



BARBADOS NATIONAL
REPORT FOR THE
**THIRD UNITED NATIONS CONFERENCE ON
HOUSING AND SUSTAINABLE URBAN DEVELOPMENT
HABITAT III**

DECEMBER 2015

Report prepared by the Sir Arthur Lewis Institute of Social and Economic Studies (SALISES) and the Centre for Resource Management and Environmental Studies (CERMES) of the University of the West Indies, Cave Hill Campus, Barbados, on the behalf of the Ministry of Housing, Lands and Rural Development of the Government of Barbados.

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ACRONYMS

BARP	Barbados Association of Retired Persons	MTW	Ministry of Transport and Works
BGA	Bureau of Gender Affairs	NAB	National Assistance Board
BL&P	Barbados Light & Power Company Limited	NGO	Non-Governmental Organisation
BNPG	Barbados National Policy on Gender	NHC	National Housing Corporation
BNSI	Barbados National Standard Institution	NSPB	National Strategic Plan of Barbados 2005–2025: Global Excellence, Barbadian Traditions
BSA	Building Standards Authority	OPSR	Office of Public Sector Reform
BSDP	Barbados Sustainable Development Policy, 2004	PDP	Physical Development Plan
BSTS	Bridgetown Sewerage Treatment System	PSV	Public Sector Vehicle
BTB	Barbados Transport Board	PPSV	Privately-operated Public Sector Vehicle
BWA	Barbados Water Authority	PWD	Persons with Disabilities
CALC	Country Assessment of Living Conditions	RBPF	Royal Barbados Police Force
CBB	Central Bank of Barbados	RDC	Rural Development Commission
CCA	Climate change adaptation	RTR	Road Traffic Regulation
CCCCC	Caribbean Community Climate Change Centre	SSA	Sanitation Service Authority
CDB	Caribbean Development Bank	TAD	Training Administration Division
CDD	Community Development Department	TCDPO	Town & Country Development Planning Office
CDEMA	Caribbean Disaster Emergency Management Agency	TTP	Transfer of Title Programme
CDM	Comprehensive Disaster Management	UC	Urban Corridor
CZMU	Coastal Zone Management Unit	UDC	Urban Development Commission
DEM	Department of Emergency Management	UNDP	United Nations Development Programme
DRR	Disaster Risk Reduction	WSSU	Water and Sanitation Systems Upgrade Project
EHD	Environmental Health Department		
EIA	Environmental Impact Assessment		
ELPA	Electric Light & Power Act		
EMA	Emergency Management Act		
EPD	Environmental Protection Department		
ESCI	Emerging and Sustainable Cities Initiative		
EV	Electronic Vehicle		
GAPS	Global Atmospheric Pollutants		
GEF-SGP	Global Environmental Facility Small Grants Programme		
GIS	Geographic Information System		
HNUP	Housing and Neighbourhood Upgrading Programme		
ICT	Information Communication Technology		
IDB	Inter-American Development Bank		
ILO	International Labour Organisation		
IOCARIBE	Intergovernmental Oceanographic Commission		
LPG	Liquid Petroleum Gas		
MED	Ministry of Environment and Drainage		
MGDS	Medium-term Growth and Development Strategy 2013-2020		
MHLR	Ministry of Housing, Lands and Rural Development		
MSW	Municipal Solid Waste		

MEMBERS OF THE BARBADOS NATIONAL HABITAT COMMITTEE

ORGANISATION

Barbados Association of Non-Governmental Organisations
 Barbados Association of Professional Engineers
 Barbados Association of Professional Engineers
 Barbados Council for the Disabled
 Barbados Council for the Disabled
 Barbados Institute of Architects
 Barbados National Standards Institute
 Barbados National Standards Institute
 Barbados Town Planning Society
 Barbados Water Authority
 Barbados Water Authority
 Barbados Youth Development Council
 Barbados Youth Development Council
 Government Information Service

Habitat III Focal Point

Large Contractor
 Large Contractor
 Ministry of Finance and Economic Affairs - Economic Affairs
 Ministry of Finance and Economic Affairs - Economic Affairs
 Ministry of Finance and Economic Affairs - Finance
 Ministry of Foreign Affairs & Foreign Trade
 Ministry of Health
 Ministry of Housing, Lands and Rural Development
 Ministry of Social Care, Constituency Empowerment & Community Development
 Ministry of Social Care, Constituency Empowerment & Community Development
 Ministry of the Environment and Drainage
 Ministry of Transport and Works

National Habitat Committee Co-Chair

National Habitat Committee Co-Chair

National Housing Corporation
 National Housing Corporation
 National Organisation of Women
 Rural Development Commission
 Small Business Association
 Small Contractor
 Town and Country Development Planning Office
 Urban Development Commission

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 Chianne Smithen

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 Sandra Drakes

Mark Cummins

Jeremy Stephen
 Raymond Lorde
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 Mechell Marshall
 Samuel Onyeche
 Lynette Holder
 Peterkin Brome
 Rudy Headley
 Derek Alleyne

ORGANISATIONS ENGAGED DURING CONSULTATIVE PROCESS

Apex Construction Inc.	Ministry of Agriculture, Fisheries, Food and Water Resource Management
BANGO	Ministry of Education, Science, Technology and Innovation
Barbados Advocate	Ministry of Environment and Drainage
Barbados Association of Insurance and Financial Advisors	Ministry of Foreign Affairs and Foreign Trade
Barbados Association of Professional Engineers	Ministry of Health
Barbados Association of Retired Persons	Ministry of Housing, Lands and Rural Development
Barbados Christian Council	Ministry of Industry, International Business, Commerce and Small Business Development
Barbados Coalition of Service Industries	Ministry of Labour, Social Security and Human Resource Development
Barbados Community College	Ministry of Social Care, Constituency Empowerment and Community Development
Barbados Council for the Disabled	Ministry of Tourism and International Transport
Barbados Defence Force	National Botanic Garden
Barbados Fire Service	National Conservation Commission
Barbados Hotel and Tourism Association	National Housing Corporation
Barbados Institute of Architects	National Mental Health Commission
Barbados Light and Power Co. Ltd.	National Organisation of Women
Barbados Lumber Company Ltd.	National Sports Council
Barbados National Standards Institute	Natural Heritage Department
Barbados Prison Service	Pan American Health Organisation
Barbados Private Sector Association Inc.	Prime Minister's Office
Barbados Registered Nurses Association	Royal Barbados Police Force
Barbados Revenue Authority	Rural Development Commission
Barbados Tourism Product Authority	Samuel Jackman Prescod Polytechnic
Barbados Vocational Training Board	Sanitation Service Authority
Barbados Water Authority	Small Business Association
Barbados Workers Union	Substance Abuse Foundation Inc.
Barbados Youth Development Council	Technical and Vocational Education and Training Council
Barbados Youth Parliament - Minister of Housing	Town and Country Development Planning Office
Builder's Value Mart	UNDP
Bureau of Gender Affairs	UNICEF
BWU Co-operative Credit Union	United Nations Population Fund
Caribbean Development Bank	University of the West Indies
Caribbean Disaster Emergency Management Agency	Urban Development Commission
Caribbean Policy Development Centre	Verdun House
Caribbean Youth Environmental Network	Williams Industries
Coastal Zone Unit	World Heritage Committee
Community Development Department	Young Women's Christian Association
Department of Emergency Management	
Division of Energy and Telecommunications	
Environmental Protection Department	
Government Information Service	
Inter-American Development Bank	
Ionics Fresh Water Ltd.	

FOREWORD



THE RT. HON. FREUNDEL J. STUART
Q.C., M.P.

As Prime Minister and Minister with responsibility for Urban Development, it is my pleasure to share my thoughts on Barbados' journey towards the New Urban Agenda. This journey commenced in April 2015 with the establishment of the National Habitat Committee and under the slogan "Barbados Together...Towards a New Urban Agenda", we have engaged in a series of activities which has now culminated with this National Report. I would wish to commend the Minister of Housing, Lands and Rural Development and his staff as well as the team from the University of the West Indies, Cave Hill for championing this process and bringing us to this significant milestone.

This Report presents a comprehensive account of the state of housing and urban development in Barbados and is organized to provide readers with enough detail to paint a picture of where Barbados stands. It is also presented in a language and structure that allow planners to grasp the interconnectedness between urban and rural development; young and the young-at-heart; male and female; and between public and private interests. It covers important aspects of our development such as climate change, resource management, safety and security, human rights, traffic and transportation, environmental protection, drainage and water management, social equity, employment, health, energy and, of course, housing. As we move towards a sustainable development agenda, then addressing these issues will require the immediate attention and the combined efforts of all Barbadians.

The Report identifies the challenges that a modern Barbados must tackle and organizes them along measurable units (institutional, economic, social and environmental) and breaks them down further into key areas that warrant special attention. It provides our stakeholders with a base from which their projects and other reports can be measured. It also can act as a framework which will ensure that any ideas, proposals and other national reports that emerge during the upcoming engagements and at the Global Conference can be contextualized against Barbados' position on urbanization and sustainable development.

We are cognizant that the process is ongoing and we look forward with anticipation to the Quito Conference and to the articulation of policies that will emanate from the plan of action. The process of engagement witnessed in the preparation of this country report, augurs well for the planners of our 50th anniversary Independence celebrations with the conviction that collaboration and wide spread participation are key to energizing the Spirit of the Nation.

In closing, let me quote a line from our National Anthem which captures the essence of the way forward "Towards a New Urban Agenda" ... *"Upwards and onwards we shall go, inspired, exulted, free and greater will our nation grow in strength and unity"*.

The Rt. Hon. Freundel J. Stuart Q.C., M.P.
Prime Minister
Minister of National Security, the Public Service and Urban Development

MESSAGE



THE HON. DENIS ST. E. KELLMAN

For nearly twenty years, Barbados has remained committed to the principles of Habitat II, namely: "Adequate Shelter for All", and, "Home-ownership for the widest majority of Barbadians". That Barbados is once again preparing to participate in the global event; Habitat III highlights the Government's commitment to ensure that its citizens are safely and adequately housed. It is also a reflection of a commitment to the Habitat process and to the belief that the peculiar concerns of Small Island Developing States such as Barbados will be heard and given due consideration at the international level.

The preparation of this document has brought together a cross section of local experts covering wide and varied interest such as Government ministries, agencies and departments, civil society, regional and international agencies, vulnerable groups, business and professional organisations. In addition, the National Habitat Committee has hosted a series of community based consultations across the length and breadth of Barbados, and Barbadians have embraced each opportunity offered to share their vision of "A New Urban Agenda".

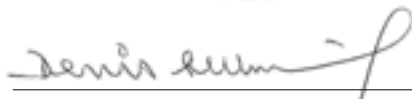
A review of the commitments made in our Habitat II Plan of Action back in 1996 shows greater success in addressing some of the broader human settlement issues like development and distribution of water resources, coastal management, improvement to sanitation services and better land management and planning practices. The provision of housing to meet the needs of Barbadians continues to be one of the biggest challenges which we face.

Over the past twenty years, Barbados has undergone significant demographic changes. One of the more noticeable changes is that 58% of our population now lives in the urban corridor. Another noticeable change is that we now have an aging population. In addition, although health care has improved, the incidence of the lifestyle diseases, which are better known as the chronic non-communicable diseases like diabetes and hypertension, has increased. Add to this mix the very clear and present dangers associated with climate change. If we are to survive and achieve our goal of becoming a developed society by 2025, then we must create new strategies to address these new challenges which we now face. A New Urban Agenda for Barbados, therefore, will emerge.

The Government of Barbados remains committed to supporting Barbadians in their pursuit of the acquisition of decent housing, in particular those in vulnerable groups and lower income earners. In this regard, we look forward to continued collaboration with UN-HABITAT and other regional and international organisations. We look forward to the opportunity to share our experiences and to learn from best practices around the world. The submission of this Report results from the collaborative process which is a hallmark feature of Barbados' on-going development pathway. Let me thank the Permanent Secretary and officers of the Ministry of Housing, Lands and Rural Development who provided all the necessary logistical and administrative support to make this a reality.

Our sincere appreciation goes to the Consulting Team from the University of the West Indies, Cave Hill Campus who produced this Report. Thanks also go to the each stakeholder and the members of the public who willingly shared their data, knowledge and opinions.

Sincere thanks is expressed to the members of the National Habitat Committee, in particular the two Co-Chairs, who provided the necessary guidance and leadership and engaged fully in the preparatory process which was critical to Barbados' meaningful participation in Habitat III. Barbados Together - Towards a New Urban Agenda.



