National Spatial Development Strategy for Trinidad and Tobago

Surveying the Scene - Background Information and Key Issues
1. INTRODUCTION

This document forms part of the evidence base prepared to support the preparation of the National Spatial Development Strategy (NSDS). It identifies key issues, and presents facts and information in five main parts:

- population and settlement;
- society and culture;
- the economy;
- the environment; and,
- infrastructure.

To help to show the reader how the analysis has been applied to the NSDS Core Strategy and Regional Guidance document a table/diagram follows each section and identifies the relevant objective(s) and policy/policies.
Planning for efficient and effective use and management of Trinidad and Tobago’s terrestrial space requires many demographic and related factors to be taken into account, including:

- demand for housing, employment and goods and services;
- people’s daily commuting patterns;
- mobility patterns over geographic areas (people moving from one place to another / places losing population and others gaining); and,
- impacts on the economy, the environment and the social structure of the country.

All these are actually the result of people’s collective decisions and activities on a daily basis. Planning decisions need to be informed by understanding of both the effects of those decisions and the reasons they are taken.

Trinidad and Tobago’s 2011 population of 1,324,699 (CSO, 2012) represents a 4.9% increase since the 2000 Census.

Although the population has continued to grow over the past 40 years, the rate of growth has been steadily declining since a 1970s / 80s peak, attributable largely to declines in the total fertility and birth rates. This is a normal pattern as a society develops.

The forecast change to the population profile over the next decade is shown in Figure 2. It suggests that the population structure is in an advanced stage of demographic transition in which the number of children below the age of 15 years is decreasing while the number of persons over 60 years is increasing and the overall population size is starting to fall.

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1 The research for this document was undertaken prior to the official 2011 census figures being released. It is recognised that the population figure has now been revised to 1,328,019, which represents a 5.2% increase (CSO, 2012).
Geographic Distribution

The existing settlement pattern shows marked concentration of urban settlements in the western half of Trinidad and the southwest of Tobago. In Trinidad, a large proportion of the island’s population is concentrated in the highly urbanised regions of the East/West and North/South Corridors. By contrast a much lower proportion of the national population lives in Trinidad’s east coast regions, much of the eastern interior, the banana-exporting parishes, and the north-east half of Tobago - all of which are relatively sparsely populated. In general terms, these sparsely populated, predominantly rural regions have been experiencing lower levels of social and economic development with an associated poorer quality of life. The resulting regional imbalances are confirmed in the assessment of the National Human Development Index (NHDI) presented in the Trinidad and Tobago Human Development Atlas 2012 (CSO, 2012), which shows Sangre Grande and Mayaro Rio Claro as having the lowest NHDI figures overall. Tobago had the lowest annual household income per capita per year.

These general trends do, however, mask the fact that there are substantial pockets of poverty and deprivation in the main urban areas, and some wealthy communities in the rural areas. Deprivation, both urban and rural, is an issue that needs to be tackled through integrated planning and action.

Facts and Figures

- Population of Trinidad and Tobago: 1,324,699 in 2011 (1,262,366 in 2000)
- Trinidad: 1,267,889 in 2011 (1,208,282 in 2000)
- Tobago: 56,810 in 2011 (54,084 in 2000)

The total population of the 524 communities in Trinidad is 1,296,177 (2011) and for Tobago it is 43,274 (2011) giving an overall ratio of 30:1. In 2000, 30.5% of Trinidad's population lived in those four urban regions. By 2011 the proportion had decreased to 27% - a "loss" of almost 23,000 people from those core urban areas.

The regions of Trinidad in which populations increased most during the same period were:
- Chaguanas - population up by 16,780 (24.9%)
- Sangre Grande - population up by 10,200 (15.9%)
- Couva / Tabaquite / Talparo - population up by 22,460 (13.8%)

Taken together, these three regions have “gained” 49,450 people. The highest growth rate has been in Chaguanas and Couva / Tabaquite / Talparo which, together, have accounted for almost two-thirds (66%) of the total increase in Trinidad’s population between 2000 and 2011. Between 2000 and 2011 the proportion of Trinidad's people living in those regions increased from 19% to 21%.

None of Tobago’s parishes lost population between 2000 and 2011 and during that period the island’s population increased from 54,084 to 56,810 (up by 5%). The highest percentage rate of population growth (16%) was in St George, and the four western parishes – St Patrick, St Andrew, St George and St David – continuing to accommodate almost four fifths (79%) of the island’s population.

Legend

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- Trinidad: 1,267,889 in 2011 (1,208,282 in 2000)
- Tobago: 56,810 in 2011 (54,084 in 2000)

The populations of 4 of the 14 municipalities in Trinidad declined between 2000 and 2011:
- Port of Spain down by 22.5%;
- San Fernando down by 9.2%;
- Diego Martin down by 2.7%;
- San Juan/Laventille down by 1.6%.

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Pattern and Form of Settlements

During the period since the National Physical Development Plan was prepared and approved, in the 1980s, Trinidad and Tobago has experienced rapid and extensive urban growth. Over that time, the population has grown by just under 19% (from about 1,079,800 in 1980 to about 1,324,699 in 2011) (CSO, 2011) but the area of urban land has grown much more than this change on its own would warrant over that same period.

Although a period of very high population growth followed the Second World War, growth has slowed markedly since 1990: the rate of urbanisation, however, has continued to increase. The result is that it is estimated that almost three-quarters (72%) of Trinidad and Tobago’s people now live in urban areas (Alkema et al., 2012).

The populations of the core areas of some of Trinidad’s main cities and towns (Port of Spain, San Fernando, and Diego Martin) have been declining and, at the same time, there has been continuing migration from rural to urban areas. The growth has been mostly in between, in the form of increasingly sprawling suburban and ribbon (roadside) development.

Overall, the western regions of Trinidad account for 87.5% of the 2011 population (86% in 2000) with the western regions of Sangle Grande and Mayaro/Rio Claro accounting for 8.2% (7.7% in 2000) – as a marginal “redistribution” from west to east over that period, but still a very marked concentration of population in the west. Tobago’s proportion of the national population remained the same at 4.3% (WDPS, October 2012). The data for population density for the same period corresponds closely with that for population distribution.

