

Sustainable Cities: The Case of Greater Port of Spain, Trinidad

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1.0 Introduction

Presently, there is much focus on the creation of sustainable cities worldwide. This comes as more than half the world's population now resides in cities, with a projection of five billion inhabitants by the year 2030. This trend in urbanization demands attention due to the fact that along with its economic benefits there are also its drawbacks. These include the growth of informal settlements and sprawl which then aggravate the efficient provision of public services such as transportation (Ramlall 2010).

The city of Port of Spain, the Capital of the Republic of Trinidad and Tobago has its share of urban challenges. A review of planning documents prepared for the city of Port of Spain, inclusive of the National Physical Development Plan (1984) and the Port of Spain City Corporation Implementation Plan (2010), reveal that the general trends with respect to flooding, transportation and housing and informal settlements in particular are increasingly worsening.

The role of planning and the "promotion of understanding among policy-makers of the adverse consequences of unplanned settlements in environmentally vulnerable areas" has been given increased priority as a consequence of the sustainable development promoted by the Earth Summit's Agenda 21, action plan (UN Global Settlements Report 1996: 295). This holds true in Trinidad and Tobago where a number of policy documents which reflect a thrust towards sustainability, have been published in recent years. The Medium Term Planning Policy Framework (2011) of the Ministry of Planning and the Economy is one such document.

This paper is relevant against such a backdrop as it seeks to highlight a few of the critical planning problems associated with the city of Port of Spain in the quest to obtain solutions within the global context of 'sustainable cities'.

2.0 Literature Review

2.1 Sustainable Development and Planning Theory

Four models of the planning process may be considered here. Firstly, Mc Loughlin's traditional 'survey, analysis, plan', secondly, Chadwick's concept of systems or spatial planning and thirdly, the Wilson Concept of continuous participation in conflict. There is also a fourth development of the planning process which came to the fore in the 1980's and became known as 'sustainable development'. The concept of sustainable development (IUCN 1980) prescribes a way for integrating both economic and ecological sustainability in order to gain mutual benefits. Its primary goal involves the achievement of both a reasonable and equitably distributed level of economic wellbeing that can be continued over time through development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (WCED 1987) This process was brought into common use by the Brundtland Commission Report.

2.2 Sustainable Cities

All research work on sustainable development is also relevant for cities as due to the fact that nearly half of the world's population live in urban areas. It follows then that a high proportion of the world's production, consumption and generation is concentrated in cities.

Additionally, it is within the world's urban areas that a large proportion of poverty and its associated deprivation can be found (Satterthwaite 1999). In a logical sense however, cities cannot be described as sustainable as they utilize greater amounts of energy and resources than can be replaced (Blassingame 1998). Rees (1995) notes that whilst there is no hope for the city to independently achieve sustainability per se; within a global context, it is in cities that the greatest opportunities exist to make the changes that are needed for general sustainability. The Global Report on Human Settlements (1996) supports this in highlighting the potential advantages that cities have for addressing sustainable development goals.

2.3 Measuring Urban Sustainability

'Sustainable Development Indicators' (SDIs) have proven to be useful in measuring the sustainability of cities worldwide. Satterthwaite (1999) notes however that SDI's have to be built into the official planning process if they are to be effective. Brugmann (1997) notes that in the case of Seattle, a city well known for its efforts in sustainability, even a set of well developed indicators may not realise their objectives if they are not related to a methodological planning process. The cases of Oregon and Santa Monica demonstrate that indicators can be used effectively in sustainable development planning for the measurement performance and in effecting positive change.

2.4 The Sustainable Development Framework in Trinidad

Small Island Developing States (SIDS) were first recognized in 1992 at the United Nations Conference on Environment and Development (UNCED). The Republic of Trinidad and Tobago has been listed as a Small Island Developing State and as such the allocation of land is critical to the sustainable development of this country. It has been established in the literature that these low lying coastal countries share similar sustainable development challenges due to numerous factors including:

- Small Size
- Small but rapidly growing populations with limited resources
- Insular physical barriers within countries and relative to other countries
- Vulnerability to natural disasters as well as global events and
- No economies of scale

