricultural Development Bank (ADB), Trinidad and Tobago Agribusiness Association (TTABA), and National Agricultural Marketing Development Company (NAMDEVCO) providing support *vis a vis* the enabling environment required for farming to flourish. A value added effort, through product processing is seen as an essential component of the self-sufficiency drive. Initiatives to reduce praedial larceny also are being put into place by Ministry of Agriculture, Land, Marine Resources (MALMR).

Resource management policy recognizes the need to improve the irrigation, drainage and water management infrastructure for agricultural uses. The scale of the task presently presents policy implementation challenges that must be dealt with in this context. The soil resource has been subject to detailed scrutiny so that appropriate actions have been identified and are taken up via the current farmer training programmes.

Land tenure issues are a significant feature since most new agricultural development involves State land. The title transfer process (and hence progress) is complex and logistical concerns have slowed the transition processes. This state of affairs applies both to the creation of the very small (2acre) holdings for former sugar sector workers and to the larger mega farms (100acre) being offered to interested investors.

Under the former Ministry of Public Utilities and Environment, there was the development of a National Action Plan to Combat Land Degradation in Trinidad and Tobago. This National Action Plan outlines a strategy to enable the Government to emphasize:

- 1) implementation of actions to reduce/prevent deforestation, soil erosion, flooding, pollution, and land desalinization
- 2) rehabilitation of degraded lands
- 3) promote wise land resource use and practices
- 4) implement forecasting and prevention systems for natural hazards such as drought-like conditions, floods, and landslides; and
- 5) encourage changes in behavior that lead to a symbiotic relationship between people and the land they occupy.

The National Action Plan on Land Degradation has implications for the SEA in that a significant number of the environmental issues related to the agricultural sector impacts and diversification from sugar cane sector are addressed within this plan. This includes erosion, flooding, pollution, land salinization, and increasing soil acidification.

3.4 Labor Policy and Institutional Framework

Labor policies and institutions in Trinidad and Tobago are also well developed with unionization, very low rates of unemployment, and high wage prices. This is driven by high prices for oil and high demand for natural gas leading these industries, and associated industries, including construction, and the service sector to act as a sponge for available labor in the country. The Vision 2020 objective to achieve full employment has been met and surpassed, with an unemployment rate at 4.2%, putting it in the category of “over employment” which leads to increased pressures on wages and labor availability. The policies in place favor a standard minimum wage, health and safety plans. The implications for the NAS, and specifically for the SEA is that recommendations must be sensitive to the current tight labor market.

4 Description of key stakeholders and their concerns

Within the scoping study the EC Delegation and Consultants met with 20 different stakeholder groups. The meetings involved introducing the EC Sectoral support programme and objectives, and determining the role of stakeholder groups within the NAS. Below is a summary of the key stakeholder groups, and their immediate concerns pertaining to the NAS. The environmental concerns of stakeholders are aggregated in the section 5 of this report as many groups voiced similar concerns within the interview process.

National Divestment Office: this body has responsibility for overseeing the strategic development and implementation of the divestment of the Caroni (1975) Ltd. holdings, with an emphasis on equity, working within legal structures, and meeting the demands of multiple stakeholder groups. Interested in reducing negative environmental externalities.

Estate Management and Development Board (EMDB): This board is charged with the oversight of the distribution of the Caroni (1975) Ltd. properties, focusing on the Caroni Worker Farmers 2 acre plots, and development infrastructure of the residential estates for displaced workers. A key interest for this stakeholder group is food security, working within EMA guidelines, and legal matters pertaining to the lease agreements for the Caroni Worker Farmers, and new residents for the home estates under development.

Caroni (1975) Ltd.: The firm formerly responsible for the vertically integrated cane sector, including cane fields and lands, bungalows and estates, cane transportation, processing, refining, storage, shipping, distilling and sales. They also oversaw the diversification of Caroni dairy cow breeder farms, rice fields, and citrus orchards that are now undergoing divestment and sale for the private sectors. Voice concerns about health of environment, and have noticed enhanced biodiversity since pesticide usage stopped, displaced workers and easing transitions to privatization.

Agricultural Society: A collective of former Caroni administrators and workers eager to provide start up support to the new Caroni Worker Farmers through mechanization for clearing lands, plowing and additional agricultural support. Concerned about access to water for irrigation.

Ministry of Planning, Housing, and Environment: This newly amended Ministry has responsibility for national environmental policies, support to the EMA, and addressing environmental issues within the planning sector. Their support to the SEA will be critical, both in terms of development and implementation. They also seem to be the body actively liaising with other stakeholders dealing with environmental issues, including the academic sector and international proponents.

Environmental Management Authority: This body has statutory autonomy to execute environmental policies. They are responsible for issuing all Certificates of Environmental Clearance under EIA compliance, monitoring and policing of development. Inputs into the SEA will be significant as the body responsible for enforcement of environmental laws, policies and permitting regulations.

Water and Sewerage Authority (WASA): Stakeholder group under the Ministry of Public Utilities. They are responsible for water quality monitoring, water distribution, flooding, and infrastructure. With the increase in food crop farming as part of the NAS the expected increase in demand in water for irrigation will be of significant importance for this body. Additionally the shifts in water use and water quality as increased agriculture, industry and housing emerge from the NAS will put additional demands on the resources of WASA. Concerned about flooding, water quality, water quantity and infrastructure.

Environmental Commission: Established under the Environmental Management Act of 2000, the Commission is a Superior Court of Record and has jurisdiction to hear, inter alia, appeals from decisions or actions of the Environmental Management Authority and applications by the EMA for enforcement. Because the Commission must be objective in all court matters including those that could involve recommendations pertaining to the findings or recommendations of the SEA, their involvement in the SEA is not permitted. Within the scoping study, the Environmental Commission has provided support in terms of environmental legislation, their role in the process, and institutional expertise.

Ministry of Agriculture, Land, and Marine Resources (MALMR): This ministry is most directly impacted by the NAS and work with the SEA is expected to be highly involved. As they have taken over a good portion of the responsibilities formerly under Caroni (1975) Ltd. There are several divisions within MALMR which are anticipated to be actively involved in the SEA process.

MALMR Planning Office: This office is charged with planning of agricultural development within the Ministry. They will provide support to the Caroni Worker

Farmers receiving the 2 acre plots, in addition to established farmers diverting their lands which were formerly under cane cultivation to other forms of agriculture and to other commodities. Their inputs to the SEA will be critical in terms of support for development strategies for food crops and other commercially viable agricultural crops.

Trinidad and Tobago Agribusiness Association (TTABA): An independent organization contracted to the MALMR Planning Office to assist in the development of the 2 acre plots into commercially viable properties through a cooperative agreement that would entail oversight of crops for sale to members throughout their integrated distribution chain, many of whom are members of TTABA. They are eager to be involved in the SEA, and have experts who will be valuable assets to the environmentally sustainable agricultural component of the SEA.

Agricultural Training (extension services): Charged with training the Caroni Worker Farmers, and providing extension services training to all farmers in Trinidad and Tobago. Interested in sustainable development, low impact farming techniques, growth of subsistence food crops and providing on going support to former cane farmers and Caroni workers as they transition into other crops. They will be important to the SEA for capacity development and support issues.

MALMR Research: Experts in soil sciences have voiced concern over key natural resource weaknesses and threats arising from changing pattern of land use and utilization. Also delineated a needed consequential substantial alteration to drainage, irrigation and water management infrastructure due to the nature of soils as revealed by research investigations, makes this matter even more critical.

Forestry Division: Very interested in NAS and SEA recommendations and see that forestry, especially in sensitive lands could have a central role in preservation of ecological services. They were key in the development of the National Action Programme to Combat Land Degradation in Trinidad and Tobago: 2006- 2020 report. Their inputs to the SEA could emphasize the importance of economic valuation of ecosystem services, as well as options for agro forestry, using trees and forests for land and soil protection, and intercropping for sustainable agricultural practices.