Preliminary data from the 2011 Population and Housing Census shows no significant change in the broad pattern of development between 2000 and 2011. There is however some variation in the distribution of population growth over the period 2000 to 2011 as follows:

- an overall slowing of growth in the East/West corridor, with an absolute decline in the Port of Spain core metropolitan area but an overall increase in the Tunapuna-Arima area;
- by contrast, the North/South corridor showed overall growth, with Chaguanas and Couva Talagante Talparo accounting for most of this;
- for San Fernando a pattern similar to that for the Capital Region with San Fernando City losing population whilst adjacent parts of its metropolitan area grew within the regions of Princes Town and Penal/Debe; and, the rest of the country experienced relatively low absolute growth.

Figure 3: Population Change by Administrative Area 2000 - 2011 (Source: 2000 and 2011 Population Census Visitation Record, CSO)
3.1 Crime

Notwithstanding the economic gains made over the last decade, escalating crime seriously threaten the country’s prosperity agenda as it affects both individuals and whole communities. Indeed, crime and law and order are cited as one of the Government’s five priority areas for action. Figure 4 shows the spatial distribution of crime based on the police administrative districts of the country. Crime and anti-social behaviour is more concentrated in urban areas, but that is not to say that rural areas are unaffected.

The NSDS will not be able to influence the necessary improvements in law enforcement, the reform of the justice system or the rehabilitation of offenders, all of which are outlined in the Government’s strategy for tackling crime containment and reduction. It can, however, shape the physical fabric and layout of urban areas, which have a bearing on the activities of offenders and victims and on opportunities for crime. Poor urban planning, design and management have increasingly been cited as playing a role in the shaping of urban environments that put citizens and property at risk. Effective urban planning, design and governance can therefore mould the built environment in ways that reduce the opportunity to commit crimes and anti-social behaviour.

- decline in the Port of Spain Metropolitan area with some growth taking place further east (Tunapuna – Piarco and Arima);
- decline in San Fernando proper, but growth in the adjacent areas comprising its metropolitan area;
- significant growth in Central, focused on and around Chaguanas, and;
- some growth in other regional towns and Tobago.

### NSDS response to population and settlement issues

**OBJECTIVE:**
- Building strong, diverse regions

**POLICY:**
- Policy 3: Promoting sustainable urban and rural development

**Continuation of recent trends in the spatial distribution of population growth would be likely to result in the following:**
- decline in the Port of Spain Metropolitan area, with some growth taking place further east (Tunapuna – Piarco and Arima);
- decline in San Fernando proper, but growth in the adjacent areas comprising its metropolitan area;
- significant growth in Central, focused on and around Chaguanas, and;
- some growth in other regional towns and Tobago.
Poverty is a multidimensional issue caused by a level of deprivation of essential assets and opportunities. Based on income data, poverty increased by 2% between 2005 and 2008, but decreased by over 5% to 14.7% in 2011 (Ministry of Planning and the Economy, 2012). The current Government target is to reduce poverty by 2% per year.

Sangre Grande has the highest percentage of poor people in the population (39.1%), with other regions of high poverty concentration including Princes Town (30%), and Siparia (27.7%). The Boroughs of Arima and Chaguanas showed the lowest levels of poverty per 100 of the population, with rates of 4.5% and 8.9% respectively.

Actions set out in the Government’s Medium Term Policy Framework (MTPF), which are considered necessary for eradicating poverty, are:

- Restructure the economy to provide meaningful income-generating opportunities for sections of the population that have traditionally operated on the margins of the economy;
- Increase access to adequate and affordable housing;
- Empower the poor and target the most vulnerable groups in society for social support with direct impact on a family by family basis;
- Strengthen social capital at the community level; and,
- Build our human capital through education, training and skills building.

The above actions require a series of coordinated policies and investments in order for the desired outcomes to be achieved. The role of the NSDS in this case is to facilitate the right spatial conditions, which enable necessary developments to come forward in appropriate locations.
Life expectancy in Trinidad and Tobago is increasing, which is a sign that health is improving. The most recent estimates put life expectancy for the overall population at 72 years (Central Statistical Office, 2010). There are, however, significant gender differences with life expectancy for males lower than that for females, at 69 and 75 respectively (Central Statistical Office, 2010).

A wide range of social, economic and environmental factors affect people’s ability to fulfil a healthy lifestyle. There is growing evidence that planning can support healthy lifestyles and play a key role in reducing health inequalities.

The NSDS must therefore introduce measures, which consider the following:

- Improving air quality;
- Safeguarding local food growing opportunities and improving access to healthy, affordable and locally produced food;
- Ensuring new development contributes to the creation of safe, accessible and inclusive communities and helps reduce crime and the fear of crime through good design;
- Improving access to and diversifying employment, training and lifelong learning opportunities; and,
- Improving access to health and social care facilities, and to leisure, sports and recreation and community facilities that encourage physical activity.
Housing of sufficient quantity, quality, affordability and type is critical for successful communities and affects urban and rural areas alike. Housing is a longstanding issue, with two particularly problematic aspects: there is an insufficient supply of adequate and suitable housing to meet current and future needs and, secondly, there is an issue of affordability, which is intrinsically linked to a supply-demand imbalance. In the absence of a comprehensive housing policy, recent housing projections have been based on the 2000 Census data. The projected targets for new housing units have previously suggested that housing demand is concentrated in the nation’s urban centres. While the viability of this may be questioned given the declining population seen over recent years in some of these urban settlements, the issue must be considered in conjunction with the wider range of factors that the Strategy is addressing.

Access to affordable housing continues to be a challenge for large sectors of the population, as evidenced by the current informal estimate from the Land Settlement Agency (LSA) that some 300,000 people – or one-fifth of the total population – are currently squatting on 332 sites (MTPF, 2011). Regulation of squatter settlements is a major component of housing provision and an essential aspect of the creation of strong and prosperous communities. Whilst squatting does go some way towards meeting housing needs for the large portion of the population that is unable to access the formal housing market, it poses serious public health and environmental problems as well as infrastructural and social development in strategically located areas.