The Hon. Denis St. E. Kellman
Minister of Housing, Lands and Rural Development

MESSAGE



MARK CUMMINS

Barbados is a Small Island Developing State (SIDS) with a coastline of 92 kilometres. Given that the majority of its tourism plant is located on the coastline, Sustainable Development Goal number 13: Climate Action is of utmost importance as Barbados continues to fortify and build its adaptation and resilience strategies.

Implementation of Barbados' New Urban Agenda will continue to strike the balance that is necessary between urbanization and sustainable development. As one of the most densely populated countries in the western hemisphere with 58% of its population residing in the coastal urban corridor, sustainable development will be the common thread to guide all future planning and design.

We are in the fortunate position where the amendment of our Physical Development Plan will benefit from information contained in the Habitat III National Report. The Plan will also seek to ensure that the necessary frameworks are put in place to facilitate growth in a manner that is sustainable.

The Plan will also ensure that the "development enablers" and "operational enablers" form part of its framework to foster better land use management as our island state continues on its path towards sustainable development and the creation of a green economy.

It has been my distinct honour to serve as one of two Co-Chairs for the National Habitat Committee and I wish to thank my fellow Co-Chair, Mr. Jeremy Stephen and the members of the National Habitat Committee along with the Ministry's Housing Planning Unit staff for their commitment to the process as we move Barbados Together Towards a New Urban Agenda.



Mark Cummins
Co-Chair
National Habitat Committee

MESSAGE



JEREMY STEPHEN

As a practicing financial economist and analyst, a major part of my interests lies in prediction of economic activity over the next 30 years. It was only then a matter of formality - and a curbing of very youthful excitement - when I readily accepted the invitation to be a co-chair of the National Habitat Committee.

This honour has afforded the opportunity to dive even deeper into my intellectual curiosity, but, more so, now I am able to engage key stakeholders as the committee seeks to chart Barbados' New Urban Agenda for the next 20 years.

Our Habitat III report thoroughly examines key developments and implementation gaps over the last 20 years. Assessments were conducted, for example, on the state of the Barbadian housing stock and supporting infrastructure; and economic impacts on the demand for housing. Those two comprehensive areas of interest will continue to transcend any single time period and, as a result, the collection and analysis of data will continue to be a priority.

On this occasion, the report provides the committee with a sturdy foundation to influence policy. The reader will become aware with an extensive understanding of issues that plague us and hopefully be in a position to actively inform policymakers about concerns and solutions. The National Habitat Committee maintains a mandate that will be quite supportive of the regular engagement of policyholders as Barbados embarks on its own New Urban Agenda.

Of special regard would have to be the work of Ms. Kelly Hunte, our Habitat III Focal Point and Senior Housing Planner at the Ministry of Housing, Lands and Rural Development. Without her, we all would have had a hugely difficult time in completing this report in a manner it so deserved. Furthermore, I salute the many stakeholders with a vested interest in national development, along with our very responsive general public. You volunteered your time graciously and I am quite sure that we can count on you all 20 years from now.

Thank you!

A handwritten signature in dark ink, appearing to be 'J. Stephen', written over a horizontal line.

Jeremy Stephen
Co-Chair
National Habitat Committee

EXECUTIVE SUMMARY

INTRODUCTION

Barbados is the most eastern of the Caribbean islands with a population of 277,821 in 2010 on a land area of 430 km². With a population density of 646 persons per km², the country is the twelfth most densely populated country in the world. The island consists of 11 parishes with individual densities ranging from 2,270 persons per km² in St. Michael in the south-west where the capital Bridgetown is located, to 143 persons per km² in St. Andrew in the north-east. The capital Bridgetown is located in the south-west of the country and the majority of the population resides in the coastal areas in the west, south and south-east.

Since the 1970s physical development in the country has been guided by a Physical Development Plan (PDP). The original PDP of 1970 came into effect in 1973, with the first amendment in 1986, which was officially adopted in 1991. The 1986 PDP Amendment was updated in 2003 and officially adopted in 2008. The current amendment is governed by the principles of sustainable development. The 2003 PDP Amendment is currently in the preliminary stages of revision.

There is an urban corridor (UC) defined in the 2003 PDP Amendment. The UC is mostly coastal and stretches inland from the north western coastline to the south eastern coastline. Although every effort is made to concentrate the analysis on the UC, many of the issues addressed in the report relate to the national level, especially in the discussion of specific demographic groups (the youth, the elderly and women) and specific national policies which are not specific to the UC. Where feasible, data from the 1990, 2000 and 2010 censuses of housing and population are utilised to highlight trends in the UC. In addition to census information, the report was constructed utilising additional documentary evidence, interviews with key stakeholders, and output from the National Consultation on Habitat III held in July 2015. The report follows the structure required for the Third United Nations Conference on Housing and Sustainable Development (Habitat III), to take place in 2016, as indicated in the following sections and subsections.

I. URBAN DEMOGRAPHIC ISSUES

URBANISATION

Approximately 66% of the population of Barbados resided in the Urban Corridor (UC) in 2010, falling from 68% in 2000. The country is therefore not experiencing rapid urbanisation as the population share in the UC has actually fallen, with a general movement to the parishes immediately surrounding St. Michael, the location of the National Centre of Bridgetown.

Table 1: Population Levels and Changes by Parish (1990 to 2010)

Area	2010 Density (persons/ km ²)	Density Change 1990 to 2010	Census Year			Change (%)		
			1990	2000	2010	1990- 2000	2000- 2010	1990- 2010
St. Michael	2,270	-230	97,516	91,025	88,529	-6.66	-2.74	-9.22
Christ Church	953	+128	47,050	52,922	54,336	12.48	2.67	15.49
St. James	919	+242	21,000	24,270	28,498	15.57	17.42	35.70
St. Philip	511	+169	20,540	24,566	30,662	19.60	24.81	49.28
St. George	449	+42	17,905	19,048	19,767	6.38	3.77	10.40
St. Thomas	419	+78	11,590	13,260	14,249	14.41	7.46	22.94
St. Peter	332	+1	11,263	11,405	11,300	1.26	-0.92	0.33
St. Lucy	271	+8	9,455	9,991	9,758	5.67	-2.33	3.20
St. John	264	-37	10,206	9,448	8,963	-7.43	-5.13	-12.18
St. Joseph	255	-38	7,619	7,244	6,620	-4.92	-8.61	-13.11
St. Andrew	143	-34	6,346	5,613	5,139	-11.55	-8.44	-19.02
Total	646	+40	260,491	268,792	277,821	3.19	3.36	6.65

Source: Barbados Statistical Service Census of Housing and Population (1990, 2000, 2010)

The population is also aging. Projections indicate that the 60 and over will account for 25.6% of the population by 2025, up from 19.4% in 2015 (United Nations, 2015). Such a dynamic has implications for schools, housing, the physical infrastructure and the social support system.

In specifically dealing with urban issues the Government established the Urban Development Commission (UDC) in 1997 to: '...provide services and programmes that would assist in the eradication of poverty and to enhance sustainable quality of life and high standards of living for the urban population'. The UDC is complemented by the Rural Development Commission (RDC) which was established in 1996 to: '...provide for the improvement of social amenities, assist small farmers, and establish and develop cottage industries in rural areas' (Government of Barbados, 1997, p. 3).

RURAL-URBAN LINKAGES

The island's road network scores 100% on the Rural Access Index (RAI) and there are 1,750km of roads of which 80% are paved (IADB, 2015). The road density was measured at 372km per 100km² of land area in 2000, ranking 7th in the world and highest in the Caribbean. However, IADB (2015) notes that 30% of paved roads are in poor condition.

There is a high level of access to water, sanitation, electricity and telecommunications. In 1990, 94.0% of households had access to water, either piped into the dwelling (80.3%) or the yard (13.7%). By 2000, this had increased to 96.5%, and by 2010 to 96.7%. A similar situation to access to water is seen with toilet facilities, where 87.2% had a WC not linked to a sewer (e.g. septic tank) and 4.1% had a WC linked to a sewer; 91.3% in total.

THE YOUTH

Between 1990 and 2010, the youth share of the population fell from 17.8% to 13.3%. In 2010, youth accounted for 13.3% of the urban population and 13.6% of the rural population. Overall, 65% of the youth resided in the UC. Youth suffer higher poverty rates than the general population, with nearly 24% of youth categorised as poor in 2010, as opposed to a population poverty rate of 15%.

Overall, youth unemployment has been nearly three times that of adults since 2000. In addition to unemployment, the Government also notes the issues of drug abuse, health, crime, violence and gangs as issues challenging youth (Barbados Economic Affairs Division, 2013).

The Division of Youth Affairs is the public institution responsible for youth in the country, currently operating under the Ministry of Culture, Sport and Youth.

THE AGED

In 2010, the aged accounted for 18% of the urban population and 16% of the rural population. Overall, 69% of the elderly resided in the UC. The majority of the aged are retired (68.8%), with 16.9% categorised as poor in 2010, marginally above the population estimate of 15%. To date Barbados has not adopted a policy on ageing, although a White Paper on Ageing was tabled in Parliament in 2013.

From a legal and regulatory perspective, elderly issues are addressed by the National Assistance Act and the National Assistance Board (NAB). The NAB provides a number of services to the elderly, as well as the disabled, including: home care; vulnerability assessments; active ageing recreational activities; national senior games (commenced in 2001); community nursing (pilot project); bereavement support services; residential care; and a night shelter for homeless men.

GENDER

Over the period 1990 to 2010, females accounted for approximately 52% of both the rural and urban populations, with 67% of females residing in the UC. Over the period 1991 to 2013, female unemployment rates were consistently higher than that of males (12.1% versus 7.8% in 2013). The situation is even more acute for young females with a rate of 30.4%; the male youth rate was 24.4%.

Females experience poverty to a greater degree than males (18.1% versus 14.6%), and also have a greater burden of care in the household. Poor female household heads have larger households, and suffer higher dependency ratios due to children and unemployed persons in their households. The main governmental institution dealing with gender issues is the Bureau of Gender Affairs (BGA), founded in 2000 to replace the Bureau of Women's Affairs.

II: LAND AND URBAN PLANNING

ENSURING SUSTAINABLE URBAN PLANNING AND DESIGN

The 2003 PDP Amendment provides the vision for the future growth and development of the nation by setting out policies to guide relationships among land uses, community facilities and physical infrastructure. It also seeks to coordinate public and private development initiatives. The 2003 PDP Amendment is currently in the process of being updated. This amended PDP will address:

- Improving the availability of potable water to the entire island (e.g. creating a Water Reuse Policy);
- Developing agricultural policies, focusing on small farms (i.e. 4 acres or less);
- Exploring linkages with tourism (e.g. gastronomic tourism);
- Advancing climate change adaption and building resilience;
- Modernising planning rules and regulations;
- Improving urban design and land use management; and
- Engaging younger persons in the planning process.

In addition to the PDP, other policies which speak to sustainable urban planning and design include the Barbados Sustainable Development Policy (BSDP) of 2004, and the National Strategic Plan of Barbados 2005–2025: Global Excellence, Barbadian Traditions (NSPB). To ensure sustainable urban planning and design, a multidisciplinary approach is practiced which seeks to integrate social, technical, economic, political, and ecological considerations into the process.

IMPROVING URBAN LAND MANAGEMENT

Physical development in Barbados remains orderly, guided by the sustainable development policies of the PDP and the TCDPO's planning controls. The island is one of the few countries in the region to have a physical development plan. It is believed that urban sprawl, as it is generally defined, does not occur in Barbados. The UC constrains urban sprawl. Instead, intra-UC development occurs and development outside of the UC is accommodated within the PDP.

Between the years 1990 to 2010 a situation arose where the number of new housing units grew in tandem with the number of unoccupied units. Although there had been no significant population growth during that period, housing units grew by 14.6%, while unoccupied units grew by a startling 117.9%. These figures imply that the purported high level of unmet demand for housing may be superficial, with the possibility that it is the supply of housing is inappropriate to the type of housing demanded.

Table 2: Housing Units, 1990-2010

	1990		2000		2010	
	Country-wide	Urban	Country-wide	Urban	Country-wide	Urban
Occupied	75,211	-	83,210	58,021	78,936	53,477
Unoccupied	6,993	-	8,379	5,625	15,237	10,540
Total	82,204	-	91,589	63,646	94,173	64,017
Source: BSS (2015)						

Consideration is being given to alternative housing solutions to replace the cultural preference for single detached, low density housing options, such as the construction of additional high rise apartments which is one of the Government's key "green" priorities for housing (GOB, 2013b).

ENHANCING URBAN AND PERI-URBAN FOOD PRODUCTION

Urban Agriculture, an industry located within or on the margin the UC, has long been a practice to support food security and generate income. For the most part, urban agriculture in Barbados takes the form of backyard vegetable and fruit gardens, small-scale urban farms, and micro-scale livestock farming. It is estimated that urban agriculture's contribution to the agricultural sector is less than 20%.