University of West Indies (UWI), Agriculture Faculty: Interested in the NAS and SEA over all. They offer some important perspectives in terms of global issues, economic impacts and historical contexts. They are eager to provide research assistance and expertise as needed, especially if financial support for research agenda is available. May be pertinent to SEA implementation, and capacity. Also, though not visited, the Cocoa Research faculty may be especially pertinent to the SEA.

Caroni Worker Farmers: Former Caroni (1975) Ltd. workers previously employed in a variety of cane farming and non-farming occupations, who elected as part of their severance package to accept a 2 acre plot of farm land. They have received training from MALMR Agricultural Training, but there is concern about their ability to actively farm the land due to age, lack of crop farming experience and other more profitable activities for labor. They are integral to the NAS and SEA as major impacted stakeholders. They are also targeted by TTABA efforts with MALMR.

Private Cane Farmers: (*Pending phone interviews/meetings*) This group is believed to be more entrepreneurial in part because of access to markets and already in possession of

heavy equipment needed for other crops such as tractors, etc. They will be selectively consulted during the SEA phase.

Agricultural Development Bank (ADB): Concerned over St. Madeline situation regarding undetermined future as a functioning refinery, but needing to be purchased from the GoRTT. They expressed potential willingness to finance the purchase of the Refinery, which would be single biggest loan by far. Also, they have experienced steep downturn in lending, since in past financed many private cane farmers. New borrowers created by NAS initiatives have yet to materialize in significant numbers.

Federation of Independent Trade Unions and Non-Governmental Organizations (FITUN): A non governmental body representing trade unions in Trinidad and Tobago with concerns about trade issues pertaining to the loss of the state supported cane production as it impacts national and international trade balances and labor.

International Development Organizations: United Nations Development Program (UNDP) and ECLAC have voiced concerns over macroeconomic implications of NAS, but also fully understand that challenges inherent in divestiture of state assets. In terms of environmental concerns, rapid levels of urbanization, impacts of flooding and the need to focus on sustainable development of a wide range of food and commercial crops are most significant.

Yet to meet with:

- University of West Indies, Natural Science Faculty, and Cocoa Research Center
- Trinidad and Tobago Meteorological Service
- Ministry of Social Development
- AMI Marine Institute
- NAMDEVCO
- E-tech

5 Description of key environmental aspects to be addressed in the SEA Study

In meetings and discussions with stakeholders, the following environmental, social and economic concerns were raised. These will be addressed in greater detail within the SEA study.

5.1 Water

The water issues pertaining to the NAS are two fold, both in terms of water quality and water quantity.

With regards to water quantity, the rain fall levels in Trinidad and Tobago are relatively high, and with climate change prediction scenarios are expected to increase based on shifting patterns. The increase in rainfall combined with loss of natural absorbing sponges (undeveloped low lying areas where water is able to percolate down through soils) due to high levels of development and paving of surfaces has resulted in increase in flooding event, especially flash flooding which is very costly in terms of damages to infrastructure and human development.

Alternatively, there is a low level of surplus water available for the agricultural sector under development. While cane acts as a sponge, tolerates high levels of water, and does not require irrigation, the planned fruit and vegetable crops will need more regular water, and it is not clear that rain fed water will be sufficient to meet the needs of these farms. The closing of the Caroni properties has resulted in some concerns about maintenance of water ways previously under the stewardship of the Caroni (1975) Ltd. management.

The impact of the Caroni (1975) Ltd. activities on water quality is not entirely clear, though it is expected that the specific information pertaining to this is within the WASA water resource management agency. Concerns are likely to include impacts of high levels of urea (used for fertilizers), pesticide, fungicide, and herbicide residues, effluents from refineries and distilleries, and effluents from associated industries and roadways. The closure of Caroni (1975) Ltd. operations has resulted in improved water conditions, anecdotally, and as development of the divestment opportunities emerge, it will be important to continue to protect impacted surface and ground water resources.

Details of the challenges of flash flooding, lack of agricultural access to existing water supplies, access to water and sewage infrastructure, maintaining water quality in historic baseline and new developments, and alternatives will need to be addressed by the SEA.

5.2 Soil

Issues impacting the soil include erosion, high levels of acidification, low levels of fertility, contamination from refining, distillery and possibly pesticides, herbicides and fungicides, both historically and in the future.

The issue of soil erosion in the former sugar cane fields stems from lands which are under cultivation for other crops. Many of these areas are prone to flooding, washing and wind erosion. The moisture content is relatively low, with low levels of organic matter and a heavy clay content, therefore making it more prone to erosion as its ability to absorb and hold water is limited. It is believed that with amelioration efforts soil quality can be improved, and if properly managed erosion may be reduced. Additional efforts and soil loss management strategies may also be needed to reduce erosion associated with infrastructure development.

The soils used directly for sugar cultivation are extremely acidic due to the application of urea for fertilizer, and due to the nutrient depleting properties of cane production. There is concern among some stakeholders that the intention to turn these lands to crop production will face significant challenges due to the low level of nutrients, need to add lime to soils to counter the acidity. There is also concern for potential use of large amounts of agrochemicals to improve production and reduce susceptibility to pests and diseases from crops growing in suboptimal conditions. This could have significant impacts on soil and water quality, and ultimately on human health of those exposed to these chemicals, either through application or consumption. Efforts will be made within the SEA to determine sources of quantifiable data, and to develop recommendations for commercially viable crops which are best suited for current soil conditions.

There are some concerns about contamination of soils from historic activities around the refineries and the distillery, as well as future concerns about contamination from industrial activities, source and non point source pollution, and from storage and use of agro chemicals. Additionally, there are also concerns about the intention to develop industrial sites that should be cited to reduce negative impacts on soil quality. Some concern has been raised by stakeholders about the impacts of citing residential estates on lands that may have some

degree of soil contamination. Data is not immediately available on this, but it is expected that this concern will be more thoroughly explored in the SEA phase.

Details of erosion rates due to floods and winds, soil quality and full protection measures, soil amelioration potential, agrochemical application rates, and optimal crops for current conditions will be examined within the SEA.

5.3 Air quality

The air quality impacts of the cane production were primarily from aerial spraying of pesticides to control pests, and from refining through the release of emissions including fly ash.

Since the closing of the Caroni (1975) Ltd., air quality is believed to be improving because of lack of pesticides, including malathion, sprayed aerially. Traditionally the spraying occurred at times when humans were not in the immediate vicinity, but there may have been issues with wind drift and other contamination. The GoRTT no longer subsidizes this activity, and to date it is believed that there is no large-scale aerial application of agro chemicals.

There are also reports that during the operation of the Brechin Castle Refinery, the clearing of smoke stacks resulted in blowing fly ash into the air, which had impacts on surrounding communities and resulted in some health concerns. Prior to the closing however, measures were installed to capture the fly ash that is very nutrient rich, and was used for fertilizers.

The decommissioning and subsequent dismantling of the Brechin Castle has identified asbestos used to insulate some of the equipment. Currently measures are being taken to oversee removal of this within accepted protocols to protect public health.

Air quality impacts of the distillery are not fully explored to date and will be considered during the next phase of the project.

Future air quality concerns may stem from dust resulting from wind blowing newly tilled soils, or from lands cleared in preparation for residential, infrastructure, or industrial uses. Other future air quality concerns may stem from additional planned activities that will be more examined in more detail in the SEA phase of the project.

5.4 Climate Change

As a small island state Trinidad and Tobago are believed to be extremely vulnerable to climate change issues. Additionally it is anticipated that shifting weather patterns will result in increased rainfall and increased severity of flooding events. The exact causality of recent increased flooding events is difficult to track conclusively however; anecdotal evidence is in accordance with predicted changes. The impacts of this have serious ramifications for the agricultural sectors, as excessive water can be as disruptive as drought. Further, the increase in flooding events may have ramifications for residential estates, impacts on infrastructure, and closing of industrial parks.