15 sites have been transferred over the past 10 years and the Land Settlement Agency (LSA) is progressing its work on land profiling for state lands - expecting to regularise a further 25 sites over the next 6 years. This will include some relocation. In conjunction with this programme, the Land for the Landless Policy established by the Ministry of Housing and the Environment provides alternative land and support in order to prevent the need for squatting. It is predicted to provide a total of 10,000 lots over a 3-year period on a combination of greenfield sites, village expansions and existing squatter sites.

3.5 Education
Investments in education over recent years have manifested in a national literacy rate of 96.6% (Ministry of Planning and the Economy, 2012). The Government has confirmed its continued commitment to ensuring that every child has access to quality education by 2015 in the Medium-term Framework Plan. Tertiary education also continues to receive support and the participation target for 2015 is 60%.

It is widely recognised that a well-educated population is essential for pursuing strategic economic priorities, and if diversification is to be achieved then the education system must align with both current and future labour market needs. These investments must also relate to high-value job creation in order to reduce the leakage that is occurring from “brain drain” emigration, which, at -7% (CSO, 2018), is one of the highest per capita levels of net migration in the Caribbean region.
In light of the above, the NSDS should provide a positive framework for the development of education facilities and infrastructure and facilitate the right spatial conditions for generating a much-needed increase in high-value jobs for graduate citizens.

3.6 Cultural Heritage and Expression

Culture is an inclusive concept embracing a wide range of activities, places, shared beliefs, values and customs, which contribute to people’s sense of identity and belonging. National priorities for culture are set out in the draft National Multiculturalism Policy Framework and draft National Cultural Policy, which were published for consultation in October 2012.

Different regions are associated with different cultural mixes, often reflected in particular events, festivals, customs, which contribute to people’s identity and sense of place experienced in their environment. Because they often originate from different cultural mixes, from which inspiration can be drawn to embrace a wide range of activities, places, shared beliefs, values and customs, which contribute to people’s sense of identity and belonging.

Cultural richness is further enhanced by the built environment, which has been created by the interaction of people with their surroundings over many centuries, and in some places contributes greatly to the cultural identity and sense of place experienced today. There are several features and buildings of historic interest, many of which express significant stages of the national and “pre-national” journey. Today, many historical buildings of historic interest, which express significant stages of the national and “pre-national” journey.

There are three main world heritage designations under the UNESCO World Heritage Convention. Sites under this Convention have been designated as ‘Historic Sites’ as proposed under the National Heritage Trust Act (Chap. 40:53), which was enacted in 1982, and the Cultural Heritage Act of 1982, which was enacted in 1983. Some 100 sites have been declared as ‘Historic Sites’ under the National Heritage Trust Act (Chap. 40:53), which was enacted in 1982, and the Cultural Heritage Act of 1982, which was enacted in 1983.

Cultural heritage also has significant economic value and, when preserved and marketed correctly, can greatly enhance the tourism offer whilst providing high quality environments for business and other economic activity. Cultural diversity and expression needs also to be allowed for in planning and development as the way people expect to use space.

There is a need for development of new facilities which are accessible to communities as they contribute to health, well-being and quality of life of the population. Planning policies and decisions should, therefore, aim to promote, achieve and deliver good quality public space, shared recreational space and sports venues that the community needs.

In this context, the natural, cultural, urban and built environments provide both formal and informal recreation opportunities to residents. The creation of local open spaces, sport and recreation facilities need to be accessible to communities as they contribute to health, well-being and quality of life of the population. Planning policies and decisions should, therefore, aim to promote, achieve and deliver good quality public space, shared recreational space and sports venues that the community needs.

The natural environment is also a valuable resource for providing opportunities for informal recreation and parks and forests provide both formal and informal recreation opportunities to residents. The creation of new facilities may be desirable in some locations. Both islands have a network of accessible trails and Tobago is beginning to cater for the increasing popularity of mountain biking. There is scope for further routes to be developed and further diversification of accessible trails.

3.7 Recreation, Leisure and Sport

There are strong sporting traditions across both islands. This is recognised in the National Sport Policy of Trinidad and Tobago (2002) which has the overarching objective of fostering high performance sports as well as increasing overall participation in sport.

There are several major national sports venues, such as the main stadium in Woodbrook and the Queen’s Park Oval, local open spaces, sport and recreation facilities need to be accessible to communities as they contribute to health, well-being and quality of life of the population. Planning policies and decisions should, therefore, aim to promote, achieve and deliver good quality public space, shared recreational space and sports venues that the community needs.

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## 4. ECONOMY

### 4.1 Agriculture and Fisheries

**Agriculture**

![Map of Agricultural Land in Trinidad & Tobago (2012)](image)

### NSDS response to education issues

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**Legend**

- **Agriculture**
  - Area: 5 km²
  - Area: 830 km²

**Figure 6:** Agricultural Land in Trinidad and Tobago (2010)
It is currently estimated that approximately 23% of land in Trinidad is under agriculture, but the output from these activities is virtually negligible, constituting less than 1% of GDP (MTFP, 2011). This has resulted in the rural economy lagging behind in recent years. The revitalisation and modernisation of the agriculture sector therefore continues to be a Government priority.

The five mandates set out in the National Food Production Action Plan (2012) (NFPAP), are as follows:

1. Increase the country’s food security.
2. Reduce the food import bill;
3. Contribute to the diversification of the economy;
4. Increase the number of people in agriculture;
5. Increase the number of people in agriculture.

These are, however, several challenges that hinder the success, quality and level of production within the sector:

1. Poor agricultural practices and low levels of technology;
2. Inadequate infrastructure - poor access roads, water resource management and drainage systems;
3. Delays in farmer regularisation on the slopes of the Northern Range in Trinidad is also resulting in the loss of forest cover through slash and burn and other methods of land clearing by farmers. This has led to a general increase in soil erosion, water runoff and downstream flooding and silting of watercourses. The effects on both Port of Spain and the densely populated north-western areas have been an increase in the frequency, severity and number of areas impacted by flooding events, which causes costly property damage and loss of life.