ADDRESSING URBAN MOBILITY CHALLENGES

There are three bus services currently operating on the island: the Government-operated system, the Barbados Transport Board (BTB), consisting of large omnibuses; and two privately owned services consisting of a fleet of small buses called route taxis (commonly referred to as ZRs), and a fleet of larger minibuses (Moore, et al., 2014). At present, there are 280 Government-operated buses, 5 of which have disability access. Senior citizens and school children in uniform, with proper identification, pay no fares on the Government-operated buses.

In 2015 the MTW secured an IDB loan for the Road Rehabilitation and Improving Connectivity of Road Infrastructure project which will: (i) improve flows and safety at selected intersections; and (ii) strengthen the MTW's institutional capacity. The civil works component will entail the rehabilitation and improvement of roads, bridges and culverts; construction of roundabouts and sidewalks; and features to reduce congestion and improve safety.

IMPROVING TECHNICAL CAPACITY TO PLAN AND MANAGE CITIES

The TCDPO currently employs 72 persons, 24% of which are professionals and 40% are technically trained. There is a dedicated GIS server and officers are trained in the use of GIS for planning and management. Educational institutions in the country and the wider region provide certification in related disciplines and there is active engagement of the youth in career development in this area. There is also an active Town Planning Society for planners in both the public and private sector.

III. ENVIRONMENT AND URBANISATION

ADDRESSING CLIMATE CHANGE

Barbados is particularly vulnerable to many of the anticipated impacts of climate change such as sea-level rise, intensified and increased frequency of extreme weather events, higher temperatures, and variable levels of precipitation. In response, the island has established a participatory governance mechanism to address climate change, inclusive of a National Climate Change Committee, and the development of a draft Climate Change Policy Framework.

One of the main mechanisms in the planning process which seeks to address the potential impacts of climate change is the requirement for EIAs for certain developments, particularly in the coastal zone. The TCDPO has also adopted an integrated approach to planning, whereby they collaborate with several entities including the Coastal Zone Management Unit (CZMU) and the Drainage Unit to determine whether projects should receive planning approval.

Several engineering works have been undertaken along the urbanised south and west coasts, with protection against sea level rise and extreme storms integrated into the design. The objectives of these works are usually for shoreline stabilisation and climate resilience, as well as the protection of vulnerable infrastructure like coastal roads.

DISASTER RISK REDUCTION (DRR)

The Department of Emergency Management (DEM) has adopted the Comprehensive Disaster Management Strategy and Framework which guides the national disaster management agenda and explicitly makes the linkages among disaster risk management (DRM), sustainable development and climate change. There is also the National Disaster Management Programme which focuses on DRM advocacy, institutional strengthening of the National Emergency Management System, community disaster risk resilience, DRM mainstreaming in key sectors, and the incorporation of science in DRM.

Regarding housing, the 1993 Barbados National Building Code was updated in 2013. The Code is comprised of standards that seek to minimise risk. At present, there is no mandatory compliance to the Building Code. However, the Ministry of Transport and Works (MTW) is working towards the finalisation of the legal and administrative structure for its mandatory implementation.

REDUCING TRAFFIC CONGESTION

The high levels of traffic congestion in and around the island's town centres have been attributed to the significant increase in the number of motor vehicles on the roads in recent decades. Between 1999 and 2009, the number of vehicles on the road had grown at a compounded annual growth rate of 6.8 %. While this figure fell during the period 2008 and 2010 to an estimated growth rate of 3.8% per annum, compared to acceptable international standards of 2.5% as a sustainable growth rate, the growth rate of vehicles in Barbados is not sustainable (Moore, et al., 2014).

One of the Government's strategies to alleviate traffic congestion is to develop "a more reliable public transport system that will encourage greater use of mass transport systems to alleviate traffic congestion" (GOB, 2013a, p. 101). The MTW's Road Rehabilitation and Improving Connectivity of Road Infrastructure project will also address reducing traffic congestion.

AIR POLLUTION

The Environmental Protection Department (EPD) is responsible for monitoring air quality and controlling air pollution in Barbados. The EPD's Ambient Air Quality Passive Monitoring programme monitors criteria pollutants such as sulphur dioxide (SO₂), nitrogen dioxide (NO₂), volatile organic compounds (VOCs), and ozone (O₃).

While no minimum standards have been established for atmospheric pollutants as yet, recommendations are being made in the Ambient Air Quality Policy Paper. Other initiatives being undertaken by the EPD to reduce air pollution include public awareness campaigns, regulatory inspections and compliance programmes for key emissions generating sectors, and complaints investigations.

IV. URBAN GOVERNANCE AND LEGISLATION

IMPROVING URBAN LEGISLATION

The country is governed by an extensive array of legislation related to the UC. The most relevant legislation includes:

1. The Town and Country Planning (TCP) Act, Cap. 240 (1968); and the Town and Country Planning Development Order, 1972;
2. Land Acquisition Act (1995)
3. Coastal Zone Management (CZM) Act, Cap. 394 (2000);
4. Urban Development Commission (UDC) Act, Cap. 241 (1997, 2003);

The TCPDO oversees physical development in Barbados and is guided by the TCP Act, TCP Development Order, and the prevailing physical development plan. The planning decision-making process is defined by legislation and broadly guided by the PDP with input from several Government agencies.

Closely linked to the TCP Act is the CZM Act which, through the Coastal Zone Management Unit (CZMU), allows for operation in tandem with the TCPDO in assessing development applications in the Coastal Zone Management Area. The CZMU is also responsible for the development of coastal zone management plans and the delineation of a management area, as well as the preservation and enhancement of marine areas and coral reef and beach protection.

DECENTRALISATION AND STRENGTHENING LOCAL AUTHORITIES

Decentralised Local Government has not existed in Barbados since the late 1960s. Between 1958 and 1967 there was a system of Local Government councils (City of Bridgetown, Northern District and Southern District). After the abolition of these councils, finalised in 1969, all of the affairs of the country have been run by Central Government, with representatives of the current 30 constituencies comprising the House of Assembly. In 2009 the Government established Constituency Councils across the country to provide a channel through which local issues could be voiced at the level of Central Government.

Another decentralisation effort is the Community Development Department (CDD) under the Ministry of Social Care. The CDD oversees the physical management of 22 community centres across the island and provides programmes in a variety of areas including education, training, and recreational and cultural activities.

IMPROVING PARTICIPATION AND HUMAN RIGHTS IN URBAN DEVELOPMENT

The most significant demonstration of participation in the development process in Barbados is the Social Partnership, a tripartite body which includes the Government and representatives of the private sector and labour. The formalisation of the partnership in 1993, with the signing of 'the Protocol for the Implementation of a Prices and Income Policy 1993-1995' which is currently in its sixth version, demonstrates the country's commitment to improving participation by the citizenry.

The fundamental human rights of citizens are protected by the Constitution, regardless of race, place of origin, political opinions, colour, creed or sex.

ENHANCING URBAN SAFETY AND SECURITY

The Royal Barbados Police Force (RBPF) has instituted a number of initiatives to address safety and security, with some specific attention to the urban area. Actions include the establishment of six community police outposts, all in the UC, as well as programmes specifically targeted at youth. The National Council on Substance Abuse (NCSA) was established in 1995 to work on drug demand reduction in schools and communities. The RBPF's Family Conflict Unit supports the victims of domestic violence. The Barbados Fire Service (BFS) operates 6 fire stations, 5 of which are in the UC. The BFS also undertakes fire prevention and safety activities.

IMPROVING SOCIAL INCLUSION AND EQUITY

The current social support framework includes programmes that provide remedial, preventative, supportive and developmental support, including welfare assistance and shelter, with special attention to gender, the elderly and persons with disabilities. There is also an extensive NGO network which supports as well as advocates for special vulnerable groups and issues.

V. URBAN ECONOMY

IMPROVING MUNICIPAL/LOCAL FINANCE

As the country does not have any autonomous authorities below the level of Central Government, the financing of development comes from national budget allocations. As noted throughout the report the Government is currently experiencing fiscal challenges due in part to the global economic crisis which has resulted in limited economic growth, fiscal deficits and increasing debt levels. These occurrences are constraining the implementation of policies and programmes to assist in sustainable urban development. In seeking to address these challenges, the Government, in addition to its role as a facilitator of private sector activity for economic growth, has sought to reduce recurrent expenditures, increase revenue through additional taxation and the removal of some tax allowances, and enhanced revenue collection through the consolidation of all revenue collection agencies under one body, the Barbados Revenue Authority (BRA).

STRENGTHENING AND IMPROVING ACCESS TO HOUSING FINANCE

Household ownership has been constant over the period 1997 to 2010 at approximately 75%. This level of home ownership is in part due to the extensive network of bank and non-bank financial institutions in the country including an extensive credit union movement with a penetration ratio of 81.5% (World Council of Credit Unions Statistical Report, 2014), and public sector agencies, particularly the NHC.

SUPPORTING LOCAL ECONOMIC DEVELOPMENT

Estimates suggest that urban economic activity accounted for over 90% of total real GDP over the period. There was also a general rise in the share of urban production from 93% in 1995 to 97% in 2013. Over the period 1995 to 2013, "urban real GDP" rose by 1.6 percent per annum with most of this growth occurring prior to the recession.

The Government has established agencies to foster urban economic development in Barbados. The Barbados Tourism Investment Inc. (BTI) has a number of projects associated with urban renewal within the UC as part of its tourism development plan. These projects complement the Government's initiative relating to the development of historic Bridgetown and its Garrison which underpins the heritage tourism drive. Business development has been facilitated by several Government initiatives and the lobbying activities of business associations which have spurred greater development in the UC.

CREATING DECENT JOBS AND LIVELIHOODS

The level of “urban employment” increased from 95,900 persons in 1995 to 121,700 in 2013 with increases being recorded in services and public utilities. There was some degree of volatility in tourism employment over the period and reflects the effects of the recession experienced by the country.

Barbados has developed a decent work programme 2012-2015 in keeping with its ILO obligations. The programme calls for the establishment of labour standards and rights at work, gender equality, sustainable enterprise development, skills development, social protection and social dialogue. In recent years the Government has enacted legislation to reflect the programme: the Employment Rights Act and the Safety and Health at Work Act.

INTEGRATION OF THE URBAN ECONOMY INTO NATIONAL DEVELOPMENT POLICY

The country’s various PDP amendments have been complemented by National Strategic Development Plans which cover the social and economic development of the country. While these plans are linked in theory, in many respects there has not been much explicit integration of the two planning processes.

VI. HOUSING AND BASIC SERVICES

SLUM UPGRADING AND PREVENTION

Although the Government has implemented a number of initiatives to improve housing standards and, by indicators developed by the United Nations to assess a nation’s housing conditions Barbadians are found to be well housed, the existence of poor housing conditions persists in some areas and infrastructure and utility services within some communities require upgrading (UN-DESA, 2004a).

IMPROVING ACCESS TO ADEQUATE HOUSING

To improve access to housing, the Government has undertaken various initiatives over the past 20 years:

- Housing Every Last Person (H.E.L.P) programme
- Housing Everyone an Affordable Realistic Target (H.E.A.R.T) programme
- 500 Lot Programme which targets individuals who work for under \$2500.00/month.
- Starter Homes for individuals who work for under \$3000.00/month.
- Regular Homes for individuals who work for \$3000/month - \$4500/month.
- Urban high rise programme
- Joint ventures with the private sector

In addition to these initiatives, through collaborations between the MHL, UDC and the Welfare Department, accommodations are also provided for vulnerable groups such as the homeless, battered women, fire victims, and persons impacted by other disasters.

In relation to private-public partnerships (joint ventures), Government has provided land, professional services, the approval of applicants, pricing guidelines and housing designs, while the private sector has dealt with housing construction and delivered the final products to the NHC at a number of sites.

ENSURING SUSTAINABLE ACCESS TO SAFE DRINKING WATER

Barbados’ drinking water supply meets the World Health Organisation (WHO) Drinking Water Standard, and is safe for consumption. However, it should be noted that although the island’s water quality is high and supply is reliable, Barbados is classified as a water scarce country. The Barbados Water Authority (BWA) is the statutory corporation with the responsibility of managing, protecting, allocating and monitoring the country’s water resources.

ENSURING SUSTAINABLE ACCESS TO BASIC SANITATION AND DRAINAGE

Over 90% of the population has access to improved sanitation facilities with sanitation and waste management the responsibility of four agencies:

- EPD: monitors solid waste management and Government-operated solid waste disposal sites.
- Sanitation Service Authority (SSA): collects and disposes non-hazardous municipal solid waste (MSW).
- Solid Waste Project Unit: implements the Integrated Solid Waste Management Programme.
- BWA: provision of wastewater treatment and disposal services to the sewered areas of Bridgetown and the south coast (GOB, 2010; BWA, 2015)

IMPROVING ACCESS TO CLEAN DOMESTIC ENERGY

One of the four goals articulated in the Government's Medium-term Growth and Development Strategy (MGDS) 2013-2020 is to "enhance energy and environmental sustainability in the context of the Green Economy", primarily by reducing the country's dependence on fossil-fuels (GOB, 2013a).