Some stakeholders have urged that future planning include the strategic use of green spaces to act as absorbent sponges during flooding and rainy season, selecting appropriate crops able to tolerate high rainfall, and careful siting of all residential, infrastructure and industries on former Caroni (1975) Ltd. properties in order to minimize impacts of climate change. These options and others will be explored more fully in the context of the SEA.

5.5 Biodiversity/ flora and fauna

There is believed to be a marked improvement in biodiversity as a result of stopping large scale pesticide usage. Anecdotal evidence from Caroni (1975) Ltd. suggests that there is a notable increase in beneficial insects, including bees, butterflies and other pollinators since the cessation of aerial spraying. Additionally, they have noticed an increase in other fauna including reptiles and amphibians, birds, including birds of pray, rodents, and mammals, including feral dogs and cats.

It should be expected that similar trends would be occurring on lands left fallow, as indigenous, opportunistic weedy species move into areas no longer treated with herbicides. If the move away from monoculture to diversified crops, intercropping, crops rotation strategies for soil improvement, and cultivation of crops that are more indigenous to area such as cocoa and coffee, it is expected that this will further improve reemergence and possible flourishing of more endemic biodiversity.

5.6 Human Health

The human health impacts of the closing of the Caroni (1975) Ltd. sugar industry have some locally specific impacts on human health. These range from direct and immediate human health issues to more secondary, but potentially significant nutritional issues.

Workers formerly working with the pesticide management should have improved health. It is anticipated that the decrease in exposure to these substances will be beneficial. As many pesticides are metabolized in the liver, there is a higher rate of liver disease among those who come into regular contact with these substances. However, as with many environmental health issues, direct causality is difficult to determine conclusively. The high levels of alcohol consumption that also contributes to liver disease may mask the symptoms of overexposure to some agrochemicals and therefore it is not anticipated that reliable empirical data will be found to address this.

Besides the improvements in human health populations from the decreased exposure to airborne pesticides and fly ash, the other anticipated beneficial impact of the NAS is an improvement in access to affordable fresh fruits and vegetables. Trinidad and Tobago is a net food importer, with significant amounts of fresh produce being imported at increasing prices as food security issues become more pressing. The result of this is an increased reliance on processed foods that have lower nutrient content. Additionally, depending on what crops and food sources are developed on Caroni (1975) Ltd lands, and if aquaculture, small ruminant, poultry, dairy, or livestock options are pursued actively it could have ramifications for improving affordable protein for human diets.

A great deal of the long term human health impacts of the NAS will be directly dependent on both the food crops selected, and the growing methods employed. There are tremendous opportunities for sustainable farming opportunities at this juncture, if stakeholder support and buy in can be cultivated.

5.7 Social Inclusiveness

In line with Vision 2020, the NAS has potential for increasing social inclusiveness among farmers, from among small scale private farmers, large private cane farmers and Caroni Worker farmers. Additionally, the division of lands into residential estates could be seen as increasing social inclusiveness. As the SEA develops, it will be important to further increase

stakeholder inputs as mapped out in the Stakeholder Engagement Plan in the Technical Appendix 1.

5.8 Cultural Heritage and Landscapes

The population of Trinidad and Tobago is multi-ethnic and much of the population was brought here to farm the cane lands, cocoa and coffee crops. There is a close tie to the land through commercial export crops, but not a strong tradition of subsistence farming. A result of this is that there will be significant training required for moving workers into the farming sector. However, as most populations is currently employed in other sectors, there may be a need to import labor, or to focus on crops amenable to high levels of mechanization.

The issue of landscape protection is significant in that there are some small portions of Caroni (1975) Ltd. lands that are steeper slopes. These are mostly peripheral, but will need to be protected through appropriate means. This will include use of deep rooted crops, intercropping and/or reverting to forestry to minimize landslides. These lands are zones class VII by the Interagency Planning Committee for the NAS and are believed to be under special protections.

Other impacted landscapes include those in coastal areas, such as the Caroni Swamp, which is in the coastal area in the catchment area of many of the Caroni (1975) Ltd. lands. It is not yet determined how much of the Caroni holdings in coastal areas are within proximity to sensitive areas such as mangrove swamps. The impacts of Caroni (1975) Ltd. activities, and the cessation of those activities, and development of new activities has not been fully explored to date, it will be a priority in the next phase of the project, especially as the Caroni Swamp is a Ramsar Site for protected wetlands.

One issue to be vigilant of throughout the SEA pertaining to landscape issues is the location of Trinidad and Tobago on the apex of three tectonic fault lines. There is believed to be a higher chance of major earthquakes than of hurricanes impacting these islands. As such, all recommendations, and efforts involving construction take this matter into consideration.

5.9 Economic Access

The issue of economic access pertaining to the NAS is significant due to a high level of reordering of the economic conditions for stakeholders previously employed by Caroni (1975) Ltd., as well as those indirectly benefiting from the functioning through private industry, related supporting industries and peripheral sectors. The economic strength of the Trinidad and Tobago is driven primarily by the petroleum sector, and the record high oil prices of 2008 have resulted in an economic boom for this and associated sectors, including construction and services. Some predict a pending economic downturn due to the fall in oil prices has not yet significantly impacted the economy, which will lead to increased unemployment in the near future. It should be noted that while oil prices have fallen, natural gas prices remain high due to increasing demand from the US for natural gas, as part of US energy policies for cleaner burning fuels.

5.10 Material Assets and Infrastructure

According to the NAS the development of infrastructure is a large component of the repositioning of the Caroni (1975) Ltd. properties. This includes infrastructure and material asset development for a wide range of activities, from restructuring the agricultural sector infrastructure, to preparing residential estates for home construction, to building industrial parks.

Cane required low levels of infrastructure compared to crop farming. In the transition to small 2 Acre farms and mega farms there is a requirement for significant infrastructure. This will include drainage ditches, crossings, roads, and some sort of irrigation system if most food crops are to thrive. Irrigation remains a challenge as this will require support from the water infrastructure or creation of water storage infrastructure, like ponds that require regular upkeep and maintenance. This obstacle has not yet been cleared and will be considered within the context of the SEA.

The development of infrastructure for residential housing requires large investments in infrastructure, including potable water supplies, sewage and sanitation, electricity, phone lines, roads, other utilities. As a result, there is a cost to the government in making this investment to these residential sites. The impacts of this and potential measures to minimize cost while optimizing services will be examined under the SEA.

For industrial parks, the infrastructure needs are similar to those needed for the residential sites. In addition though, there is a need for enhanced, enforced roadways, and crossing, parking facilities, access to ports for export and import of materials. Also, depending on the industry under consideration, there will be a need for waste water management and potential treatment, hazardous waste storage and disposal, and security. These sites should also be buffered from flooding, storm surges, earthquakes and other natural disasters. The challenges to constructing these will be included within the SEA.

There have been mentions of using some of the Caroni (1975) Ltd. lands in Orange Grove for the construction of a campus for UTT. The infrastructure needs will mirror those needed for residential facilities, with the addition of parking, and mass transit access.

6 Description of the scope of the environmental baseline to be prepared in the SEA Study

The closing of the Caroni (1975) Ltd. sugar harvest in 2003, and final subsidized crop in 2007 creates two sets of baseline data for use in the SEA. As available the team plans to obtain pre 2003 data as well as the most recent data for a two stage baseline analysis. Pending data quality and comparability, this customized data collection will enable the team to the historic (pre 2003) baseline, and to identify trends using the 2004-2009 data. It is anticipated that this will result in a more accurate forecast for various actions and alternatives currently under consideration. Further, it is anticipated that a qualitative cost benefit analysis will be included within the trend analysis in order to weigh the alternatives, and their impacts/effects for the short, medium and long term.