There are fairly significant environmental impacts of agricultural practices such as the pollution of water sources and land capability classes III to V. Agriculture activities are therefore increasingly pushed to unsuitable and unviable locations, such as hill and forested areas. If food security is to be achieved in the near future this trend must not be allowed to continue. There is a pressing need to look again at land classification in some detail so that land of strategic agricultural value is not lost to non-agricultural use. This should be accompanied by the outcomes then being reflected in the review of regional / municipal spatial development plans.

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The rising demand for these minerals has also led to proliferation of illegal quarrying activities, which causes costly property damage and loss of life.

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Quarries provide valuable sources of aggregate materials for the construction industry. The heightened demand for building materials between 2004 and 2007 increased the demand for aggregates. There are currently 69 legally active quarries, 31 of which are now classified as ‘underutilised or subject to proposals for built development’ (e.g. proposals for distribution of the former Carson lands for housing). Currently, classification of land capability is based on what some experts consider to be outdated criteria. The probable consequence of this is underestimation of the capability and agricultural potential of some lands and overestimation of others.

Conflicts and competition for land between agriculture and other uses has generally resulted in the permanent loss of agricultural land. Agricultural activities are therefore increasingly pushed to unsuitable and unviable locations, such as hill and forested areas. If food security is to be achieved in the near future this trend must not be allowed to continue. There is a pressing need to look again at land classification in some detail so that land of strategic agricultural value is not lost to non-agricultural use. This should be accompanied by the outcomes then being reflected in the review of regional / municipal spatial development plans.

Marine fisheries have traditionally been accorded low priority in our development plans for the agricultural sector and there is a continued lack of investment and know-how concerning the industry. The sub-sector is characterised by: out-dated legislation; inadequacy of maritime law and regulations; lack of an efficient marketing system; inability to enforce provisions with respect to over exploitation; poor conditions and lack of facilities at landing sites; and inadequate training and lack of market intelligence. The potential for marine fisheries development is significant. Subsequent considerations to this are that: there has been an increase in the marine resource base; potential exists for increasing marine resource exploitation; there is a need to establish marine protected areas (MPAs) with the assistance of JAMPEP; and, there is a need to expand offshore aquaculture facilities.

The EMA is currently undertaking a Strategic Environmental Assessment to establish mining zones and reduce the adverse impacts in each location by recommending appropriate remediation strategies. The information and analysis that result from this project will need to be incorporated into spatial development plans.

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Surveying the Scene - Background Information and Key Issues

Oil and gas have supported economic growth for the past 30 years and have consistently sustained economic and infrastructure development. In 2011, the petroleum sector accounted for 40% of GDP, but only 3% of employment. Heavy reliance on the energy sector is having a direct impact on the carbon footprint of the country. Although a relatively small country in terms of population size, Trinidad and Tobago makes a disproportionate contribution to "greenhouse" gas emissions, ranking 71st in the world in terms of the total national output of carbon emissions, and placed in the top 5 for carbon output per person (Ministry of Planning and the Economy, 2012). This is having severe impacts on land, waterways, and atmosphere in the form of pollution and human health as well.

4.3 Oil and Gas

Oil and natural gas have supported economic growth for the past 30 years and have consistently sustained economic and infrastructure development. In 2011, the petroleum sector accounted for 40% of GDP, but only 3% of employment. Heavy reliance on the energy sector is having a direct impact on the carbon footprint of the country. Although a relatively small country in terms of population size, Trinidad and Tobago makes a disproportionate contribution to "greenhouse" gas emissions, ranking 71st in the world in terms of the total national output of carbon emissions, and placed in the top 5 for carbon output per person (Ministry of Planning and the Economy, 2012). This is having severe impacts on land, waterways, and atmosphere in the form of pollution and human health as well.

While new oil and gas finds have been made recently and it is possible that additional discoveries will be made, the challenge of over-dependence remains. Although oil and gas deposits are extracted both at sea and on land, the processing facilities and energy-related industries (including ammonia, methanol and aluminium) are concentrated in the coastal zone, particularly along the west and south-west coastline of Trinidad, because of the availability of flat land and proximity to port facilities. Most of these are located in the major industrial estates, a number of which are located on the coastline, within urbanised areas and in areas that drain into coastal waters. The NSDS should ensure that consideration is given to the way in which additional on-shore wells are developed and treated.

NSDS response to quarrying and mining industry issues

OBJECTIVE
Using our natural resources sustainably

POLICY
Policy 13: Sustainable use of natural resources
Policy 14: Landscape management
Policy 17: Air quality
Policy 18: Sustainable mineral use

NSDS response to oil and gas industry issues

OBJECTIVE
Building a competitive, innovation-driven economy

POLICY
Policy 11A: Leaving no one behind
Policy 11B: Area-based economic priorities
Policy 13: Sustainable use of natural resources
Policy 14: Landscape management
Policy 19: Sustainable energy extraction

Figure 7: Employment share and GDP contribution of economic sectors between 2010 and 2011 (Source: Ministry of Planning and the Economy, 2012).
4.4 Manufacturing
Currently, employment within the manufacturing sector averages approximately 7% of the total employed population. The Government has confirmed that it will look to diversify this sector, with emphasis placed on specialized skills training and development to encourage competitiveness and sustainability in green manufacturing. The benefits of water development are also recognised and the Tamarind TrinTech Park and the Cove Industrial and Business Park are identified as providing high-value manufacturing with a competitive advantage in high-quality high-value manufacturers with a Business Park are identified as providing opportunities.

Most manufacturing, service, construction and energy-related industries are located in the major industrial estates. Some industries are also located on the coast because of ease of access to seawater for cooling and proximity to power generation plants. The number of estates located in catchment areas that drain into the Gulf of Paria has grown due to a number of environmental concerns because the coastal zone and the assets therein are extremely vulnerable and susceptible to contamination and damage from effluents and solid waste discharges from industry. The task of integrating these significant industrial projects into a broader framework for coastal zone planning is clearly important.