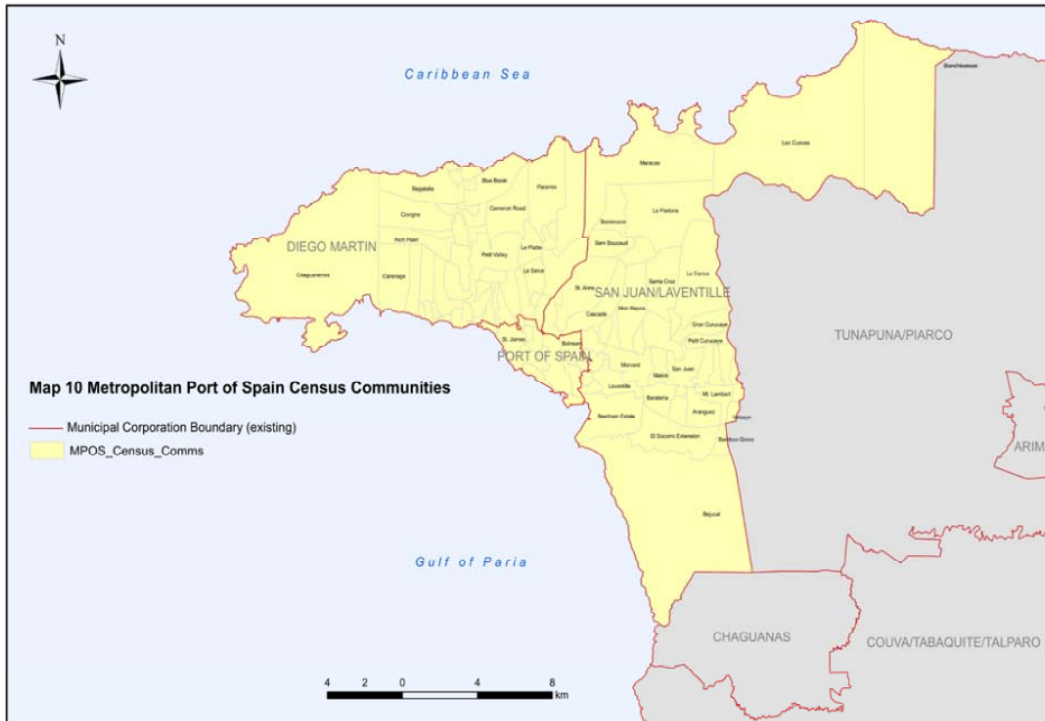
The primary role of the land use planner is to allocate resources for the purposes of development such that these resources are used in an optimal manner. This is especially important in the context of SIDS where the land available for development is quite limited.

Most recently, a report was prepared by the Ministry of Planning and the Economy for the Rio +20 Conference on Sustainable Development to be held in Rio, Brazil this year. This report assessed the current status of sustainable development in Trinidad and Tobago as well as highlights the challenges to achieving sustainability in Trinidad and Tobago.

3.0 Assessing Port of Spain's Major Challenges

3.1 Character of the City

The city serves as the retail, administrative and political centre of the country (Interplan 2010). The Port of Spain City Corporation comprises an area of 12.3 km², accounting for 0.3% of the land mass of Trinidad. Approximately 50 000 or 3 percent of the country's residents live within this area. With a density of 3 966 persons per square kilometre, the city has the highest population density in the country (Interplan 2010). The area known as 'Greater Port of Spain' however comprises a much larger urban conurbation which extends into the neighbouring regional corporations of Diego Martin and San Juan/Laventille. The total population within this area stands at approximately 320 000 persons or roughly 25% of the total population. The Map below shows the boundaries of the City of Port of Spain as well as the boundaries of Greater Port of Spain.



Map 1. Greater Port of Spain. (Area Outlined in Yellow)
Source: (Interplan 2010)