Table 6.1 outlines the types of information sought as they pertain to each sector, in accordance with the issues mandated by the EC SEA Directive. As the NAS has ramifications beyond agriculture, other sectors, and relevant sectoral data much be collected. The level of data will be both national and as discrete as possible, though it is recognized that obtaining some data below county level may be extremely difficult. As available this will also be compared to targets set by government policy including Vision 2020 and the 2010 goals for obtaining Vision 2020, regional and international agreements, and other objectives set by governing bodies and authorities.

Table 6.1 Baseline data to be collected in SEA

Issue/Sector	Agriculture	Housing	Infrastructure	Industry
Water	<ul style="list-style-type: none"> • Demand rates and anticipated demand • Water quality assessments • Flooding impact data on agricultural lands 	<ul style="list-style-type: none"> • Anticipated demand based on average household consumption • Access to potable water sources • Access to sewage 	<ul style="list-style-type: none"> • Historic and current water use rates • Anticipated overall water use rates • Flooding impacts • Treated water lost due to leaks in system • Access to sewage and drainage mechanisms 	<ul style="list-style-type: none"> • Historic and anticipated demand rates • Historic and anticipated effluent types, and effluent disposal means
Soil	<ul style="list-style-type: none"> • Nutrient levels • Contamination rates (if any) • Amelioration efforts/needs • Erosion rates and sources (Wind/water) 	<ul style="list-style-type: none"> • Erosion rates • Contamination levels • Mitigation measures in place 	<ul style="list-style-type: none"> • Erosion rates • Contamination levels • Mitigation measures in place 	<ul style="list-style-type: none"> • Erosion rates • Contamination levels • Mitigation measures in place
Air and climate	<ul style="list-style-type: none"> • Airborne pollutant rates • Climatic trend impacts 	<ul style="list-style-type: none"> • Dust and particulate matter exposure 	<ul style="list-style-type: none"> • Dust and particulate matter exposure 	<ul style="list-style-type: none"> • Dust and particulate matter exposure
Biodiversity (flora/fauna)	<ul style="list-style-type: none"> • Shifts in biodiversity and indicator species populations • Sensitive areas 	<ul style="list-style-type: none"> • Shifts in biodiversity and indicator species populations • Sensitive areas 	<ul style="list-style-type: none"> • Shifts in biodiversity and indicator species populations • Sensitive areas 	<ul style="list-style-type: none"> • Shifts in biodiversity and indicator species populations • Sensitive areas
Human health	<ul style="list-style-type: none"> • Exposure to agrichemicals • Nutritional profile at national/regional level 	<ul style="list-style-type: none"> • Exposure to dust and particulate matter, exposure to contaminants 	<ul style="list-style-type: none"> • Exposure to dust and particulate matter, exposure to contaminants 	<ul style="list-style-type: none"> • Exposure to dust and particulate matter, exposure to contaminants
Social inclusiveness	<ul style="list-style-type: none"> • Public input into decision making processes 	<ul style="list-style-type: none"> • Public access and input into decision making 	<ul style="list-style-type: none"> • Public input into decision making processes 	<ul style="list-style-type: none"> • Public input into decision making processes
Cultural heritage, landscape	<ul style="list-style-type: none"> • Impacts on sensitive lands historically and in future 	<ul style="list-style-type: none"> • Impacts on sensitive lands historically and in future 	<ul style="list-style-type: none"> • Impacts on sensitive lands historically and in future 	<ul style="list-style-type: none"> • Impacts on sensitive lands historically and in future
Economics and access	<ul style="list-style-type: none"> • Import and export of food crops historically and currently • Capital investments needed • Impact on trade balances domestically 	<ul style="list-style-type: none"> • Impact of urbanization economic trends Household expenditure rates 	<ul style="list-style-type: none"> • Costs for construction of infrastructure historically and currently in counties, and districts 	<ul style="list-style-type: none"> • Economic market trends • Employment rates • In industry • Capital investment
Material assets /infrastructure	<ul style="list-style-type: none"> • Historical and current needs • Anticipated needs for water input and drainage • Power • Roads crossings 	<ul style="list-style-type: none"> • Historical and current needs • Anticipated needs for water input and drainage • Sewage • Power • Roads crossings 	<ul style="list-style-type: none"> • n/a 	<ul style="list-style-type: none"> • Historical and current needs • Anticipated needs for water input and drainage • Sewage • Power • Reinforced roads crossings

7 Recommendations on specific impact identification and evaluation methodologies to be used in the SEA Study

The scope of the SEA Study will be agreed with the EC Commission and the GoRTT on the basis of the results of the Scoping Study. The SEA study will be based on the results of the scoping stage and include a detailed evaluation of the policy and institutional context, and an environmental baseline study, an identification of environmental opportunities and constraints, an identification and assessment of the potential environmental impacts, an analysis of performance indicators, an assessment of the institutional capacities to address environmental challenges, an assessment of the environmental input of plans, and programs already in place as a result of the disbanding of the Sugar Industry and conclusions and recommendations.

7.1 Evaluation of policy and institutional contexts

A first priority will be to conduct a more detailed evaluation of policy and institutional contexts (plan or programme, objectives or requirements of other plans, how objective and requirements may be incorporated into SEA/NAS) pertaining to the multiple sectors involved and impacted by the NAS. This will be done by the team and is expected to identify where complimentary institutional structures exist. The scoping study has completed the initial evaluation, and this will be conducted in more detail throughout the SEA. In the event that there are discrepancies between sectoral plans of programs, these will be addressed within the SEA.

7.2 Environmental baseline study

A description and appraisal will be made of the current state of the environment issued outlined in this scoping study. This will be done through collection of pre 2003 data, and post 2003 date, as available. This will enable the various environmental trends to be identified based on the pre- and post- NAS implementation data. From this a projection will be made of the state of the environment on the short-, medium- and long-term in the assumption of no further implementation of the NAS, or external actions. Additional consideration will be given to planned actions, and alternatives currently under development. External factors will be taken into account, including the influence of other sectoral policies, as outlined in the policy and institutional context evaluation.

The baseline data to be collected is reflected in Table 6.1 above, inter alia, depending on resource availability. To the extent possible the baseline data will include quantified data, comparators and targets from national sources or otherwise, quantified trends over time from pre-and post- NAS implementation, targets based on institution and policy contexts, and potential sources of verification for monitoring and evaluation purposes.

7.3 Identification and evaluation of environmental opportunities and constraints

As with any development projects the impact of the environment on the proposed project and their impact on the environment are of a dynamic nature. Environmental factors and resources that can positively affect or negatively impact the efficiency and sustainability of the NAS will be more fully elucidated for each project and all sectors. Therefore it will be important to assess the progress to date. This involves identification, description and assessment for each project undertaken by GoRTT within the context of the NAS. These factors may include expected impacts from other sectors or policies. This part of the study should also consider the environmental issues that could potentially be addressed by the assessed Programme. The study will examine if the NAS and the steps taken by GoRTT since then provide an adequate response to these opportunities and constraints, or if additional efforts to mitigate negative

impacts and enhancing benefits should be recommended. This will involve considering options for all aspects of projects under development and currently in the proposal phase.

7.4 Identification and evaluation of impacts

The potential environmental impacts and risks from implementing the NAS will be identified and described for each project being studied, taking into account the views and concerns of stakeholders. The significance of the impacts will be determined according to their characteristics (e.g. duration, probability, magnitude, mitigability, reversibility) and the sensitivity of the environment. Those impacts that are significant will be assessed in detail taking into account: the views and concerns of stakeholders; the consistency with international commitments; the socio-economic consequences; compliance with environmental regulations and standards; consistency with environmental objectives and policies; and their implications for sustainable development.

These impact appraisals for all projects across all sectors will examine all projects currently under development, all options currently under consideration, and provide assessment of the positive and negative impacts in accordance with the issues outlined in the EC SEA Directive. Further, it will be imperative to examine how these works with other efforts through a compatibility appraisal of options, in terms of how they work together or if there are projects which will be at cross purposes, both within and between sectors.