4.5 Service Industries
Retail, trade and distribution represent the most significant activities within the service sector. By 2010 the sector, as a whole, represented an estimated 45.9% share of GDP and some 84.1% of employment.

The country's retail, trade and distribution units have largely been established in or close to settlement centres. However, a notable trend behind the last 40 years has been the development of suburban and "out-of-town" shopping malls. The spatial impact of mall construction has been to attract customers away from the older commercial urban centres by providing easier access, parking, and security. The commercial activities along the East/West Corridor form a near constant string of ribbon development. Urban commerce and distribution industries are particularly prevalent in the Borough of Chaguanas where a high level of self-sufficiency is being approached. Unfortunately, this has been accompanied by severe traffic congestion and restricted accessibility to the town centre and between the eastern and western side of the Solomon Highway.

Public administration and public services form part of the service sector and are essential for meeting the needs of the population. The services themselves are people-oriented and the sector is a major provider of jobs. The location and distribution of government offices and other activities must be considered in the organization of the spatial pattern. In most cases the high-order services are located in the national and regional centres, and the lower-order services in local centres and neighbourhoods. Given that spatial location can positively influence the accessibility, efficiency and effectiveness of delivery of services, decisions on public sector services and facilities should be considered and structured spatial decision-making process, especially in terms of facilitating the implementation of development strategies and configuration of well-planned clusters for cost effectiveness and economies of scale.
The National Tourism Policy is predicated upon the overarching national policy framework for sustainable development and is aligned to the seven interconnected pillars set out in the MTPF. The Government recognises that building a viable tourism sector requires strong public/private sector partnerships, inclusion and support of the national community, emphasis on our cultural diversity and strategic application of modern information communication technology platforms to ensure efficiency and cost-effectiveness.

Given the potential of the tourism sector to create employment, alleviate poverty, earn foreign exchange and stimulate the creation of inter-industry linkages, particularly with agriculture, construction, manufacturing, sports and other service industries, the Government is committed to the development of a responsible, sustainable and competitive tourism industry as a means of delivering positive social and economic transformation.

In land use terms, the National Tourism Policy recognises the need for effective allocation and use of land resources and undertakes to develop a plan of suitable and available sites for hotel development and state-of-the-art sporting facilities as well as the creation of new zones, sites and attractions. Many of these demands are likely to be satisfied within coastal environments. Tourism-related infrastructure, especially cruise ship terminals, small vessel landings and marine recreation facilities are also concentrated in this zone. In some areas, conflicting and mutually incompatible land uses exist and the NSDS must provide the necessary framework for the consideration of these issues by Local Municipal Corporations and the Tobago House of Assembly. Examples of issues include:

- the tar and oily deposits associated with offshore oil mining that have damaged beach resorts along the Mayaro coast;
- the combination of high-speed boating activity, sailing, fishing, seaweed harvesting and some industrial activity on the Chaguaramas Peninsula and offshore islands which pose a potential risk to human safety; and,
- in Tobago, there is evidence of conflict at Pigeon Point, Plymouth and Store Bay where fishing, hotel and marine activities take place in close proximity to one another and threaten the lagoon and reefs which have already been damaged, especially Buccoo Reef/Tobacco Accord Lagoon. Coral reef formations occupy about 70% of coastal waters, but there has been significant loss of coral due to bleaching, pollution and sedimentation, human damage and storm/wave activity. The coral reefs in Tobago are critical in providing shoreline protection estimated to be worth between US$18m and US$33m (World Resources Institute, 2006).

Surveying the Scene - Background Information and Key Issues

**OBJECTIVE**
Valuing our cultural heritage

**POLICY**
Policy 8: Priorities for culture, sport and recreation
Policy 9: Planning positively for our historic environment

**OBJECTIVE**
Building a competitive, innovation-driven economy

**POLICY**
Policy 10A: Leaving no one behind
Policy 10B: Area-based economic priorities

**OBJECTIVE**
Using our natural resources sustainably

**POLICY**
Policy 12: Sustainable use of natural resources
Policy 13: Landscape management
Policy 15: Coastal and marine resource considerations
5. ENVIRONMENT

5.1 Ecosystems and the Services they provide

Given its relatively small total land mass, Trinidad (4,829km²) and Tobago (300km²) has a remarkably rich and varied natural environment, due to its tropical geographic location as well as its location on the continental shelf of South America. Prominent landscape features include:

- the Northern, Central and Southern Ranges of Trinidad, and the Main Ridge in Tobago, the Caroni and Naparima Plains and the Aripo Savannah. There are extensive areas of forest, much of which has a degree of protection as Forest Reserves. Tobago’s Main Ridge Forest Reserve has recently been nominated for designation as a World Heritage Site;
- the largest wetlands – the Caroni Swamp and the Nariva Swamp – together with the renowned Buccoo Reef / Bon Accord Lagoon are all internationally protected wetlands (under the RAMSAR convention); and,
- the main rivers, including the Caroni, Nariva, Caparo, Couva, Diego Martin and Guaracara Rivers in Trinidad, and the Courland and Hillsborough Rivers in Tobago.

Many of the above features are legally designated protected areas and the National Protected Areas Policy (2011) establishes a framework for their selection, legal designation and management. According to the policy, a protected area is defined as “a geographically defined area of land, body of freshwater or sea, or combinations of these, which is designated and managed through legal or other effective means to:

- conserve biological diversity thereby maintaining genetic, species and ecosystem diversity, evolutionary and ecosystem patterns and processes;
- maintain ecosystem goods and services and facilitate sustainable use; and,
- provide recreational, educational, cultural and spiritual / religious opportunities and facilitate the development of sustainable livelihoods.”

The protected area categories that have legal status are:

- Forest Reserves;
- Wildlife or Game Sanctuaries;
- Protected Marine Area;
- The North-West Peninsula of Trinidad;
- Prohibited Areas;
- Environmentally Sensitive Areas; and,
- The upper Courland River Basin in Tobago (above the intake) and the Quare River valley in Valencia (between the Hollis Dam and the intake). These areas are protected only in so far as potentially polluting activities are prohibited within the designated area.