The Barbados Light & Power Company Limited (BL&P), the island's sole electricity utility provider, has four current and planned programmes and facilities that enhances access to clean domestic energy: the Renewable Energy Rider (RER) Programme, Unit CG02 (Waste Heat Turbine), Lamberts Wind Farm, and St Lucy Solar Farm.

First introduced in the 1970s, the number of solar water heaters in Barbados had grown to approximately 40,000, with more than 30,000 domestic installations by 2014. This indicates a significant penetration by the industry into the domestic market.

IMPROVING ACCESS TO SUSTAINABLE MEANS OF TRANSPORT

The market penetration of hybrid and electric vehicles (EVs) in the country is low. More awareness is needed among the population to promote the transition to sustainable forms of transportation. Beyond improved awareness, it is also suggested that more persons would be inclined to purchase low-emission vehicles if there were more affordable and calls have been made on Government to work with providers and reduces the import duties on hybrid vehicles to increase their market penetration.

In relation to public transport, the Government has expressed its interest in sourcing electric and hybrid buses powered from renewable sources as a means of greening the transportation sector (GOB, 2013b).

SUMMARY OF CHALLENGES, LESSONS AND ISSUES

Since independence in 1966 the Government of Barbados has continued to develop an institutional infrastructure to address many of the physical, economic and social issues that Habitat III is concerned with as detailed above in relation to physical development plans, ministries and agencies responsible for physical planning, housing and basic services, transport, the environment, citizen safety, economic development, and specific vulnerable groups (youth, elderly, persons with disabilities, and gender). However, the country has faced a number of challenges in implementation over the period since Habitat II, and is currently presented with a number of cross-cutting future challenges such as: increased frequency and intensity of extreme weather events; increased pollution threats; an ageing population; high levels of unemployment, particularly for the youth and young females specifically; and falling household sizes which creates further demand for housing in a land scarce country. The National Report for Barbados for Habitat III presents a number of implementation challenges with several recurring themes which include:

- **Institutional Challenges:**
 - o Fiscal constraints in maintaining and updating infrastructure, as well as for the modernisation of the overall institutional infrastructure; the issue of the transportation infrastructure (public transport, parking, hybrid and electric vehicles) is particularly relevant here;
 - o Delays in the implementation of policies and plans;

- o Lack of timely communication between Government agencies;
- o Lack of active engagement of the private sector by Government, and apathy by the private sector itself, in relation to planning and implementation of national policies and strategies;
- o Suboptimal institutional capacity to plan, implement, manage, and monitor and evaluate policies and programmes; as well as greater synthesis needed between physical, economic and social plans/strategies;
- o Lack of legal standing of the Building Code;
- o Lack of integration of gender, youth and elderly issues into national policies;
- **Economic challenges:**
 - o Lack of economic growth leading to lack of fiscal ability of Government to address institutional challenges, high levels of unemployment, and poverty;
 - o Lack of internalising of the cost of activities detrimental to the environment (air and water pollution, garbage disposal);
 - o Competing demand among sectors (e.g. residential, tourism, agricultural).
- **Social Challenges:**
 - o Stigma and discrimination and cultural stereotypes disadvantaging vulnerable groups;
 - o Changing structure and conceptualisations of family and community and falling household sizes;
 - o Preference for low density housing in a land scarce country;
 - o Preference for private transport;
 - o Lack of societal understanding of the impact of human activity and behaviour on the environment (water use, air pollution, garbage disposal) which also affects level of recycling;
- **Environmental Challenges:**
 - o Natural Environment:
- **Land erosion and slippage, sea level rise, air pollution;**
 - o Built Environment:
- **Unsafe and unsuitable buildings and public spaces;**
- **Derelict buildings and vacant lands presenting health threats.**

Some of the other challenges and issues to arise in relation to the specific key areas of the National Report are outlined below.

Table 3: Other Challenges and Issues by Key Area

Urban Demographics
• Increases in unoccupied dwelling units;
• The development of a market for the development of agricultural land for residential development;
• Challenges in increasing employment: lack of skills demanded by industry; lack of utilisation of public employment placement programmes; and stigma and discrimination related to age and gender;
• Challenges in addressing crime and violence: addressing youth crime, particularly male youth as both perpetrator and victim; domestic violence, which is mainly intimate partner-based; and crimes against the elderly, particularly elder abuse and the misuse of their assets.
Land and Urban Planning
• Potential for contamination of groundwater due to the pervious nature of coral rock;
• Restricting activities above aquifers;
• Upkeep of green spaces, stigmatisation of agriculture, and a lack of penetration of renewable energy transportation.
Environment and Urbanisation
• Lack of enforcement of illegal parking legislation;
• Lack of use of flexi-time working;
• Lack of comprehensive environmental legislation impeding EPD's ability to adequately regulate air quality;
• Lack of monitoring of the causes and consequences of climate change;
• Lack of development of comprehensive strategies to address CC and DDR;

<ul style="list-style-type: none"> • Layout of road network in Bridgetown contributing to traffic congestion and air pollution; • Exposure of roads to flooding and storm surge.
Urban Governance and Legislation
<ul style="list-style-type: none"> • Challenges in the implementation of e-government initiatives: determining data ownership; difficulties in interconnectivity and information sharing; inadequate physical infrastructure; need for a single IT unit and common standards; and IT personnel; • Lack of legislation in relation to sexual harassment and discrimination; • Delays in the completion and adoption of policies on gender and ageing to allow for drafting and implementation of relevant legislation and institutions; • Need for a more symbiotic relationship between the UDC and the RDC, given the complementarity of their operations.
Urban Economy
<ul style="list-style-type: none"> • Need to collect data to reflect the physical configuration of the urban economy so that a better analysis of its growth and development can be undertaken; • Lack of exploitation of the full potential of Bridgetown with a lack of restoration and development of historic buildings which are currently in state of disrepair and perceptions of high crime levels.
Housing and Basic Services
<ul style="list-style-type: none"> • Several factors affect the economics and rate of development of renewable energy in Barbados: Natural resource availability; Availability of proven technology; Technology cost and financing options; Energy cost; Transmission issues (proximity to the grid and connection costs); Land availability; Legislative, regulatory and policy framework; and Social acceptance.

BARBADOS HABITAT III NATIONAL REPORT

INTRODUCTION

Barbados is the most eastern of the Caribbean islands with a 2010 population of 277,821 on a land area of 430 km². With a population density of 646 persons per km², the country is the twelfth most densely populated country in the world¹. The island consists of 11 parishes with individual densities ranging from 2,270 persons per km² in St. Michael in the south-west where the capital Bridgetown is located, to 143 persons per km² in St. Andrew in the north-east. The capital Bridgetown is located in the south-west of the country and the majority of the population resides in the coastal areas in the west, south and south-east.

The island is comprised of the National Centre of Central Bridgetown, a series of regional centres including Speightstown and Holetown along the western coast, Oistins on the southern coast, and the inland centre of Six Roads in the south-east. There are also suburban centres, located at Wildey and Warrens, local centres, and mixed-use corridors.

Since the 1970s the country has been guided by a Physical Development Plan (PDP). The original PDP of 1970 came into effect in 1973, with the first amendment in 1986, which was officially adopted in 1991. The 1986 PDP Amendment was motivated by increased congestion in the capital Bridgetown and accelerating suburbanisation, and proposed a series of strategies for decentralisation to provide for more regionally balanced development. Benefits of the 1986 plan were noted in the 2003 PDP Amendment as: '...better access for rural residents to a range of urban services, more concentrated growth patterns, and potential reduced growth in commuting pressure' (p.1-2). The 2003 PDP Amendment indicated that the 1986 plan was partly successful, with shortcomings seen in relation to the continued concentration of industrial and commercial growth in Bridgetown and adjacent suburban areas. To address these shortcomings as well as other challenges, such as the need for employment growth in Bridgetown and surrounding areas, and increased residential development in suburban areas, the 2003 PDP was developed, and subsequently adopted in 2008.

In addition to updating the 1986 PDP Amendment to address emerging development trends, the 2003 PDP Amendment was also governed by the principles of sustainable development:

'...protection of the natural environment and cultural heritage resources; establishment of criteria and procedures for Environmental Impact Assessments; ... minimise the negative environmental and social impacts of scattered urban development, by concentrating new growth into a defined urban corridor; protection of agricultural lands from incompatible urban development; ...encourage a wide range of employment opportunities in mixed-use centres and corridors and in key employment areas in a variety of locations throughout the island; maintenance of Central Bridgetown as the nation's primary location for financial institutions, offices, shopping and other commercial activities...' (p.1-3, 1-4)

The 2003 PDP Amendment is currently in the preliminary stages of revision.

As a consequence of a deliberate policy to address congestion in the main urban centre Bridgetown, a strategy of decentralized development, primarily in the western, southern and south-eastern areas has led to the development of commercial hubs (e.g. Warrens and Wildey) that have accommodated new urban growth and provided a more regionally balanced development pattern. Thus, even in the most rural of parishes in Barbados, a range of urban services including health care, retail, Government administration, business services and education, are accessible for the majority of the population. There is also an extensive utilities infrastructure (electricity, water, telecommunications) which covers the majority of the island, although there are concerns over the ageing of the water network in places.

In defining urban in the context of Barbados, the 1970 PDP represented population distribution at the time and identified the built-up areas with marginal agricultural land that were suitable for urban expansion. The 1986 PDP Amendment, building on the 1970 PDP, clearly defined a limit for the urban zone stretching from Maycock's Bay in the north-west along the coast to the south and then east to Ragged Point in St. Philip. This urban zone was extended to the north to Checker Hall in the 2003 PDP Amendment and the term Urban Corridor (UC) adopted. As demonstrated in Map 0-1, the Urban Corridor (UC) is mostly coastal and stretches inland from the north western coastline to the south eastern coastline.

¹Comparison based on World Development Indicators (WDI) estimates of 2010 to 2014 populations. The only countries in the Western Hemisphere with higher population densities than Barbados are: Monaco (18,812 persons per km²); Bermuda (1,304 persons per km²); and Sint Maarten (Dutch) (1,108 persons per km²).

In part, the rationale for defining urban in the context of the Urban Corridor (UC) for this report, as opposed to simply the capital Bridgetown, was that the UC indicates the area where policy is being applied to constrain the majority of urban development and, over time with reference to this area, the effectiveness of policy can be assessed. Although every effort is made to concentrate the analysis on the UC, many of the issues addressed in the report relate to the national level, especially in the discussion of specific demographic groups (the youth, the elderly and women) which are not specific to the UC. However, where feasible, data from the 1990, 2000 and 2010 censuses of housing and population are utilised to highlight trends in the UC in contrast to the rest of the country².

In constructing the report a number of Government documents were reviewed as well as other publications of relevance. These are detailed in the reference section of this report. Following the analysis of documentation, extensive interviews were conducted with persons across the public, private and NGO sectors to confirm the validity of documentation analysed, identify tentative conclusions, provide insight into challenges experienced over the period 1996 to present, and views on potential future challenges. Policy recommendations were also elicited from respondents. The analysis is also informed from the National Consultation on Housing and Sustainable Urban Development *'Towards a New Urban Agenda'* conducted in July 2015 under the aegis of the Ministry of Housing, Lands and Rural Development, and comments and insights from the National Habitat III Committee on previous versions of this report.

²It should be noted that, due to the Electoral District (ED) approach in the collection of census data, the UC boundary does not neatly map onto the various ED boundaries. To ensure consistency in the inclusion or exclusion of an ED in the UC, the protocol for inclusion was whether the majority of dwellings in the ED lay inside or outside of the UC.

Figure 0 1: Outline of the Urban Corridor for Barbados



Source: Physical Development Plan of Barbados 2003 Amendment

I. URBAN DEMOGRAPHICS

1. MANAGING RAPID URBANISATION

Approximately 66% of the population of Barbados resided in the Urban Corridor (UC) in 2010, falling from 68% in 2000. The country is therefore not experiencing rapid urbanisation as the population share in the UC has actually fallen, with a general movement to the parishes immediately surrounding St. Michael, the location of the National Centre of Bridgetown. Over the period 1990 to 2010 the population density in St. Michael fell with a consequent increase in the contiguous parishes of Christ Church, St. James, St. George and St. Thomas, as well as significant increases in the south-eastern parish of St. Philip which saw its population increase by 49.3%. The rural parishes in the east experienced some decreases, while the northern parishes did not experience any significant changes.