7.5 Analysis of performance indicators

Draft Performance indicators developed under the EC support to the NAS (indicators for 2008 – 2010) will be assessed from an environmental perspective, i.e. their usefulness to identify the environmental effects (positive and negative) of NAS implementation. This will result in proposals for the NAS environmental performance indicators and corresponding monitoring system. These will include indicators such as: “Pressure” indicators that provide information on various anthropogenic impacts and effects on the ecosystem, such as amount of fertilizers used on a given area, or number of hectares under cultivation for other crops; or “State” indicators, for sectors with a direct and major link with key environmental resources (e.g. soil for agriculture, forest resources for forestry, reforestation). Indicators of other specific issues, such as key institutional capacity gaps identified by the SEA such as the number of annual environmental inspections carried out by local authorities in industrial facilities.

The outcome of the development of these indicators will be suggested measures for mitigating negative impacts and enhancing the beneficial outcomes of projects under development and in the proposal phase. These will be especially sensitive to the need to reduce negative environmental externalities, while increasing marketability and commercial development of outcomes.

7.6 Assessment of the capacities to address environmental challenges

The capacity of regulatory institutions to address the environmental issues, especially the impacts identified, will be assessed. In addition, national budget availability and commitment for environmental issues in the NAS will be reviewed. This will be done through an assessment of mitigation measures needed for identifies impacts and compatibility appraisals to determine who is responsible and if there is need to improve that capacity. This will also involve a gap analysis for regulation and legislation between intended activities outlines in national policies and international agreements, including the EC SEA Directive, and the current capacities domestically.

7.7 Development of conclusions and recommendations

This chapter of the SEA study will summarize the key environmental issues for the sector(s) involved, including policy and institutional constraints, challenges and main recommendations. Recommendations will focus on strategies to optimize positive impacts and the opportunities to enhance the environment, as well as on how to mitigate environmental constraints, negative effects and risks. The recommendations for NAS enhancement will be developed with the intention that it will serve the EC for incorporation in its policy dialogue with the GoRTT.

The SEA study recommendations will also identify the areas where technical assistance or other aid modalities (e.g. projects) are required to address specific weaknesses in the environmental institutional, legal and policy framework. The limitations of the SEA and its assumptions will be presented. The recommendations should take into account the views presented by the stakeholders and explain how these were integrated. In the case of concerns that were not integrated in the final recommendations, the reasons thereof will be given.

8 Proposal of time frames and resources needed for the SEA Study

In order to meet the objectives of the SEA, it will be imperative that efforts being quickly, and progress swiftly. The scope of the SEA covers a wide array of sectors and as such there will be a need to conduct concurrent studies. Table 8.1 the Proposed Gantt Chart/ Time frame outlines the anticipated amount of time to conduct each exercise, with “R” indicating when a report will be completed to be slotted into the completed SEA. The finalized report will be produced the final week of the project. It should be noted that while consultants are contracted for 45 days for the SEA phase, due to three public holidays occurring in March and April, the over all time will be extended to fill a ten week time frame.

Table 8.1 Proposed Gantt Chart/ Time frame

Activity/Week	1	2	3	4	5	6	7	8	9	10
<i>Scoping Study Workshop</i>	*R									
<i>Evaluation of policy and institutional contexts</i>		R								
<i>Environmental baseline study</i>				R						
<i>Identification and evaluation of environmental opportunities and constraints</i>						R				
<i>Identification and evaluation of impacts</i>							R			
<i>Analysis of performance indicators</i>								R		
<i>Assessment of the capacities to address environmental challenges</i>								R		
<i>Development of conclusions and recommendations</i>									R	
<i>Finalization of Report</i>										R

R – Indicates Report drafted for insertion into final document

The resources needed to conduct the SEA in full will be access to information from stakeholders, including, inter alia, the EMA, MALMR, Caroni (1975) Ltd., Town and Country Planning, Ministry of Planning, Housing and Environment, EMDB, academic

institutions, private farmers both small holders and large scale, community and regional government authorities, the Central Statistical Office, Ministry of Social Development, WASA, ADB, E TECH, and others. It may be optimal to have several small working groups, focusing on specific sectoral issues. It is recognized that timing will be very tight with all stakeholders and therefore it may be preferable for consultants to act as conduits, working through electronic communication and internet resources as much as possible, including closed web logs (blogs) open for comment from working group members. (These could easily be set up at no cost, and disabled at the end of the project.)

In addition, as the consultants will need to meet with stakeholders throughout Trinidad and to travel outside of Port of Spain frequently, it is suggested that the travel budget be utilized to rent an automobile for approximately 7 weeks of the project, minimum, pending costs.

Field trips to meet with stakeholders, assess conditions, and acquire baseline data will include, inter alia:

- A tour of Port Lisas industrial complex – to determine environmental impacts and mitigation efforts for future industrial complexes under development.
- A visit to St. Madelines Refinery – to collect information about the refinery process and baseline impacts.
- A visit to Caroni Swamp – to examine impacts of water quality issues on sensitive wet lands
- A visit to distillery – to collect information about the refinery process and baseline impacts.
- A visit to demonstration site farm of Mr. Roop of TTABA - to review alternate and sustainable farming practices
- A visit to the Cocoa Research Center, UWI – to collect information about species, cultivation techniques and options for cropping
- A meeting with faculty at UWI Natural Science – to collect information about baseline data and additional ecological issues of concern
- A visits to local town/country planning division of Ministry of Planning, Housing and Environment
- A visit to proposed industrial sites and mega farm sites – to visually assess areas of potential impact
- A follow up visit to Caroni (1975) Ltd. – to access additional information and meet with their experts to explore alternatives currently under consideration.

9 Technical appendices

- I. Stakeholder engagement methodology
- II. List of stakeholders engaged or consulted
- III. Records of stakeholder participation (interview, workshop, etc.)
- IV. List of documents consulted

APPENDIX I. STAKEHOLDER ENGAGEMENT METHODOLOGY

Stakeholder Engagement Plan Strategic Environmental Assessment Trinidad and Tobago National Sugar Adaptation Strategy

Introduction

The European Commission requires a *Strategic Environmental Assessment* (SEA) to be carried out for the implementation of the "National Sugar Adaptation Strategy" (NAS) and the EC response strategy to the NAS, with special emphasis on the ongoing restructuring process of the sugar industry. Relevant recommendations arising from the SEA will be used to mitigate the possible adverse impacts of the implementation of the NAS and to optimize the possible positive impacts.

Areas to be appraised should include (but not necessarily be limited to): water management; soil conservation; alternative land uses; biodiversity (marine and inland); institutional capacities; reforestation, previous and current land uses, current development plans and programs. There is also a need to determine to which extent social impacts should be assessed as they pertain to (both impacting and affected by environmental issues). However, while it may be necessary to extend any assessment in this way, the focus must remain centered upon the consequences for the natural (physical and ecological) environment.

This Stakeholder Engagement Plan will provide a statement of intent and the rationale for stakeholder engagement within the SEA. This latter will include a review of the methodology employed to identify stakeholder groups and their interests and current gaps in information. A second section of the Plan will address objectives for engagement for each phase of the SEA, and briefly describe types of engagement to be employed in the SEA process. The third section will describe the categories of stakeholder groups, and the anticipated objectives for engagement. This will include recommendations and conclusions available to date. Additional more detailed information on specific stakeholder groups, engagement strategies, and resources used are included in the Annexes.

I. Intent and Rationale for the Engagement Plan in the SEA

Statement of Intent

The Stakeholder Engagement Plan will offer an evolving framework for the involvement of stakeholders in the SEA process. The Plan identifies key stakeholders: key groups and institutions, environmental agencies, industries, civil society, representatives of the public and others, including those groups potentially affected by the likely environmental impacts of implementing the sector programme. Their concerns and values with respect to the sector programme under consideration will be assessed in order to be certain that stakeholder concerns about the environmental effects of the NAS are included in the SEA, and that improved outcomes for sustainable development can be realised through broadest possible stakeholder support in the SEA process and NAS implementation. This engagement plan is to be a living document, to be reviewed and updated at regular intervals as additional information becomes available throughout the scoping and SEA processes.