Other categories of protected areas include:

- Un-proclaimed Forest Reserves;
- National Landmark;
- Historic Sites;
- Cleaver Woods which is managed by the Forestry Division as a Recreation Park, one of the proposed areas under the 1980 Systems Plan, but both the site and the category have not been legally designated; and,
- National Heritage Parks which were proposed and are being partially implemented by the Local Government, including the Devils’ Woodyard. However, there is no legal status for such parks.
The rich and diverse natural environment provides a wide range of “ecosystem services”: resources and processes that support and enhance our lives and activities, some of which are ultimately crucial to human well-being. These can be grouped under four headings: Provisioning Services; Regulating Services; Cultural Services; and, Supporting Services – as illustrated in the diagram below.

The environment and the ecosystems it supports are constantly threatened by the pressures of human activities such as building, quarrying, road construction, waste disposal, farming, and pollution from traffic, industry and other activities. Efforts to coordinate and improve environmental management both institutionally and legislatively have led to some significant progress over recent years. However, a wide range of environmental problems continue to persist in various parts of the country as a result of inappropriate use of land. Land use controls established in the National Physical Development Plan sought to protect agricultural land and conservation areas. However, there are certain areas of both Trinidad and Tobago where the land use apportionment has been severely altered following un-regularised urbanisation. The results are most prominent in Trinidad’s Northern Range where forest has been lost to quarrying, housing (including squatting) and farming.

Figure 9: Ecosystem Services Diagram (derived from “Millennium Ecosystem Assessment” a programme launched by the United Nations in 2001)

Figure 10: Land-use coverage 1991 and 2010

Legend
- Agriculture
- Built Up
- Forest
- Industrial
- Swamp

Surveying the Scene - Background Information and Key Issues
**5.2 Climate and Air**

It has been projected that the mean global annual temperature is to increase by 0.7°C to 2.6°C by the 2060s and by 1.1°C to 4.3°C by the 2090s (IPCC, 2007). A decrease in mean annual rainfall for Trinidad and Tobago is likely to be a direct consequence of the increase in global temperatures. Whilst there is some uncertainty surrounding the scale, scope and pace of climate change, it is clear that places and people will be exposed to significant climate change-driven impacts caused by increases in greenhouse gases in the Earth’s atmosphere. As a Small Island Developing State, Trinidad and Tobago is particularly vulnerable to the adverse impacts of climate change.

Agriculture Sector:
- Projected increases in air temperature are likely to increase the aridity of soils thus decreasing crop yields;
- Increase in sea level is likely to result in inundation of coastal areas and salination of soils; and
- Increased temperature can result in the increased proliferation of new and existing pests and diseases and increase the demand for water for irrigation purposes.

Human Health:
- The projected increases in ambient air temperature are likely to increase the spread of vector-borne diseases since higher temperature and humidity favour the spread of these infections;
- Decreases in rainfall will affect the availability of potable water; and
- Projected increases in sea level and precipitation intensity are likely to result in increases in the incidence of water-borne diseases.

Human Settlements:
- Increased frequency and intensity of storms and the associated flooding and storm-surge effects can disrupt and destroy several coastal settlements, increasing the incidence of poverty.

Coastal Zones:
- Sea level rise will result in increased inundation, increased erosion and loss of coastline, loss of natural resources such as wetlands and loss of important ecosystems goods and services; and
- Temperature increases will lead to loss of the country’s vital coral reef ecosystems and fisheries resources. It will also increase coastal erosion.

Water Resources:
- As temperature increases, there will be loss of available surface water as increased evapotranspiration will take place; and
- Decreased precipitation will reduce percolation and recharge of groundwater reserves in aquifers. This will reduce the availability of surface water and potable water.
The quantity of fossil fuels burned makes Trinidad and Tobago one of the major contributors to carbon emissions on a per capita basis. These activities, along with the incineration of waste material, also significantly affect air quality, which, in turn, has a bearing on public health.

The Environmental Management Authority prepared Draft Air Pollution Rules in 2010 but, to date, they have not been finalised. Emissions of air pollutants into the environment are, therefore, generally uncontrolled and enforcement is minimal. It has long been recognised that data pertaining to ambient air quality and air pollutant emissions is much needed to provide a sound scientific basis for policy and strategy development.

As a ratified signatory to both the United Nations’ Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, the National Climate Change Policy (2010) does, however, affirm Trinidad and Tobago’s commitment to pursuing development pathways that follow a low carbon approach. The mitigation and adaptation recommendations set out in this policy are embedded in the NSDS in a way which encourages people to adapt the ways in which they live, build, travel, and communicate so as to maximise resilience to the effects and impacts of climate change whilst also reducing contributions to factors that are causing it.
A congested transport network is contributing to disproportionate costs and difficulties for businesses. These issues are particularly prevalent in Trinidad where research has shown that the average peak hour journey times for relatively short urban journeys in the main economic centres of Port of Spain and San Fernando are commonly in excess of 90 minutes. Vehicle pollution in heavily congested areas is now also a significant health risk (particularly in relation to high levels of air-borne particulates) and is a major contributor to carbon emission. The issue of travel choice is complex and there are a number of interrelated factors that have contributed to the congested transport network in Trinidad (Table 1) and poor levels of public transport service across both islands. This is now impacting on quality of life and it risks stymying economic growth. The air and sea links between Trinidad and Tobago do not cope adequately with peak travel demand. Expanded services and improvements to interchange facilities are required. ANR Robinson International Airport at Crown Point will require major improvements if the tourism sector grows; Scarborough Port and associated infrastructure improvements are physically constrained by the town. Ferry services depart from Port of Spain with relatively lengthy sailing times of 2½ hours. Inevitably, new development will result in further demand for travel and transport across both islands and this must be managed in such a way that its adverse impacts are minimised and mitigated. The issues need to be addressed so that the adverse effects on communities, economy and the environment do not become worse; access to services can be maintained; and journey reliability improved. The solution requires coordination between the use and development of land and the provision of transport infrastructure so as to reduce traffic congestion and promote more efficient, less wasteful and less polluting modes and patterns of travel. It is therefore considered