Table I 1: Population Levels and Changes by Parish (1990 to 2010)

Area	2010 Density (persons/ km ²)	Density Change 1990 to 2010	Census Year			Change (%)		
			1990	2000	2010	1990- 2000	2000- 2010	1990- 2010
St. Michael	2,270	-230	97,516	91,025	88,529	-6.66	-2.74	-9.22
Christ Church	953	+128	47,050	52,922	54,336	12.48	2.67	15.49
St. James	919	+242	21,000	24,270	28,498	15.57	17.42	35.70
St. Philip	511	+169	20,540	24,566	30,662	19.60	24.81	49.28
St. George	449	+42	17,905	19,048	19,767	6.38	3.77	10.40
St. Thomas	419	+78	11,590	13,260	14,249	14.41	7.46	22.94
St. Peter	332	+1	11,263	11,405	11,300	1.26	-0.92	0.33
St. Lucy	271	+8	9,455	9,991	9,758	5.67	-2.33	3.20
St. John	264	-37	10,206	9,448	8,963	-7.43	-5.13	-12.18
St. Joseph	255	-38	7,619	7,244	6,620	-4.92	-8.61	-13.11
St. Andrew	143	-34	6,346	5,613	5,139	-11.55	-8.44	-19.02
Total	646	+40	260,491	268,792	277,821	3.19	3.36	6.65
Source: Barbados Statistical Service Census of Housing and Population (1990, 2000, 2010)								

The population is also aging. In 1990 the proportion of under-15s was 24.1%, falling to 21.5% in 2000, and 19.7% in 2010 (Barbados Statistical Service, 2013). Projections indicate that the 60 and over will account for 25.6% of the population by 2025, up from 19.4% in 2015 (United Nations, 2015). Such a dynamic has implications for schools, housing, the physical infrastructure and the social support system³.

³Detailed information on the specific issues facing the elderly as it relates to the physical and built environments, and policies to address these are included as Appendix 1 in the companion Appendices document to this report. The main issues emerging are also noted in subsection I.4 below in relation the 'Responding to the Needs of the Aged'.

Table I 2: Housing Dynamics- Dwelling Units 1990-2010

Area	Census Year			Change		
	1990	2000	2010	1990-2000 (%)	2000-2010 (%)	1990-2010 (%)
All Units						
Urban Corridor (UC)	-	63,646	64,017	-	0.58	-
Non-UC	-	27,943	30,156	-	7.92	-
Total	82,204	91,589	94,173	11.42	2.82	14.56
Unoccupied Units						
UC	-	5,625	10,540	-	87.4	-
Non-UC	-	2,754	4,697	-	70.6	-
Total	6,993	8,379	15,237	19.8	81.8	117.9

Source: Barbados Statistical Service Census of Housing and Population (1990, 2000, 2010)

The 2003 PDP Amendment notes additional housing demand in relation to downward trends in household size: '...this results in a demand for new housing beyond what would arise strictly from population growth' (p.1-7). However, while the housing stock grew by 11.4% between 1990 and 2000, between 2000 and 2010 it only increased by 2.8% (see Table I 2). Most notably, unoccupied dwellings in the UC grew by 87% over the period 2000 to 2010. Therefore, while the number of dwelling units in the UC increased by 425 over this period, the number of unoccupied units increased by 4,915.

The Government established the Urban Development Commission (UDC) in 1997 to: '...provide services and programmes that would assist in the eradication of poverty and to enhance sustainable quality of life and high standards of living for the urban population'⁴. The UDC operates three main programmes: Community Roads Programmes; Transfer of Title Programme to facilitate the transfer of title in tenancies⁵ and 'areas of land' in the urban area; and Housing Assistance for house construction, repairs, and upgrades, including the addition of waterborne sanitation facilities. Over the period 1997 to 2005 the UDC spent BD\$30 million on house repair and replacement with over 1,300 houses built or repaired (Office of the Auditor General of Barbados, 2006), while in 2013 it built 24 new houses (Ministry of Finance and Economic Affairs, 2014). The UDC is complemented by the Rural Development Commission (RDC) which was established in 1996 to: '... provide for the improvement of social amenities, assist small farmers, and establish and develop cottage industries in rural areas' (Government of Barbados, 1997, p. 3).

2. MANAGING RURAL-URBAN LINKAGES

Adequate rural-urban linkages can reduce urbanisation and promote equity. Poverty assessments in 1996 and 2010, showed that in 1996 poverty was highest rural parishes while in 2010 poverty rates were highest in the Bridgetown area.

Table I 3: Household Poverty Levels in Barbados by Parish for 1996 and Strata for 2010

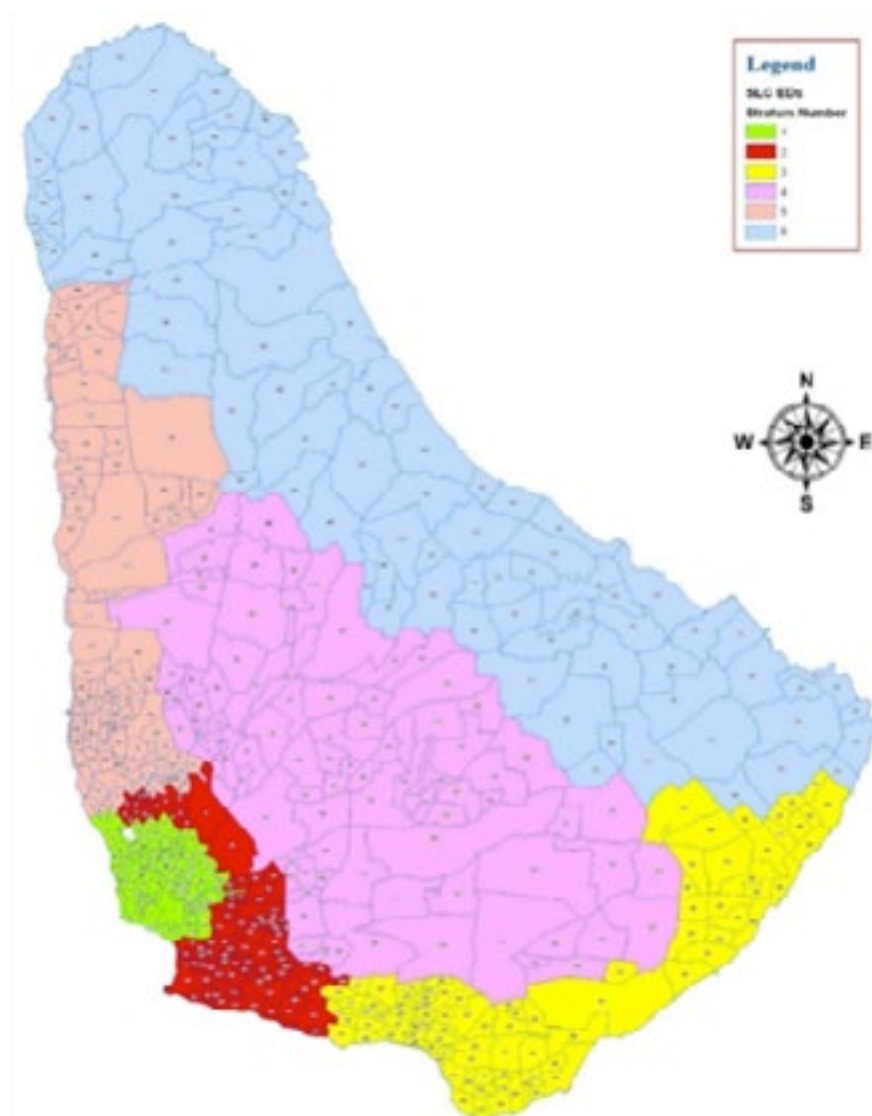
1996 Parish	Household Poverty Rate (%)	2010 Strata	Household Poverty Rate (%)
St. John	13.9	1. Greater Bridgetown	18.4
St. Andrew	11.8	2. Outer Urban	17.6
St. Lucy	10.5	3. South East	13.1
St. George	10.2	4. Central	12.0
St. Thomas	9.7	5. West	12.3
St. Philip	9.6	6. North and East	16.9
St. Peter	9.1	Total	15.0
St. Michael	8.9		
St. Joseph	7.3		
Christ Church	6.8		
St. James	4.4		
Total	8.7		

Sources: 1996: Inter-American Development Bank (IDB) (1998); 2010: Caribbean Development Bank (2012)

⁴ See http://www.udc.gov.bb/index.php?option=com_content&view=article&id=13&Itemid=2 [Accessed 13th May 2015]

⁵ 570 tenancies by the end of 2013 (Ministry of Finance and Economic Affairs, 2014)

Figure I 1: Strata from Survey of Living Conditions



The island's road network scores 100% on the Rural Access Index⁶ (RAI) and there are 1,750km of roads of which 80% are paved (IADB, 2015). The road density was measured at 372km per 100km² of land area in 2000⁷, ranking 7th in the world and highest in the Caribbean. However, IADB (2015) notes that 30% of paved roads are in poor condition, a key factor in the Government attaining a US\$20 million loan from the IADB for the project 'Road Rehabilitation and Improving Connectivity of Road Infrastructure'. In addition to public and private bus services operating throughout the country transporting rural residents to employment and education in the UC, there are an estimated 109,400 private vehicles, approximately 2 adults per private vehicle. This high level of private vehicle use and extensive bus services does however have implications for traffic congestion and wear and tear of roads and vehicles as rural commuters to the UC, and those traversing the UC for work or education, converge. This situation is exacerbated by the general movement of goods and services across the UC on a daily basis.

There is a high level of access to water, electricity and telecommunications. In 1990, 94.0% of households had access to water, either piped into the dwelling (80.3%) or the yard (13.7%). By 2000, this had increased to 96.5%, and by 2010 to 96.7%. The marginal differences seen between the UC and the rest of Barbados

⁶ The RAI provides an estimate of the proportion of the rural population that is within 2km of all-weather roads (see <http://www.worldbank.org/transport/transportresults/headline/rural-access.html>)

⁷ World Development Indicators (WDI)

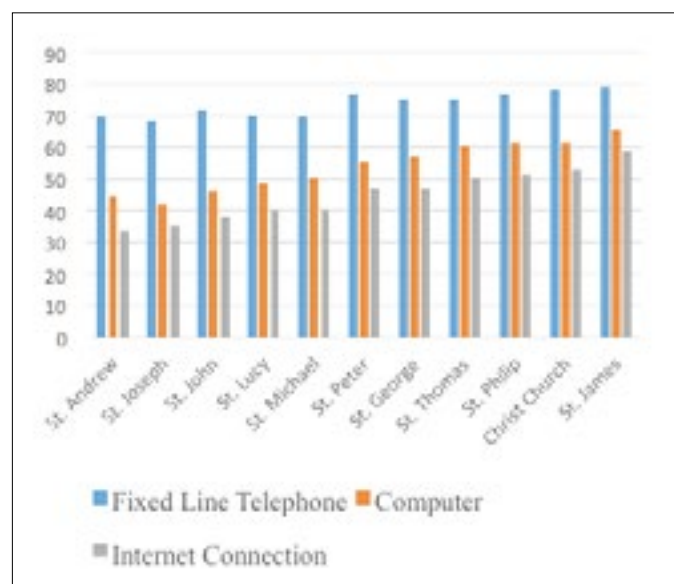
is shown in Table VII 9. A similar situation to access to water is seen with toilet facilities, where 87.2% had a WC not linked to a sewer (e.g. septic tank) and 4.1% had a WC linked to a sewer; 91.3% in total. The most dramatic change in toilet facilities over the period 1990 to 2010 is the dramatic decrease in the use of pit latrines from 32.1% in 1990 to 16.5% in 2000, with a further decline to 5.9% in 2010. This reduction has been greatly assisted by the Government's Pit Latrine Eradication Programme operated through the UDC.

Between 1990 and 2000, electricity as main source of lighting increased from 92.6% to 96.5%. In 2010, CDB (2012) indicated that the proportion had increased marginally to 96.6%. Overall, the country has a wide electricity distribution network. In 2010, while approximately 74% of households had a fixed line telephone, only 45% had an internet connection. There was however an unequal distribution of internet connections where the most rural parishes (St. Andrew, St. Joseph and St. John) exhibited a penetration ratio of less than 40% as opposed to the urban parish of St. James with the highest ratio of nearly 59%.

Unlike water and electricity access, the access to piped natural gas is low, with only 17% of households utilising this natural gas for cooking; the majority of households use LPG cylinders for cooking and only 4.5% use electricity.