3.2 Vulnerability to Natural Hazards

3.2.1. Flooding

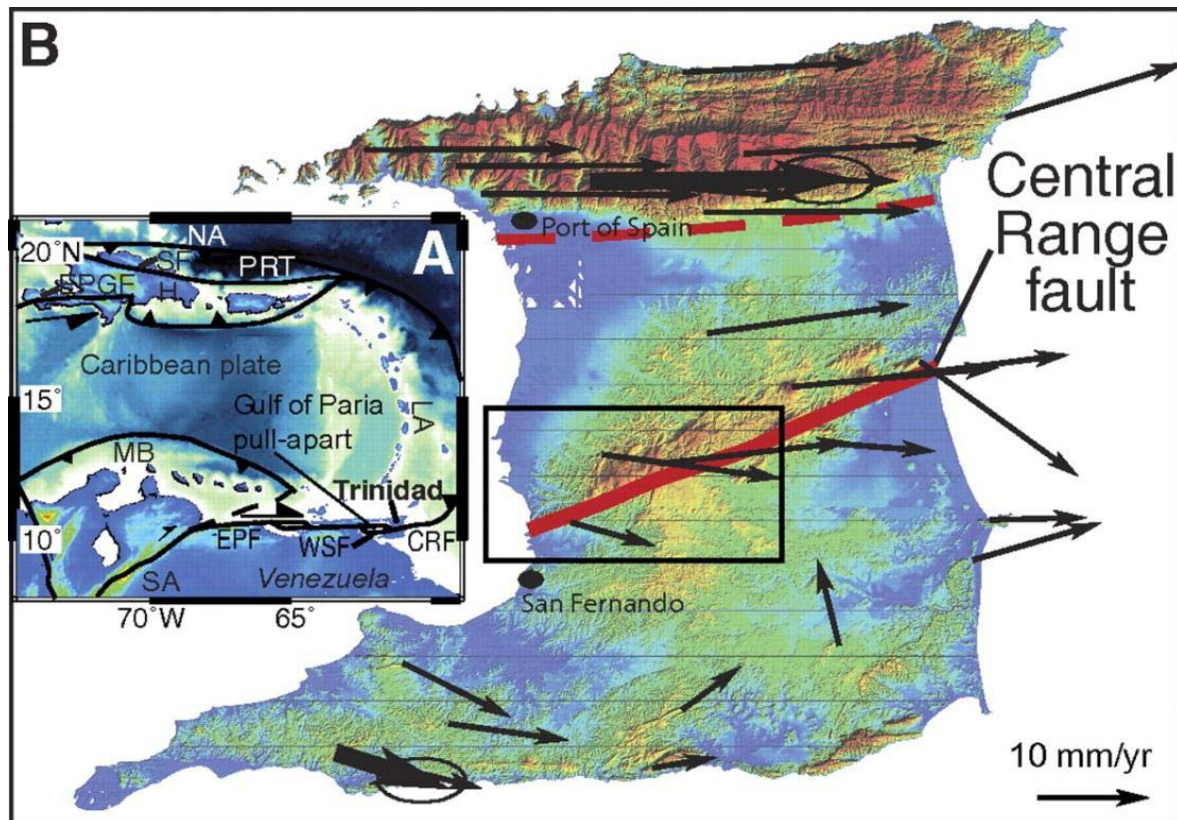
Flooding occurs frequently in the City of Port of Spain and is the result of a number of factors including inadequate drainage infrastructure. It is particularly severe in low lying areas near the sea front, sometimes also exacerbated by rising tides. The flooding which occurs is also associated with sedimentation and debris from development in upstream areas. The limited capacity of many existing water courses also increases the risk of flooding during peak rainfall periods. The severity of flooding is also worsened by hillside developments which reduce vegetation cover and increase impermeable surfaces. This usually results in erosion and landslides in hillside areas and flooding in the plains (Interplan 2010). Map 2 below shows the major flood locations in the Greater Port of Spain area.



Map 2. Flood Locations in the Greater Port of Spain Area (Represented by blue dots)
Source: Interplan 2010

3.2.2. Other Natural Hazards

A number of factors specific to planning in the coastal zone as well as on reclaimed land need to be taken into consideration with respect to Port of Spain's location within the Caribbean region. The small size of the islands in the Caribbean means that there is limited land space available for development and development on coastal land is a necessity. The city of Port of Spain has had a history of land reclamation in order to make more land available to the city. Seismic hazards are of concern as events such as earthquakes are unpredictable. In this context the possibility of seismic activity associated with the El Pilar Fault shown in the map below should be of concern.



Map 3. Trend of the El Pilar Fault as the red dashed line
Source: Geological Society of America (GSA, 2010)

The city of Port of Spain is located within the partially enclosed Gulf of Paria. This significantly decreases the effect of natural forces such as tides, waves and winds on the coastline. These have historically not been of major concern for Trinidad or Port of Spain as the island is located south of the hurricane belt and rarely experiences hurricanes and their associated threats.