### Table 1: Issues contributing to traffic congestion

<table>
<thead>
<tr>
<th>Cause</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidised premium gasoline and other grades and diesel substantially less</td>
<td>Affordable car ownership and little financial incentive to use alternative modes</td>
</tr>
<tr>
<td>Cheap imported used vehicles</td>
<td></td>
</tr>
<tr>
<td>Lack of co-ordination of public transport</td>
<td>Limited confidence in timetabled services to connect with working hours</td>
</tr>
<tr>
<td>Lack of quality interchange facilities</td>
<td>No incentive to make a ‘linked trip’ (i.e. utilizing other modes to e.g. park and ride, walk, cycle)</td>
</tr>
<tr>
<td>Ribbon housing / business development concentrated on the main highway corridors</td>
<td>Outlining regions have no alternative to the car. Congestion is most acute at the economic centres</td>
</tr>
<tr>
<td>Fear of crime</td>
<td>The car is seen as a safe alternative to walking, cycling or waiting for public transport</td>
</tr>
<tr>
<td>Climate</td>
<td>High levels of rainfall affect daily travel choice and impact on walking or cycling choice. In addition, poor waiting facilities aligned to wet weather impact on public transport patronage</td>
</tr>
<tr>
<td>Full employment (unemployment rate of 4.9%)</td>
<td>Large demand for travel during peak hours</td>
</tr>
</tbody>
</table>

6.1 Transport

Although extensive in coverage, the existing national road network offers low levels of connectivity in certain parts of the country because of poor road conditions, high traffic volumes in relation to road capacity, congestion and reduced capacity of arterial routes due to direct access and egress to roadside facilities. These conditions are contributing significantly to national levels of greenhouse gas emissions, which have increased by 278 per cent over the period 1990 to 2006 (Ministry of Planning and Economy, 2012). The rising demand for travel since the rail system was decommissioned in the mid-1960s has been accommodated by relatively intensive development of the road network. This has coincided with a growth rate of vehicles which now outstrips population growth (shown in figure 13). Without any policy intervention the growth of private vehicles is forecast to continue – 600,000 by 2015 and 650,000 by 2020. The effects of this are likely to be compounded by the additional freight movement that will need to be accommodated on the road network following the growth of the two main ports (Port of Spain and Pt. Lisas).
Surveying the Scene - Background Information and Key Issues

...reducing the fuel subsidy and investing... example, the mode-shift effects of...model to provide a clear evidence...implemented. Recommendations on...provided below.

Framework for developing an Sustainable Transport Strategy

...need:...
...monitoring regime that enables...
...network to be forecast by introducing...
...enables the future performance of the transport network is performing. This...

2. Public Transport

...the creation of a National Transport Authority to regulate public transport provision, including...and that contracted routes complement,...the...provide a shorter, faster sea...will be required to accommodate an...

3. Links to Tobago

...Encourage greater access to...new ferry...A.N.R. Robinson International Airport...

4. Road Development Programme

...the transfer from car to bus or car to...

5. Walking and Cycling

...A hot climate with frequent heavy rain...

...Cuban transport. The demise of the rapid rail proposal is...and cycle when possible include:

...creating shaded streets by:...for travel hubs to facilitate the...

...measures to encourage people to walk...simply to build new links when it is...providing adequately for cars as one transport option. Without having the role of town centres is likely to...

6.2 Waste Management

Economic and population growth has coincided with an increase in the amount of waste produced on both islands. However, the necessary expansion in waste management infrastructure has not followed and there is an expectation that the development of new industries, along with the rise of tourism, will continue to increase the production of household, commercial and industrial waste in the country. The subsequent rise in new development to accommodate these changes will also increase the quantities of construction and demolition waste.

Currently, all solid waste is transferred to landfill. There are five landfill sites in Trinidad and Tobago (see figure 19 below), none of which are lined to protect underlying groundwater or surface waters (for example, nearby rivers or streams) from contamination.

The EMA has recently raised concern with the Guapo and Beetham sites in Trinidad and should any new landfill be required it should be developed with an impermeable lining and other systems to prevent pollution or harm to human health and the environment.
Surveying the Scene - Background Information and Key Issues

islands. However, it is estimated that 243 wastewater facilities across both islands. The discharge of effluents from industry, the improper disposal of sewage and wastewater, is one of the principles outlined in the Integrated Solid Waste & Resource Management Policy (2012). Despite this potential, there is no nation-wide strategic approach to reuse, recycling or the recovery of solid waste.

Datasets relating to waste generation, treatment, and disposal allow for the understanding of the scope of waste management and the feasibility of possible solutions to be identified. However, this data is currently not available. Accurate and up-to-date data is crucial for supporting evidence based planning decisions and future infrastructure investments.

6.3 Water Treatment

The Integrated Water Resources Management Policy (IWRMP) relates to division, drinking water supply, and wastewater processing. Trinidad and Tobago has an abundance of water during the rainy season, which, combined with erratic flooding in various areas. Equally, in the dry season, water availability is tending to fall short, especially with the high demand for domestic, agricultural land and landscaping purposes and the primary means of attaining this is through advanced technologies in the wastewater treatment processes. Water reuse coming from municipal or industrial sources will affect its use in non-potable applications as well as indirect potable use in replenishing ground water aquifers. The discharge of effluents from industry, the improper disposal of sewage and wastewater, is one of the principles outlined in the Integrated Solid Waste & Resource Management Policy (2012). Despite this potential, there is no nation-wide strategic approach to reuse, recycling or the recovery of solid waste.

The seepage of effluent into the sea stimulates algal growth, degrades coral reefs and sea grasses and destroys fish nurseries through increased nutrient loading. Furthermore, faecal coliform counts that fall above the standard limits (technically) will infect bathing waters pose a risk to human life. Improper sewage disposal is threatening the marine environment. The average girl of all plant seas stimulates algal growth, degrades coral reefs and sea grasses and destroys fish nurseries through increased nutrient loading. Furthermore, faecal coliform counts that fall above the standard limits (technically) will infect bathing waters pose a risk to human life. Improper sewage disposal is threatening the marine environment. The average girl of all plant seas stimulates algal growth, degrades coral reefs and sea grasses and destroys fish nurseries through increased nutrient loading. Furthermore, faecal coliform counts that fall above the standard limits (technically) will infect bathing waters pose a risk to human life.