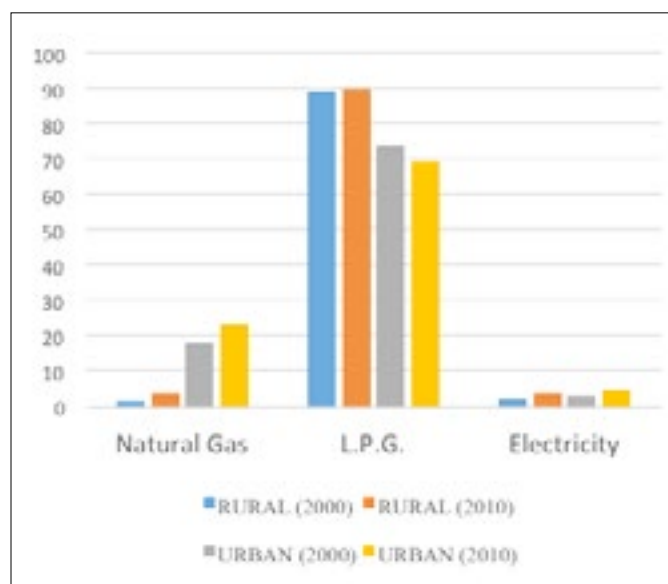
Figure I 2: ICT Use and Main Fuel Use for 2010

Dwelling Units Use of ICT by Parish (2010) (%)



Source: Barbados Statistical Service (2013)

Main Fuel Used for Cooking by Area in 2000 and 2010 (%)



Source: Barbados Statistical Service (2013)

3. ADDRESSING URBAN YOUTH⁸ NEEDS

Between 1990 and 2010, the youth share of the population fell from 17.8% to 13.3%. In 2010, youth accounted for 13.3% of the urban population and 13.6% of the rural population. Overall, 65% of the youth resided in the UC. Youth suffer higher poverty rates than the general population, with nearly 24% of youth categorised as poor in 2010, as opposed to a population rate of 15%.

⁸ Youth are defined as those between the ages of 15 and 24 years.

Table I 4: Poverty Status of Youth in 2010

Poverty Status	Youth (15-24)	Population
Indigent Poor	13.4	6.9
Non-Indigent Poor	10.3	8.1
Vulnerable	10.4	10.2
Non-poor	65.8	74.9
Source: CDB (2012)		

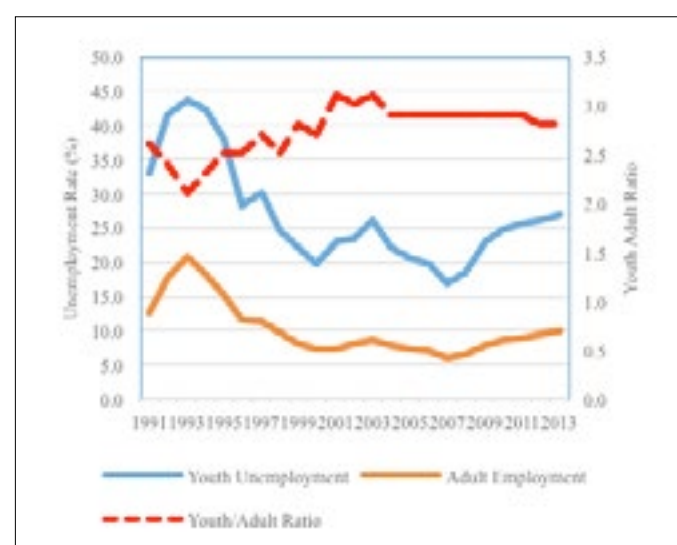
Figure I 3: Main Activity by Age Group- 2010 by Urban and Rural



Source: Barbados Statistical Service

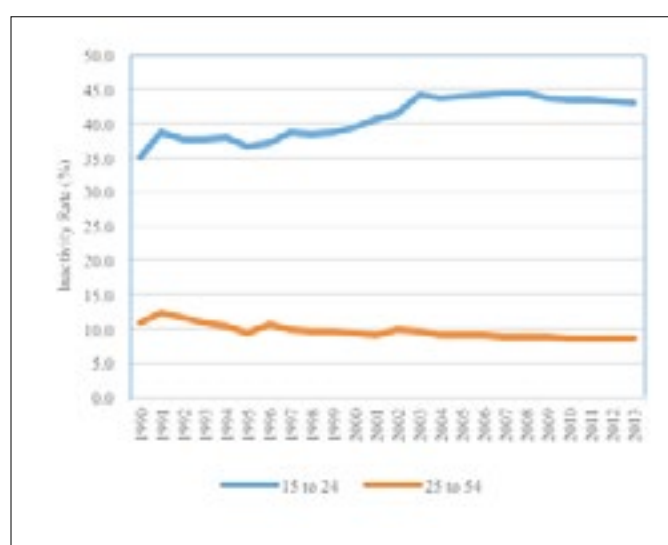
A large proportion of the 15-19 age group are in education, which is compulsory to age 16. The 2010 Country Assessment of Living Conditions (CALC) indicated that 42% of those in education were at secondary school, 47% were in tertiary education and 11% were in vocational training. For unemployed youth, 34% had never worked, while 29% had been out of work for up to 6 months, 19% for between 6 months and one year, and 18% had been unemployed for over one year. Overall, youth unemployment has been nearly three times that of adults since 2000, and in excess of a third of the youth are outside of the labour market, as measured by their inactivity rates. In addition to unemployment, the Government also notes the issues of drug abuse, health, crime, violence and gangs as issues challenging youth (Barbados Economic Affairs Division, 2013).

Figure I 4: Unemployment and Inactivity Rates by Age for 1991 to 2013 (ILO Estimates)



Source: KILM 8th Edition

Note: Youth defined by ILO as 15 to 24, while adults are those over 24 years of age.



Source: KILM 8th Edition

Note: Inactivity defined by the ILO as the proportion of the working-age population that is not in the labour market.

The Division of Youth Affairs is the public institution responsible for youth in the country, currently operating under the Ministry of Culture, Sport and Youth. The Division was established in 1995, and currently oversees five programmes:

1. The Barbados Youth Service (BYS) addresses youth-at-risk between the ages of 16 and 22, and provides: training in adolescent development; skill development; and work experience. It runs for 12 months with a residential component, enrolling a maximum of 80 trainees per year. In 2013, 65% of trainees were male (Ministry of Finance and Economic Affairs, 2014).
2. The Youth Development Programme (YDP) focusses on 9 to 30 year olds, with operations in four geographical zones (North, South, East and Central), and 32 districts, with each addressing the needs of the approximately 3,000 young persons. Each zone is overseen by a Senior Youth Commissioner, while each district is overseen by a Youth Commissioner. Activities include: collecting data on youth; facilitating access to Government services; supporting youth groups; liaising with other related organisations; and maintaining directories of services, programmes and related organisations.
3. The Youth Entrepreneurship Scheme (YES) promotes self-employment for those under 30. The scheme provides technical assistance, facilitates access to finance, mentorship, enterprise development training, and accounting and marketing services. In 2013, YES assisted in the creation of 12 new enterprises, facilitated access to finance for 4 clients, provided marketing support for 20 enterprises and trained 81 persons (Ministry of Finance and Economic Affairs, 2014).
4. The Youth Mainstreaming Programme (YMP) targets 'unattached' youth to facilitate their access to training and subsequently productive employment. It facilitates access to training through partnerships with: the Samuel Jackman Prescod Polytechnic where 285 students undertook training in 2013; the Hospitality Institute, with 336 undertaking training in 2013; and the Barbados Vocational Training Board, with 56 undertaking training in 2013 (Ministry of Finance and Economic Affairs, 2014).

Apart from the geographic divisions of the YDP, youth programmes do not differentiate between urban and rural youth.

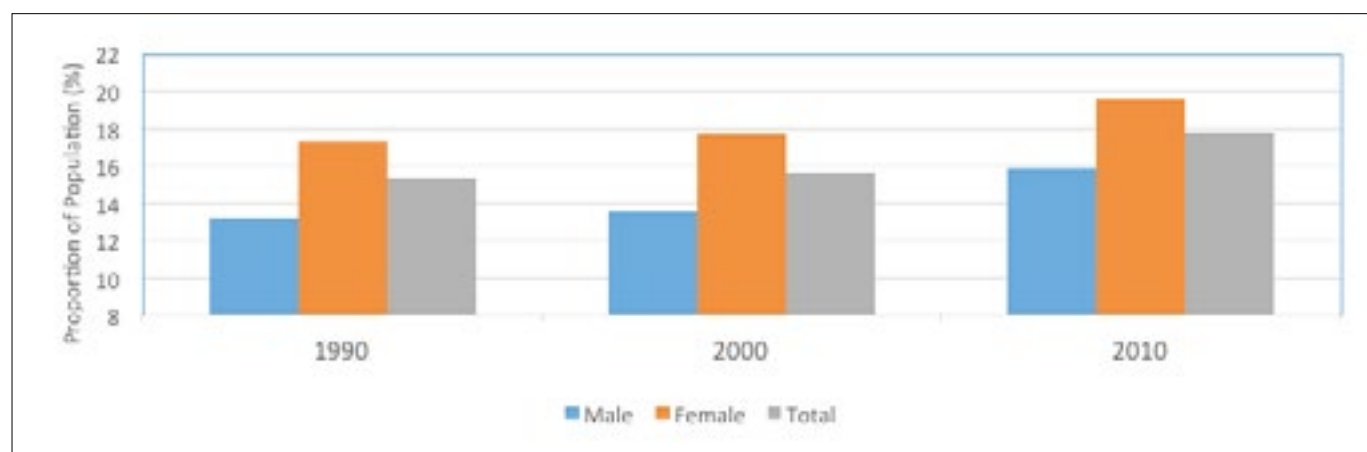
4. RESPONDING TO THE NEEDS OF THE AGED⁹

In 2010, the aged accounted for 18% of the urban population and 16% of the rural population. Overall, 69% of the elderly resided in the UC. The majority of the aged are retired (68.8%), while 21.9% are employed, with 16.9% categorised as poor in 2010, marginally above the population estimate of 15%. To date Barbados has not adopted a policy on ageing, although a White Paper on Ageing was tabled in Parliament in 2013.

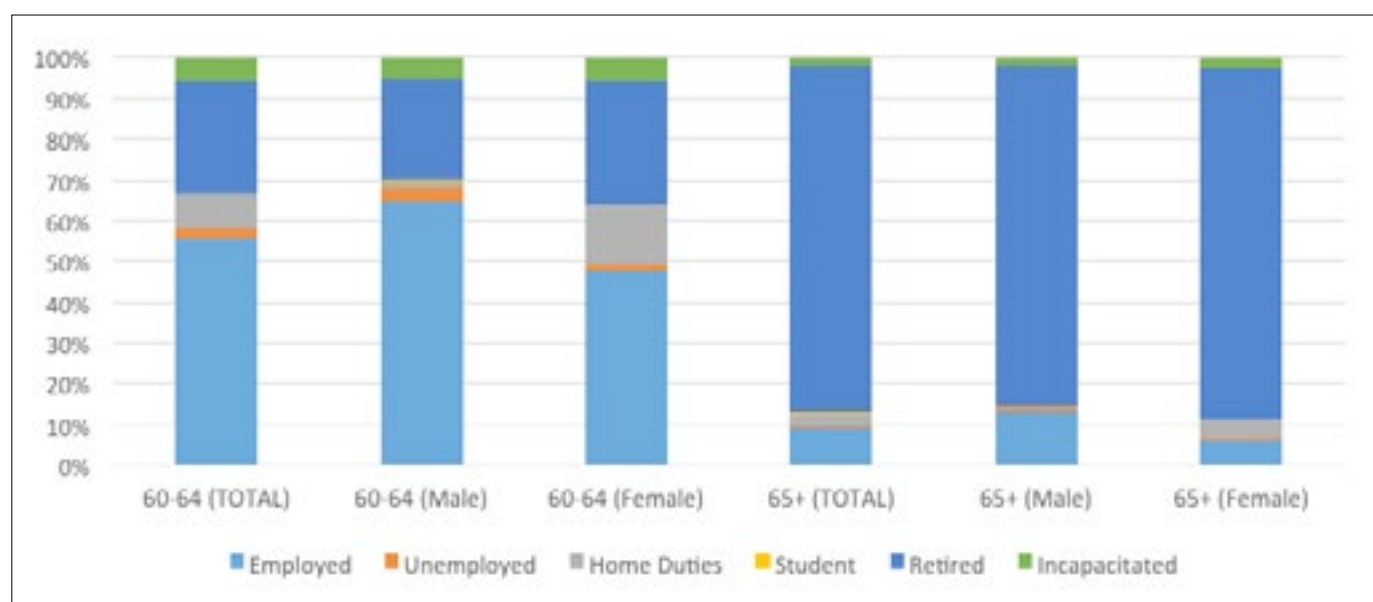
Table I 5: Poverty Status of the Aged (2010)

Poverty Status	Elderly (60+)	Population
Indigent Poor	8.4	6.9
Non-Indigent Poor	8.5	8.1
Vulnerable	10.6	10.2
Non-poor	72.4	74.9
Source: CDB (2012)		

⁹ The aged are defined here as those 60 years and over in keeping with the age range used in the Madrid International Plan of Action on Ageing which was adopted by the Government of Barbados in 2002.