3.3 Housing and Informal Settlements

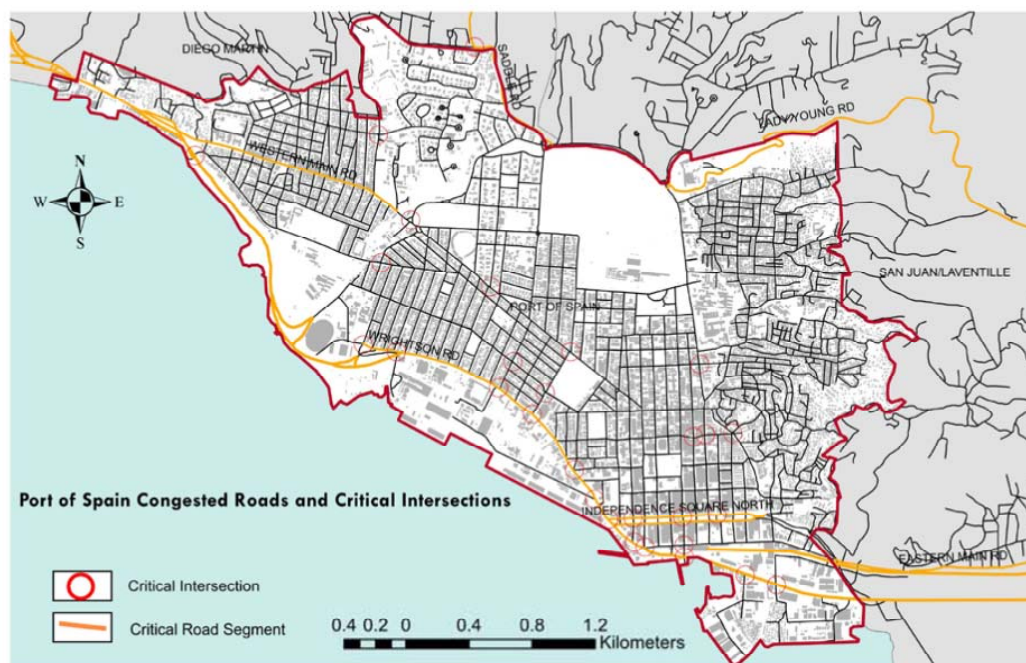
The report of the Vision 2020 Housing Sub- Committee projected the need for a total of over 47 000 housing units by the year 2020. The reality however, is that a vast majority of housing within the city within relatively close proximity to employment is unaffordable to a large number of the population. This has led to the increased growth of informal settlements, with a recorded total population of 65 000 persons living in informal settlements (Interplan 2010).

3.4 Transportation

Within Greater Port of Spain, a major contributor to the traffic congestion is the heavy usage and dependence upon the private vehicle as the main mode of transport of most persons and the interruptions in the flow of traffic that are created when these private vehicles need to be parked as well as when they need to be reintegrated into the traffic flow. Furlonge 2010 comments that in Trinidad, "over the last three years there has been an annual growth of vehicles of about 4 % when compared to an annual growth of 6 % over the previous 12 years" and also that, "private autos comprise 70 % of total vehicles on average."

The fact is that even more significant than traffic volumes in the outcome of traffic congestion are vehicle parking issues. Ultimately, the rate of traffic flow is directly related to how well on and off street parking is able to absorb the vehicles in the system (Furlonge 2010). The

creation of extra parking space however is not a sustainable solution to the problem. The solution must be incentives and ways by which the use of the private car is reduced. With the estimated growth of private car ownership of indicated in Figure 11, parking will continue to be more and more of a problem even as more parkades are built. Furlonge 2010 notes that, "If we apply a standard of 50 sq. m. of land space to accommodate each person who owns a car (used by Washington State Department of Transportation), we would require at least 1,250 Ha. (3,089 Acres) of space in Trinidad and Tobago to accommodate only private cars. This excludes parking spaces for trucks, buses....and taxis" The map below shows congested roads and critical intersections within the city of Port of Spain.



Map 4. Congested Roads and Critical Intersections in the City of Port of Spain
 Source: Interplan 2010

4.0 Recommendations for the City of Port of Spain

The literature suggests that use of SDIs can be helpful in the bid to achieve the sustainability of cities. Practical and relevant SDIs particular to the city of Port of Spain need to be developed and should be included as part of the planning process for the city. Many development plans exist for the city which describe its persistent problems. The statistics used in such plans originate from numerous agencies including the Central Statistical Office, the Land Settlement Agency, the Water and Sewerage Authority etc. This leads to inconsistencies in the boundaries within which the information is gathered and comparison of data becomes difficult. In addition there is little continuity of planning documents which again makes assessment of progress difficult.

The use of indicators is especially important for planning in a dynamic context where the factors which affect development are constantly changing. Realistic targets need to be set along with these indicators and the means to achieving these targets detailed.

5.0 Conclusion

The city of Port of Spain Trinidad faces a number challenges which may render it unsustainable. There is still hope however as the importance of cities in the quest to attain global sustainability has been realised. The use of SDIs can help in the assessment of the sustainability of cities and can be an option for the case of greater Port of Spain. Once relevant SDIs are identified they should be incorporated within the city's planning framework. The use of SDIs along with appropriate targets should be a useful option globally in the context of today's dynamic cities.

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