Stakeholder Engagement rationale

Within the SEA the potential environmental effects from implementing the NAS must be identified and described for each alternative under consideration. The views, concerns,

support and involvement of an array of stakeholder groups constitute an important contribution to this process; hence the need for the Engagement Plan.

A key factor in effectiveness stems from the appraisal under the Plan of the relevance the views and concerns of stakeholders, when set against other parameters, viz:

- overall environmental concern of the stakeholder group
- the socio-economic consequences (especially on vulnerable groups),
- compliance with environmental regulations and standards,
- the alternatives and their implications for sustainable development,
- consistency with environmental objectives and policies, and,
- the consistency with national and international commitments.

The Stakeholder Engagement Plan therefore assigns involvement priorities, explaining the underlying logic in terms of the position of stakeholder groups with respect to certain basic questions for assessment. These include:

- Ø How are the anticipated primary environmental concerns the stakeholder group?
- Ø What are the key issues, concerns, and perspectives of the stakeholders related to the NAS and SEA?
- Ø How supportive are the stakeholders of the NAS and SEA?
- Ø How affected are the stakeholders of the NAS and SEA?
- Ø How influential are the stakeholders in the NAS and SEA processes?
- Ø How critical is the stakeholder group involvement in the NAS and SEA?

This is complimented by an action plan for engagement, based on the questions:

- Ø How will we engage them?
- Ø When will we engage them?
- Ø Who is responsible, who can be contacted?

The Engagement Plan is an initial identification of stakeholders, their interests, and appropriate levels of engagement at specific stages of the SEA, and for NAS implementation. By casting the widest possible net, it provides an opportunity to discern which groups will be more important to the SEA, which are critical but less immediately impacting or effected, and which groups within the initial assessment can be set aside because their specific role in the SEA and NAS is too peripheral.

As not all groups (or categories of groups) are to be involved at each stage of the SEA, the engagement plan delineates who will be involved, how and when, with what intended outcome. This Engagement Plan is based on the Stakeholder Assessment and Action Plan (Annex 1) that serves as a detailed guiding framework and addresses the questions outlined above, and refined within the start of the scoping study. The Plan enables the SEA implementing agents to determine that all relevant stakeholder groups are included in the SEA process, and in a manner that: increases buy-in to NAS activities; takes advantage of expertise; addresses multi-stakeholder group concerns; and ultimately leads to more sustainable development in the NAS impacted areas.

The methodology for identification of stakeholders included a close review of NAS materials provided by the EC Delegation, review of additional information available on the internet, reports, and the experience of the team. This was interlinked with EC SEA Framework Directives 2001/42, the Terms of Reference, and International Association for Public Participation guidelines in the form of The Stakeholder Assessment and Action Plan trends were analyzed and categorization of stakeholder groups enabled a broad engagement plan to emerge. Remaining gaps in information include (*inter alia*) clarification on the current

placement of the EMA within the government, status and update information on NAS implementation, views and concerns of some stakeholder groups, and additional in-depth analysis of the stakeholders interests, opinions and concerned. It is expected that these gaps will be addressed early in the scoping study and throughout the SEA process, as additional information becomes available. It should be noted that the implementation of the NAS ahead of the initiation of the SEA creates some discrepancies with regards to the Stakeholder Engagement Plan that will need to be addressed through possible back stopping measures with in the Scoping Study. It is not anticipated that this will create substantial problems.

II. Objectives and types of engagement in the SEA

There are five phases of the SEA process in which various categories of stakeholder groups will be involved. These are scoping, SEA, SEA/NAS alternatives for consideration and decision-making, SEA adoption, and monitoring and evaluation of the SEA/NAS. Types of engagement in the SEA process can range from informing, to consulting, to involving, to collaborating, to empowering, depending on the role of specific groups at specific phases. The criteria for engagement of specific groups, and type of engagement will vary significantly, based on the role of the group, and the levels of expertise. As the EC SEA Directive strives to be an inclusive mechanism, it sets forth the ideals that sanction stakeholders to take an active role in the process and to increase the sense of ownership in the outcomes. On the other hand, to maintain an orderly development of the SEA there will be phases in which more immediately invested “key stakeholders”, working with implementing agents will be more active, while others will be involved at other phases, where broader inputs are required. The details of which types of stakeholder groups will be engaged, and what specific types of engagement will be employed are addressed in Section III of this report.

The scoping phase of the SEA is critical to determine that the environmental issues that are of priority concern to stakeholders are addressed in the SEA. Therefore, stakeholders will be asked to voice specific concerns about the direct and indirect effects of the NAS and various alternatives. The objective of the scoping study is to confirm that the SEA is addressing the critical environmental issues as perceived by stakeholders. Further, in this information gathering phase, there will be assessed the interest, capacities and potential inputs to the SEA of stakeholder groups.

The SEA will involve stakeholders based on their specific roles pertaining to the identified alternatives for proposed implementation of the NAS. The collection of baseline data will require significant support of stakeholder groups, as well the consideration of alternatives. This will include describing the environmental baseline, identifying problems, and establishing links to other strategic actions, consideration of alternatives and options, identification and evaluation of key effects, and mitigation and monitoring of effects, and review of indicators and institutional capacities.

The SEA and NAS will then come under consideration through consultation and decision making. While this is beyond the active SEA process, the intention is to provide implementing stakeholders with an engagement plan that will enable them to consult the wider stakeholder community effectively so that wide ranging inputs can be obtained and decisions regarding adoption of specific alternatives can be selected for optimal outcomes.

The Engagement Plan will also provide suggestions as how to include stakeholder groups in the implementation and monitoring and evaluation phases of the NAS implementation that

pertain to the SEA. Though these are largely conjectural at this point, the intention is for these to become more specific and useful after the SEA/NAS has been adopted, in order to maintain the precedent establishing in the scoping, SEA, and consultation phases.

The types of engagement range from informing stakeholder groups about the SEA and NAS, to consulting them, to involving them, collaborating with them and through to empowering them. These stages of engagement range from unidirectional (informing) to full stakeholder group implementation and decision-making (empowering). For reasons of efficiency and effectiveness, only some stakeholder groups will be able to be engaged at all levels. To briefly summarize the types of engagement to be utilized, the types of engagement are outlined below together with the sample techniques employed for each. The specific categories groups are presented in Annex 2 SEA Phases and Types of Engagement.

The type of engagement with the lowest public impact is informing. This is providing stakeholders and the broader public information about SEA and NAS. This is done through fact sheets, press releases, web pages, and local media announcements. The intention is to share information with stakeholders, to assist them in understanding the process, alternatives and opportunities. This also often constitutes social marketing campaigns aimed at shifting patterns of behavior vis-à-vis the environment.

The next approach is consultation to obtain feedback on analysis, alternatives and/or decisions. This is done through meetings, open comments and qualitative and quantitative surveys. The intention is to keep stakeholders informed, listen to and acknowledge concerns and inform the decision making process.

The third more inclusive approach is involvement of stakeholders in the process. This is done through workshops, multiple meetings, and formal inputs, especially with expertise. The intention is to ensure that stakeholder group concerns are directly reflected in the alternatives developed and potentially in the decision making process.

Collaboration is the second most inclusive technique for stakeholder engagement. Collaboration techniques include participatory decision-making, consensus building, and advisory committees. This involves partnering with stakeholder groups in each aspect of the decision including the development of alternatives and identification of preferred solutions.

The most inclusive approach to engagement is empowerment. The techniques include delegated decision making, and oversight by stakeholder groups. The goal is to place final decision-making in the hands of stakeholders. Depending on the alternatives selected this may be used in the implementation phase, if conditions permit and it is acceptable to all parties.