Figure I 5: Barbados Population 60 years and over (1990 to 2010)

Source: Barbados Statistical Service (2013)

Figure I 6: Barbados Aged Population: Main Activity in Last 12 Months (2010)

Source: Barbados Statistical Service (2013)

From a legal and regulatory perspective, elderly issues are addressed by the National Assistance Act and the National Assistance Board (NAB), which is to be renamed the Department of Elder Affairs if the National Policy on Ageing is adopted. The NAB provides a number of services to the elderly, as well as the disabled, including: home care; vulnerability assessments; active ageing recreational activities; national senior games (commenced in 2001); community nursing (pilot project); bereavement support services; residential care; and a night shelter for homeless men.

Given that many of the elderly live alone, assistance for those living independently as well as assisted living facilities are provided, including the Government's Senior Citizens' Village which provides for both categories of the elderly and Soroptimist International of Barbados (SIB) which supports seniors capable of functioning independently.

Other actions to address the needs of the elderly include: the provision of free bus services on the Government-owned Transport Board at a cost of BDS\$3 million per annum and funded through a subsidy from the Welfare Department; a Call-A-Ride system which provides Transport Board buses with wheel chair

lifts to facilitate movement of the elderly and differently-abled persons to medical appointments. The NAB has also established a Vulnerable Persons Committee (VPC) to make adequate plans for the elderly and PWD in time of national disasters.

Springer (2012), in a UN ECLAC report on ageing in Barbados, notes a number of other relevant Government interventions:

- Welfare support, with some means testing, including payment of utility and rent payments, food vouchers in crisis situations, and the provision of medical aids and general household goods.
- Institutional strengthening at the NAB and in the Ministry of Health.
- Community Technology Programme operated by the Community Development Department which provides lifelong learning opportunities in ICT for older persons.
- Smoke alarm project implemented by the Barbados Fire Service and the NAB which provides and services smoke alarms in the homes of the elderly
- Establishment of a multi-stakeholder Anti-Elder Abuse Programme Coordinating Committee.

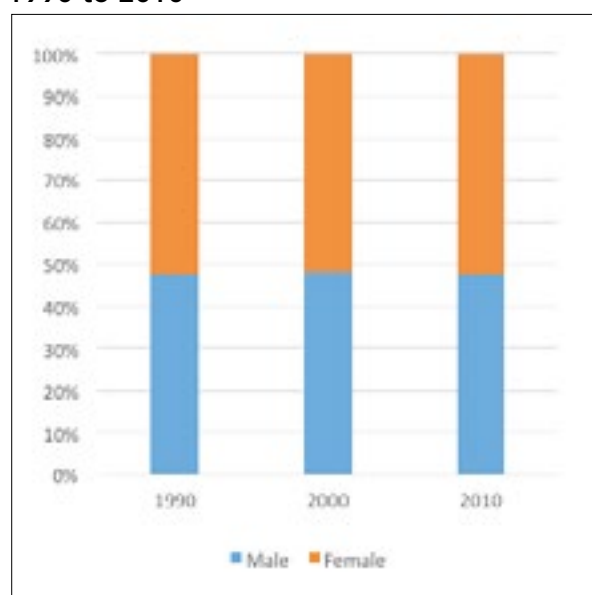
In addition to the governmental provisions for the elderly, the Barbados Association of Retired Persons (BARP) also provides advocacy and support for persons 50 years of age and over. Established in 1995, BARP has facilitated benefits and discounts for members at over 500 businesses in the country, including insurance and health services, and also facilitates educational, entertainment and social events. BARP also operates a Personal Assistance Fund for members in severe financial difficulties, and a health insurance plan exclusively for members. BARP currently has in excess of 40,000 members, which greatly assists in their advocacy efforts. Other relevant organisations for the elderly in Barbados include the Barbados Alzheimer's Association, the Barbados Elder Care Association, and the Barbados Palliative Care Association.

5. INTEGRATING GENDER IN URBAN DEVELOPMENT

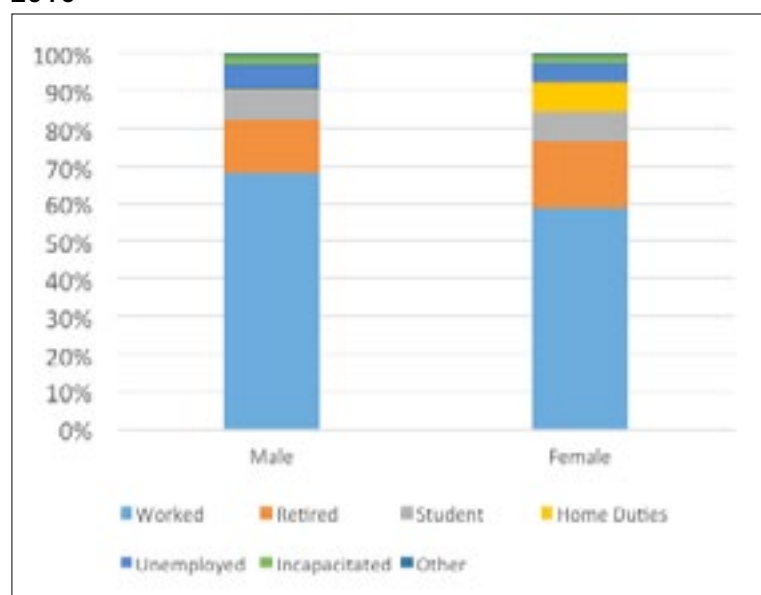
Over the period 1990 to 2010, females accounted for approximately 52% of both the rural and urban populations, with 67% of females residing in the UC. Female labour force participation has been consistently below that of males although it grew from 83.3% in 1990 to 88.2% in 2013; the rate for males fell marginally from 95.4% to 94.9%¹⁰.

Figure I 7: Population Distribution and Main Activity by Sex

1990 to 2010



2010

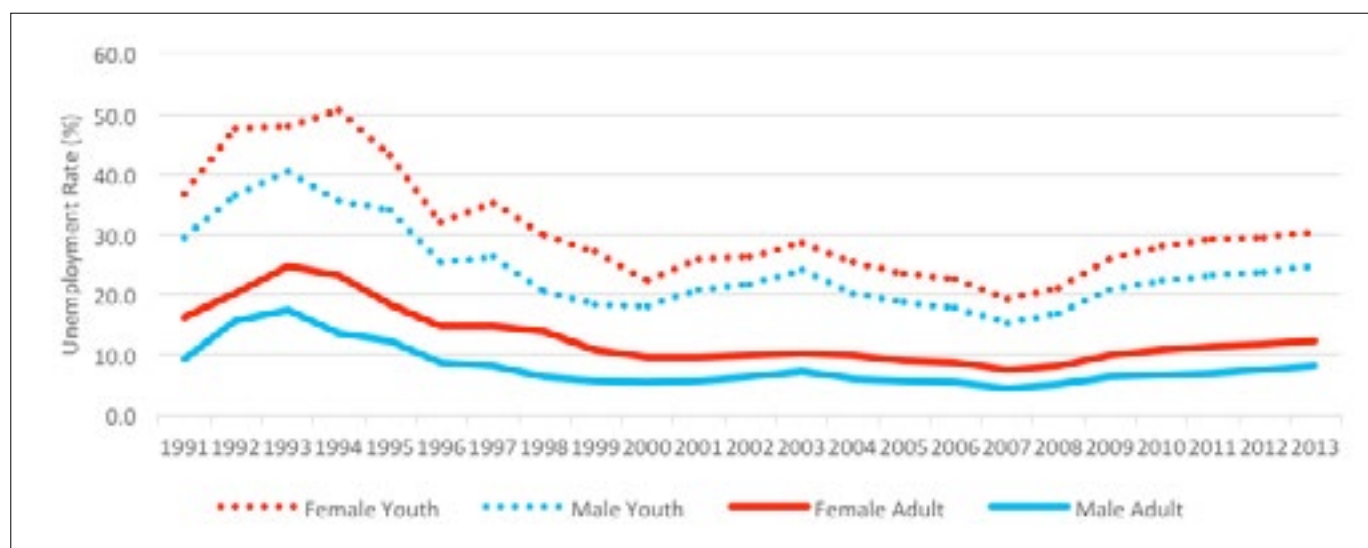


Source: Barbados Statistical Service (2013)

¹⁰ ILO Estimates from KILM 8th Edition

The other significant difference between the sexes is related to unemployment. Over the period 1991 to 2013, female unemployment rates were consistently higher than that of males (12.1% versus 7.8% in 2013). The situation is even more acute for young females with a rate of 30.4%; the male youth rate was 24.4%.

Figure I 8: Unemployment Rates in Barbados by Sex: 1991 to 2013 (ILO Estimates)

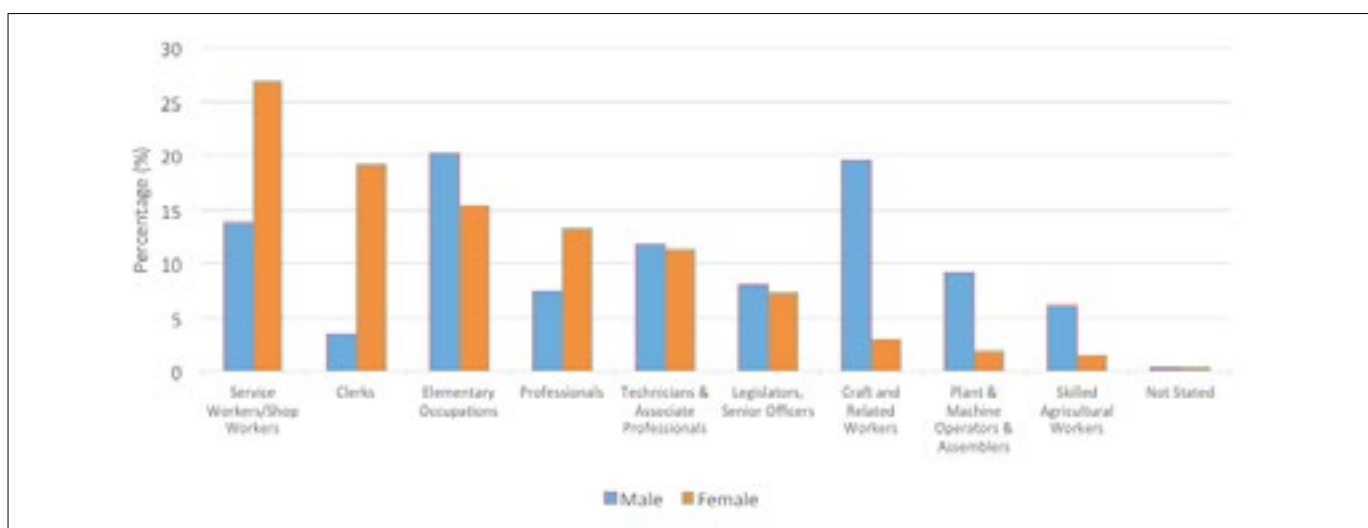


Source: KILM 8th Edition

Note: Youth defined by ILO as 15 to 24, while adults are those over 24 years of age.

Employed females are mostly in low skilled/elementary occupations; employment as service/shop workers and clerks and elementary occupations account for 61.4% of female employment, this is as opposed to 37.6% for males. However, legislators, senior officers, and professionals account for 20.6% of female employment (15.4% for males). Apart from elementary occupations, male employment is dominated by craft/related work (19.6%). There has been limited change in this distribution since 2002.

Figure I 9: Occupations by Sex for Quarter 4:2014



Source: Barbados Statistical Service (2015) Continuous Household Labour Force Survey

Females experience poverty to a greater degree than males (18.1% versus 14.6%), and also have a greater burden of care in the household. As indicated in Table I 7, poor female head of households have larger households, and suffer higher dependency ratios due to children and unemployed persons in their households.