Policy 23: Waste management

Managing waste safely and efficiently

Policy 2: Promoting sustainable urban and rural development

Policy 2: Promoting sustainable urban and rural development

Policy 15: A coordinated approach to water resources and water quality

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Policy 15: A coordinated approach to water resources and water quality
6.5 Energy

Oil and gas reserves have not only underpinned the economy but also supplied domestic energy needs at relatively low cost. The low cost that has been a significant barrier to making more efficient use of energy and led to Trinidad and Tobago now being one of the most inefficient economies in the world. This is a particularly worrying side effect of the reliance on plentiful oil supplies and is illustrated vividly in Figure 15. This shows Trinidad and Tobago’s efficiency in “converting” energy to productive wealth (GDP) compared with a number of other nations. In this case, efficiency is measured as energy used (measured in kilograms of oil equivalent) in producing each $US 1,000 GDP.
Economic efficiency level is very low and it is equally worrying that this trend is going steadily against that of other nations, including other oil producing nations. Trinidad and Tobago appears to have been using fossil fuel energy less and less efficiently, whilst other nations have either been improving their efficiency at, at least, stabilising it. There are compelling economic, national security and environmental reasons for moving away from the traditional reliance on non-renewable energy (as shown in Figure 22). The National Climate Change Policy (2010) signals the Government’s commitment to achieving this.

Electricity on both islands is predominantly generated from natural gas and, according to the Ministry of Energy and Energy Affairs (MEEA), consumption has been increasing since 1981. Similarly, electricity consumption is dominated by heavy industry (38%), followed by residential (28%) and then light industry (22%) (MEEA).

Renewable energy is not currently contributing to the national grid, and the application of small-scale renewable energy infrastructure is limited to only a few installations such as solar-PV. The Renewable Energy Strategy identifies the renewable energy technologies that have potential for development. In addition to solar, wind and biogas sources that are identified in the strategy, consideration should also be given to the potential linkages with waste management strategies. Biodegradable wastes can be fed into an anaerobic digestion plant whilst non-biodegradable wastes could form a fuel source for energy from waste plants.

“Trinidad and Tobago as a responsible member of the international community, is committed to pursuing a low carbon development path, consistent with the principles of sustainable development through the development and delivery of strategies and actions for maximizing renewable energy resources, clean energy and clean production technologies as well as adapting to the adverse impacts of climate change through integration within all aspects of national development in its infrastructural, human and socio-economic systems, at an acceptable balance of costs and benefits.” National Climate Change Policy (2010)

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The Inter-American Development Bank (IDB), in partnership with the MSEA, is providing a technical assistance grant which is to be used to support the development of a Sustainable Energy Matrix for the country, promote renewable energy and energy efficiency potential, and, encourage the conservative use of fossil fuels. In addition, a wind resource assessment is to be undertaken to investigate which parts of Trinidad and Tobago have the greatest potential to harvest wind energy. These findings will be incredibly valuable and will need to feed into future policy and decision-making at the local level. In advance of the information being released, planning policy must provide a positive framework so that the findings and recommendations can be later implemented.

The NSDS response to issues:

**OBJECTIVE**
Building strong, diverse regions
**POLICY** Policy 3: Promoting sustainable urban and rural development

**OBJECTIVE**
Building Places for People
**POLICY** Policy 4: Designing and creating places for people

**OBJECTIVE**
Generating and using energy sustainably
**POLICY** Policy 23: Energy efficiency
6.6 Information Communication Technology (ICT)

ICT has the potential to play a pivotal role in the thrust for national development and economic diversification by creating an environment that stimulates entrepreneurial activity and creativity, widens the choice of economic activity, and increases the rate of economic growth, while at the same time improving social services and deepening social cohesion and interaction. ICT is therefore seen as a significant catalyst in the transformation to a secure, prosperous and sustainable nation. This is reflected in its inclusion as one of the seven pillars of development set out in the MTPF and is in recognition that development and advancement in the global economy demands greater integration of ICT into the everyday activities of all citizens: “Information and Communication Technologies (ICTs) – Connecting Trinidad and Tobago and Building the New Economy.” ICT also plays an integral part of Pillar 5: “A more diversified, knowledge-intensive economy - building on the native genius of our people,” while the remaining Pillars contain substantial ICT implications.

There has been significant progress made in terms of the broadening ICT accessibility over recent years, for example, internet household penetration for 2011 measured approximately 52.9% compared to 4.9% in 2007 and mobile phone subscriptions increased from 141,600 in 2000 to 1,826,200 in 2011 (The Telecommunications Authority of Trinidad and Tobago, 2012). Despite these achievements however, the nation continues to lag behind developed countries that dominate the upper levels of international benchmarking indices. The current National ICT Plan for Trinidad and Tobago (2012-2016) seeks to address this by building on the foundation established by the previous plan, fastforward. Further improvements in ICT integration have potentially significant spatial implications: for example, it could greatly reduce the need for people to travel to work and to access a range of services, and this may, in turn, impact on the sort of development that is needed in particular locations and help to overcome issues of peripherality in rural areas.

REFERENCES

Annual Market Report: Telecommunications and Broadcasting Sectors The Telecommunications Authority of Trinidad and Tobago (2012)
All-Inclusive Project Development Services Limited (APDSL) 2012 The Situational Analysis, Assessment Report
The National Physical Development Plan for Trinidad and Tobago, Phase 1: Final Report
Alkema et al. 2012 Levels of urbanization in the world’s countries: alternative estimates Available at: http://paa2012.princeton.edu/papers/121285
Central Statistical Office. 2009 Annual Statistical Digest Ministry of Planning and the Economy
Central Statistical Office. 2012. Trinidad and Tobago 2011 Population and Housing Census Preliminary Count
Central Statistical Office. 2012. Trinidad and Tobago 2012-2016 National ICT Plan