III. Categories of stakeholder groups, and the objectives for engagement

There are many individual stakeholder groups who are both impacting and affected by the NAS and will be involved in the SEA. For the purpose of this Stakeholder Engagement Plan, these groups are divided into five categories: Ministries; Governmental/Parastatal Organizations/Programmes (G/PO/P); Industry; civil stakeholder groups/public (CSHG/P); and regional and international organizations (RIO). There is some variation in levels of engagement within each category due to their specific interests and level of impact/affectedness, which are detailed in Annex 1, Stakeholder Assessment and Action Plan.

Annex 2, SEA Phases and Types of Engagement provides a graphic over view of type of engagement at SEA stages based on stakeholder group categories.

All stakeholder groups are expected to be informed of SEA activities throughout the entire process and, as appropriate, consulted specific to their specific interests and areas of impact/affectedness.

The Ministries stakeholder category is the most directly involved in the NAS and their inputs into the SEA are paramount. This group consists of the Cabinet – Technical Sub Committee, Finance (MOF), Agriculture, Land and Marine Resources (MALMR), Public Utilities (MPU), Trade and Industry (MoTI), Planning Housing and Environment (MPHE), Social Development (MoSD), Health (MoH), Labour and Small and Micro Enterprise Development (MLSMED), Local Government (MoLG), Public Administration (MPA), Ministry of Works and Transport (MoTI), Energy and Energy Industries (MEEI), and Information (MoI).

The Ministries, as stakeholders, are expected to be involved in every phase of the project, and with all different forms of engagement. Some will be much more active, as primary stakeholders to the NAS such as MOF, MALMR, MPU, MOTI, MPHE. Others will be less directly involved though asked to play a supporting role, depending on the specific issue being addressed such as MoSD, MoH, MLSMED, MoLG, and MPA. Some Ministries will be peripherally involved, but will be included specific to particular issues within the SEA, such as MoTI, MEEI and MoI. As appropriate, all groups will be informed and consulted throughout the full SEA process.

In the scoping phase of the project and initial set of informational interviews will be conducted with representatives of as many of the Ministries as possible. Additionally, representatives of the primary group and perhaps some of the less directly involved groups will be involved in workshops, collaborate in participatory decision making, and will be the decision makers of record.

In the SEA phase through to the Monitoring and Evaluation phase, it is anticipated that engagement of the primary ministerial group will critical to the success of the project, based on their expertise, insights and role as representatives of the GoRTT.

The Ministries may also be involved through delegated representatives in Governmental/Parastatal Organizations/Programmes. The representatives of this category include (*inter alia*): Biodiversity Clearing House, formerly under MPU&E; Caribbean Planning for Climate Change; Central Statistical Office (CSO); Divestment Secretariat (MOF); Environmental Commission of Trinidad & Tobago (Court of Record appointed by the President to enforce the Environment. Management Act); Environmental Management Authority (EMA); Farmers Training Centre – Extension Services under MALMR; Water and Sewerage Authority (WASA); MPU; Sugar Cane Feeds Centre under MALMR; Institute of Marine Affairs (Min for Science, Technology and Tertiary Education); University of the West Indies (Faculty of Agriculture and Natural Sciences. Eastern Caribbean Institute of Forestry and Agriculture (ECIAF); MSTT; EMDC: Estate Management and Business Development Company; National Entrepreneurship Development Company (NEDCO); and Local Governments (esp. in sugar towns of San Fernando, Couva, Chaguanas).

As with the Ministries, the specific involvement of the stakeholder groups in this category will depend largely on the specific area of interest and issues being addressed. Some will play a primary role throughout the process such as EMA, while others will be more specifically involved pertaining to their particular specialty, such as NEDCO or the Institute for Marine Affairs. While highly specialized these are outlined in more detail within Annex 1. It is anticipated that the most directly involved, in collaboration with their Ministry counterparts,

will serve as representatives as outlined above in the Ministerial section. It will be imperative in the early phases of the scoping study to clarify which of these groups are able to offer support to the SEA through both data and expertise.

The industries stakeholder group categories will be important to consider as the impact of the NAS will often have a direct impact on their livelihoods, but also their role in adjusting to the NAS may have significant environmental implications. This category may also be inclined to have more tensions between them and with other groups because of the nature of the impacts. Therefore, consultation with them should be done through the support of the GORTT, and with sensitivity to the history of these organizations in society.

This category of groups includes, *inter alia*: All Trinidad Island-wide Cane farmers and general Work Trade Union; Cane Farmers' Co-operative; Cane Producers Association of Trinidad and Tobago (CPATT); Sugar Association of the Caribbean; NAMDEVCO - The National Agricultural Marketing and Development Corporation –Export; *Trinidad Island-wide Cane farmers Association of T&T (CFATT)*; T&T Agribusiness Association; South Trinidad Chamber of Industry and Commerce; Association of Direct Delivery Farmers Cooperative Society (ADDFCS); Caribbean Industrial Research Unit; CARIRI; CIVM – Compagnie Industrielle de la Matière Végétale; Employers Consultative Association (ECA); Rum Distillers Ltd (RDTTL); Agro-chemical sales, support, distributors; Forestry products markets/consumers/traders; and local banking sectors.

If possible and appropriate, it will be helpful to meet with representatives of the industry groups during the scoping phase of the SEA to get their perspectives regarding the environment and to gauge their level of support for pertinent alternatives on offer. Depending on the environmental issues identified in the scoping phase, and the receptivity of GoRTT and the industries, it may be helpful to include some of these organizations in workshops and meetings in the SEA phase as alternatives are explored. In the consultation, implementation and monitoring and evaluation phases, specific industry groups may play an important role, in workshops and meetings, with potential collaboration depending on what options are exercised in the SEA and NAS.

The civil stakeholder group and public are one of the largest and potentially most impacted categories of stakeholders. Generally, their role in the decision making process is very limited, and an aim of the SEA is to enhance their involvement in a meaningful way through education and, as appropriate, empowerment. However, as this group often lacks clearly defined representatives, engagement should be done in a way to not raise expectations, while simultaneously improving ownership of environmental stewardship.

Examples of the civil stakeholder groups include, *inter alia*: Divested workers Caroni – factory workers, field workers, technical and administrative staff and other workers; secondary support workers – transport, construction etc.; those leasing lands formerly under production; farmers of other crops w/market pressure from diversification; NGOs; skilled laborers, and community members in Sugar towns.

Unless otherwise noted, it will be important to inform and consult these groups in order to obtain their perspective for consideration for the SEA in the scoping phase. Potentially, their inputs will be needed for the SEA baseline and alternatives, though this will be dependent on both the findings of the scoping studies and availability of time and resources. This will apply particularly to any engagement of groups based on their specific interests. In the consultation phase of the SEA obtaining information from these stakeholders is a critical component of the SEA and within the SEA will be recommendations how this can be accomplished in more detail than is possible at this early stage. Potentially, in the later stages of the SEA, through

implementation and monitoring and evaluation, some specific members of this category could be included in collaborative measures if conditions and circumstances permit.

The final group of stakeholder categories consists of regional and international organizations. These groups are often funders of activities which will compliment, or even conflict, with the NAS and SEA. Therefore, engagement of them through the GoRTT will be critical to build on common objectives and to avoid working at cross-purposes. This group consists of the following organizations, inter alia: EU Delegation; EDF; European Investment Bank; Agricultural Development Bank (of T&T); Caribbean Agricultural Research and Development Institute (CARDI); CARICOM/ Council for Trade and Economic Development; UNDP; CBI; UNEP; UNESCO; WHO; FAO; ILO; World Bank; DFID; and other bilateral agencies.

Engagement of the regional and international organizations may include involvement in workshops, especially given the significant supply of data and information they may possess on related projects, and this could enable them to build companion projects, providing matching support for the NAS and SEA. An initial round of introductory informative interviews will establish which organizations are more or less keen to work in collaboration with the SEA and NAS. Further, it will also serve to alert them to our activities, so that they can possibly consider supporting activities that stem from the SEA and NAS in the implementation and monitoring and evaluation phases.

Recommendations:

- Establish initial meetings with key stakeholders early in scoping stage to refine engagement plan.
- Work with GORTT or primary contact ministry and EC Delegation to refine list, identify individuals to contact/interview.
- Obtain letter of introduction with SEA and scoping study objectives and endorsement from GoRTT and EC Delegation for all meetings.
- Early in scoping phase obtain information about public participation norms and stakeholder engagement strategies employed specifically in T&T rural areas.
- Throughout scoping stage clearly state that this is an information gathering exercise and results will be made available through the SEA/NAS Consultation phase.
- Throughout all interviews, maintain clear confidentiality of specific interview subjects. May involve coding of surveys etc in order to obtain open and honest responses. Be sure to explain that responses will only be published in aggregate form.
- If formal quantitative surveys are used in the scoping or SEA phase, use local enumerators as possible with experience in survey administration. (May draw on university students majoring in social sciences).
- For SEA data accumulation, closely track and always acknowledge data sources.

APPENDIX II. LIST OF STAKEHOLDERS ENGAGED OR CONSULTED

DATE	TIME	ACTIVITY	VENUE
Monday January 26, 2009	11.00 am	Briefing with Charmaine Gomes	UN-ECLAC 1 Chancery Lane 868-623-5595
	1.30 pm	Briefing with Director of CSO, Mr. Dave Clement	National Statistics Building 80 Independence Square 868-623-7069 Ext 4500
Tuesday January 27, 2009	10.00 am	Briefing with Ms. Pauline Dowlath (Director)	Ministry of Agriculture, Land and Marine Resources Extension Division Centeno Building Mausica Road Arima 868-646-2737 / 2738 868 – 741-3958 (m)
Wednesday January 28, 2009	9.00 am	Briefing with Ms. Sandra Paul (Chairman)	The Environmental Commission of Trinidad and Tobago Telly Paul Building 1 st Floor St. Vincent and New Streets 868-625-7353
	10.30 am	Briefing with Mr. Willard Phillips Programme Specialist - Environment	UNDP UN House Chancery Lane 868-623-7056
Thursday 29, 2009	10.00 am	Briefing with Ms. Franka Charles	Estate Management Business Development (EMBD) Valpark Shopping Plaza 868-645-7847
		Mr. Jagroo (Caroni) Linda	Brechin Castle, Couva 868-636-9912
		Visit agricultural plot	
Friday January 30, 2009	10.00 am	Briefing with Ms. Davidson, Mr. Roop	MALMR

MARY MATTHEWS**MONDAY 2 FEBRUARY 2009 – FRIDAY 6 FEBRUARY 2009**

DATE	TIME	ACTIVITY	VENUE
Monday February 2, 2009			
Tuesday February 3, 2009	11.00 am	Briefing with Dr. Anderson Maxwell (Ag. Dean) {in the absence of Dr. Dyer Narinesingh}	The University of the West Indies (UWI) Faculty of Agriculture and Natural Sciences Reading Room, Frank Stockdale Building St. Augustine 868-662-2002 ext 2112 / 2116
	1.30 pm	Briefing with Mr. Carl Santana and Mr. Ricardo Ramdin - Water Resources Agency	WASA 179 – 183 Eastern Main Road Barataria (opp. Cool Air) 868-638-0385 / 638-7817 sant1070@wasa.gov.tt
Thursday February 5, 2009	Between hrs 2.00pm – 4.00 pm Available tbc	Briefing with Dr. Mary Alkins-Koo, Dr. Azad Mohammed, Prof. Agard (Postponed due to scheduling conflicts)	Department of Life Sciences The University of the West Indies St. Augustine 2nd Floor, New Wing, Natural Sciences Building, Room 216 868-662-2002 Ext 2047
Friday February 6, 2009	1.30 pm	Briefing with David Abdullah – FITUN	99 Circular Road San Fernando 868-652-2701

TERRENCE BURLEY**MONDAY 2 FEBRUARY 2009 – FRIDAY 6 FEBRUARY 2009**

DATE	TIME	ACTIVITY	VENUE
Friday January 30, 2009	12.00 pm	Briefing with Mr. Anthony Rammarine	Ministry of Public Utilities & Environment Forestry Division Long Circular Road St. James 868-622-5214 / 622-3217/ 622-7476
Monday February 2, 2009	7.00 am	Briefing with Mr. Vassel Stewart (CEO) Trinidad and Tobago Agri-Business Association	Marriott Hotel Breakfast Meeting 868-663-1305 (Shanna)
	10.00 am	Briefing with Mr. Ian Rampersad	MALMR Research Department Centano Building 868-642-8560
	1.30 pm	Briefing with Monica Rogers-Fletcher	ADB Henry Street POS 868-623-6261
			UWI Faculty of Agriculture 868-662-2686 / 662-3719

APPENDIX III. RECORDS OF STAKEHOLDER PARTICIPATION

All Stakeholder participation involved interviews in the Scoping Study. The participants of these interviews and their positions are listed in Appendix II. They involved briefing them on the NAS and the SEA role in EU support for the NAS, and opened into discussions of the environmental, social, and economic issues pertaining to the NAS, opportunities for collaboration in the SEA, and potential availability of baseline data. The over all response was very positive and arrangements will be made in the next phase to follow up.

There are some stakeholder groups who the team was not able to meet with in the scoping phase due to scheduling challenges. These meetings will be scheduled early in the SEA,

Inception workshop attended by :

Mr. Jerry Hospedales	Office of the Prime Minister, Coordinator National Strategic Management Group
Ms. Ayanna Gaspard	Senior Research Analyst
Ms. Clarise Clarke-Marshall	Environmental Management Authority
Ms. Marlene Johnson	National Authorizing Officer
Ms. Kathrin Renner	Delegation of the European Union in Trinidad and Tobago
Dr. Mary Matthews	SEA Consultant for the EU Delegation in Trinidad and Tobago

APPENDIX IV. LIST OF DOCUMENTS CONSULTED

Town and Country Planning, Chap. 35:01 Laws of Trinidad and Tobago, 1969 p.5 (at http://www.nalis.gov.tt/Socio_economic/Town-CountryPlanningAct/tcp5-7.htm)

Environmental Legislation for Trinidad and Tobago, Environmental Commission Website: <http://www.ttenvironmentalcommission.org/legislation.htm>

Minutes from Meetings of Divestment Committee, Various quarters

Inter agency Planning Committee Report 2004 for Caroni (1975) Ltd.

GORTT: 2020 Vision: Operational Plan, 2007-2010.

GORTT Draft National Strategic Plan.

Caroni (1975) Ltd: Report of the Inter-Agency team, April 30, 2004.

TTABA (Power Point Presentation): Development of Production Farms on Caroni (1975) Ltd 2 acre sites (9th January, 2009).

TTABA (Ramgopaul Roop): TTABA Proposal for the Development of Production Farms on Caroni (1975) Ltd 2 acre sites (5th January 2009).

MALMR (Extension and Training Services Division: Papaya Production: A Producer's Manual.

Cardno Agrisystems Ltd: Finalisation of the Sugar Adaptation Strategy for Trinidad and Tobago (4th March, 2007).

GORTT (Subcommittee on Agriculture): The 2020 Vision for Agriculture in Trinidad and Tobago: *Creating a Sustainable Long Term Capacity for National Food Security: 2020 & Beyond* (2004).

GORTT (Office of the Prime Minister): Fifth Meeting of the Ministerial Committee Responsible for the Restructuring of Caroni (1975) Ltd (May 27, 2008)

A Review of Agricultural Policies: Case study of Trinidad and Tobago Report prepared for the CARICOM Secretariat (The CARICOM Regional Transformation Programme for Agriculture), UWI: The Department of Agricultural Economics and Extension, December 2005

Minutes Of The Eighth Meeting Of The Ministerial Committee For The Restructuring Of Caroni (1975) Limited, November 4, 2008.

National Action Programme to Combat Land Degradation in Trinidad and Tobago: 2006 - 2020