Table I 6: Poverty Status by Sex (2010)

Poverty Status	Females (15+)	Males (15+)	Total (15+)
Indigent Poor	8.5	7.0	7.8
Non-Indigent Poor	9.6	7.6	8.7
Vulnerable	10.2	9.9	10.1
Non-poor	71.7	75.5	73.4
Source: CDB (2012)			

Table I 7: Dependency Ratios and Household Size by Sex of Head of Household

Household Status	Dependency Ratios* Household Size							Household Status
	Overall	Children (under 15)	Adult	Unemployed	In Education (15+)	Incapacitated	Retired	
Poor Female Headed	74.8	25.3	49.5	17.3	6.3	1.5	19.1	4.1
Poor Male Headed	68.6	15.1	53.5	16.8	4.4	3.1	24.9	3.2
Non-poor Female Headed	48.0	11.8	36.1	8.9	4.9	1.5	17.6	2.8
Non-poor Male Headed	43.8	9.4	34.4	5.4	3.8	1.1	20.1	2.7
All Households	49.9	12.2	37.7	8.6	4.5	1.4	19.3	2.9
*Overall Dependency is calculated as number of inactive persons in the household divided by the total number of persons in the household then multiplied by 100. A similar calculation is used for each sub-group. A dependency ratio for those 'Keeping House' was not included here. Source: Adapted from CDB (2012)								

Barbados is signatory to a number of conventions related to gender including: Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), ratified in 1980; the Beijing Platform of Action (BPoA), signed in 1996; and the Inter-American Convention on the Prevention, Punishment and Eradication of Violence against Women, ratified in 1995.

The main governmental institution dealing with gender issues is the Bureau of Gender Affairs (BGA), founded in 2000 to replace the Bureau of Women's Affairs. UN ECLAC (2014:22) notes the main responsibilities of the BGA as:

- 'Facilitating gender mainstreaming of national development policies and programmes...
- Advising Government Agencies and NGOs on policy matters affecting the status of women and men...
- Liaising with Regional and International Agencies and NGOs...
- Implementing, monitoring and evaluating Government policies, plans and programmes...'

Although the country has made progress in relation to addressing gender disparities, there remains concern in relation to: violence against women, gender mainstreaming, and women in decision-making.

In 1998 the police force established a support group for victims of robbery, sexual offences, burglary and domestic violence, and in 1999 a shelter for battered women was founded by the Government and operated by an NGO, the Business and Professional Women's Club. In addition to these actions, the police train officers in domestic interventions. A Family Conflict Unit has also been established to provide support to victims of domestic violence. As a result of these actions: 'Victims of domestic violence can now: Report incidences at any police station; the police is [sic] now ordered to assist the victims in the gathering of health and other data required for the collection of evidence; Police officers are now mandated to record every report of domestic violence' (Division of Gender Affairs, UN ECLAC, 2014, p. 8).

6. IMPLEMENTATION CHALLENGES AND LESSONS

Despite attempts to concentrate development in the UC, a complex interplay of issues has resulted in: some movement out of the UC, although this does include planned development outside of the UC as described in the 2003 PDP Amendment; an increase in unoccupied dwelling units; and a lack of development of vacant lots, derelict buildings and infilling. There are several interrelated implementation challenges driving these occurrences:

- As noted at the National Consultation on the New Urban Agenda notes: 'While urban rejuvenation was important, it had to take into account what Barbadians would consider as pleasing places in which to live such as a good quality environment, opportunities for employment and job creation' (p.20). Such a desire has contributed in part to growth outside of the UC.
- General legislative and institutional issues that have constrained urban infilling and the rehabilitation of derelict buildings including: lengthy procedures and lack of funds for acquisition; difficulty in identifying land owners; and small randomly distributed lots and the inability to secure contiguous plots to make infilling development viable.
- The presence of a market for the development of agricultural lands for residential development fuelled by: a desire to reside in low density housing outside of the UC at affordable prices; greater mobility due to car ownership; and the development of rural-urban linkages and accessible services at the margin of the UC facilitating easy access to services from rural areas. This demand is complemented by falling returns to agriculture, and as noted at the National Consultation for Habitat III: 'One of the challenges of preserving agricultural land is increasing pressure by land owners who want to use their land for residential purposes, given the prevailing high cost of residential land' (p.24).
- Geological issues, specifically in the Scotland District, have resulted in some difficulties in maintaining rural-urban linkages¹¹.

There are also a number of issues faced by specific vulnerable groups including poverty, unemployment, and crime and violence.

Challenges in increasing employment include: depressed economic activity since 2008 due to the global financial crisis; lack of skills demanded by industry; lack of utilisation of public employment placement programmes; and stigma and discrimination related to age and gender.

The delayed implementation of policies related to gender and the elderly hampers the activation of programmes to address the issues affecting them; the policy framework on ageing has been worked on since 1999 and the White Paper on Ageing was not tabled in Parliament until June 2013. Consequently related legislation and national machinery for elder affairs has not been implemented (Springer, 2012).

In relation to gender, the Division of Gender Affairs of UN ECLAC (2014:23) notes:

'Despite the importance given to the National Strategic Plan of Barbados (2005-2025) to achieve gender equality and mainstreaming gender into national priorities and initiatives, in practice gender is not a priority. This is evidenced in the 'gender neutral' stance that does not recognize barriers to gender equality.'

A similar picture is seen with ageing:

'...Government entities demonstrate a marked passivity of response to older persons' issues and it is evident that the full understanding of the implications of population ageing have not been absorbed across the national psyche... Age mainstreaming is still not considered as a central public policy issue in spite of all the international and locally generated pronouncements.' (Springer, 2012, p. 6)

In relation to the issue of addressing crime and violence, some of the main challenges relate to: addressing youth crime, particularly male youth as both perpetrator and victim; domestic violence, which is mainly intimate partner-based; and crimes against the elderly, particularly elder abuse and the misuse of their assets.

¹¹ White Hill Road in St. Andrew was washed away in a landslide in November 2014, affecting 105 households' access to the road network. Other areas historically affected areas include Spring Vale in St. Andrew, Dark Hole and Parks Road in St. Joseph.

The institutional issues in addressing crime and violence relate mainly to: a lack of disaggregated data on crime, particularly in relation to data on perpetrators and victims to allow for the design of suitable intervention strategies; lack of focus on crime prevention and reduction, and a focus on punishment instead of rehabilitation; lack of integrated support for victims; lack of adequate human resources for policing and prosecution; and lack of modern legislation to deal with such issues as sexual harassment and spousal rape, and fraud in relation to the assets of the elderly.

Table I 8: Summary of Implementation Challenges and Lessons Learnt

Measures Implemented	Institutional Challenges	Economic Challenges	Social Challenges	Environmental Challenges
Managing Urbanisation PDP TCDPO UDC RDC NHC	<p>Delayed implementation of PDPs.</p> <p>Lack of success in rehabilitating derelict buildings and urban infilling due to difficulties in locating owners and lack of utilisation of legislated development powers.</p> <p>Difficulties in upkeep and maintenance of low income housing.</p> <p>Deficits in institutional capacity (human resources, finance, and technology).</p> <p>Lack of monitoring and evaluation procedures to gauge effectiveness of measures implemented.</p>	<p>Lack of fiscal space to address institutional challenges, as well as provide incentives for urban renewal.</p> <p>High cost of land in coastal areas of UC, availability of land outside of the UC, and availability of services on the periphery or outside of the UC, leads to increasing demand for housing outside of the UC.</p>	<p>Increased demand for land and low-density housing outside of UC as incomes increase and concepts of family and community change.</p>	<p>Loss of rural land to soil erosion, land slippage, and poor agricultural practices</p> <p>Loss of coastal land due to erosion, sea level rise</p> <p>Air pollution from increased traffic congestion in UC with majority of economic activity located in this area.</p>
Managing Urban-Rural Linkages Ministry of Transport and Works (MTW) Transport Board (TB) Barbados Water Authority (BWA) Barbados Light and Power Limited (BL&P) Division of Energy and Telecommunications (DET) National Petroleum Corporation (NPB) Private Telecommunications Companies: LIME, Digicel, Flow	<p>Ageing infrastructure and public transportation fleet and lack of finance to maintain and replace.</p> <p>Financial challenges in expanding natural gas and sewerage networks.</p> <p>Weak institutional capacity to plan, design, construct and manage network infrastructure in a period of increased demand for connectivity.</p>	<p>Lack of fiscal space to maintain and update infrastructure and vehicles and strengthen institutional capacity.</p> <p>Increased vehicle usage (private and commercial) with increasing incomes and internal trade causing increased wear and tear of road network.</p> <p>Poor roads cause excessive vehicle wear and tear leading to increased operating costs and foreign exchange costs in importing replacement parts.</p>	<p>Increased demand for private transport due to increased affluence as well as stigmatisation of public transport (symbolic articulation).</p>	<p>Topography and weather events compromising network infrastructure (roads, water and gas pipes, and telephone and electricity poles).</p>

Measures Implemented	Institutional Challenges	Economic Challenges	Social Challenges	Environmental Challenges
Addressing Youth Needs Ministry of Culture, Sport and Youth Division of Youth Affairs (National Youth Service; Youth Development Programme; Youth Entrepreneurship Scheme; Youth Mainstreaming Programme) National Youth Policy Community Development Department Drug Abuse Resistance Programme TVET network	<p>Lack of significant integration of youth policies with national development policies; leads to duplication of interventions across ministries/agencies.</p> <p>Lack of uptake of support programmes by youth.</p> <p>Lack of human and financial resources to: ensure programme effectiveness; collect, collate and analyse data for monitoring and evaluation of interventions.</p> <p>Lack of integration of the needs of industry within the secondary education system. Treatment of youth issues as social safety-net issues rather than economic empowerment issues.</p>	<p>High levels of unemployment and consequently poverty due to: lack of economic growth; stigma and discrimination due to age; and lack of relevant skills and work experience required by employers.</p> <p>Lack of fiscal space to expand effective programmes/implement new programmes.</p>	<p>Conceptualisation by society of youth as a problem rather than an asset.</p> <p>Social exclusion/disenfranchisement of youth leading to: participation in risky activities (drug abuse, risky sexual practices, transactional sex, crime, violence and gangs); and lack of participation in public sector interventions.</p> <p>Social views of self-employment not wholly positive.</p>	<p>Lack of green spaces in central urban areas.</p>
Responding to the Needs of the Aged National Assistance Board White Paper on Ageing Free Public Health Services Free Public Transport Community Technology Programme	<p>'Passivity' in response to ageing population.</p> <p>Lack of implementation of legislation and subsequent policies and programmes to address the needs of the elderly.</p> <p>Lack of planning undertaken due to: attitudes to ageing; finance; human resource constraints.</p>	<p>Older females experiencing ageism in employment.</p> <p>Disinterest/lack of knowledge of investment and retirement issues.</p> <p>Fiscal constraints jeopardises the ability of Government to continue to supply free transport and medical services.</p>	<p>Continuing changes in family structures and communities leaves the elderly with weaker support networks.</p> <p>Stigma and discrimination, especially in relation to mental health issues</p> <p>Male 'apathy' to health issues leading to delay in treatments and a greater cost to the individual and support services</p>	<p>Built environment not conducive to the mobility status of the elderly.</p> <p>Air pollution contributing to respiratory health issues.</p>

Measures Implemented	Institutional Challenges	Economic Challenges	Social Challenges	Environmental Challenges
Integrating Gender in Development Bureau of Gender Affairs Shelter for battered women Family Conflict Unit	<p>Gender neutrality in operation and lack of gender as cross-cutting issue in public policy.</p> <p>Lack of gender sensitisation, gender mainstreaming and gender budgeting, contrary to what seen with funding of HIV/AIDS prevention and control in all line ministries.</p> <p>Gender not treated as a priority, demonstrated in delays in formulation and implementation of a National Policy on Gender.</p> <p>Lack of data on crime, especially as it relates to disaggregation by gender of perpetrators and victims.</p> <p>Lack of implementation of sexual harassment legislation.</p> <p>Criminal justice system focussed on punishment rather than rehabilitation.</p>	<p>High levels of unemployment and subsequently poverty and high burden of care for women due to: lack of economic growth; women segregated in employment in low paying, low skilled sectors and occupations.</p>	<p>Domestic violence. Perpetrators of crime are mostly men.</p> <p>Rise in petty crime committed by women.</p> <p>Cultural stereotyping of male and female roles resulting in many of the challenges faced by men and women alike.</p>	<p>Unsafe public spaces.</p>
MAIN EMERGING THEMES	<p>Delays in implementation of policies and plans.</p> <p>Lack of institutional capacity to plan, implement, manage and monitor and evaluate policies and programmes.</p> <p>Fiscal constraints in maintaining and updating infrastructure.</p> <p>Lack of integration of gender, youth and the aged across national policies.</p>	<p>Lack of economic growth leading to: lack of fiscal ability of Government; high unemployment; and poverty.</p>	<p>Stigma and discrimination and cultural stereotypes disadvantaging vulnerable groups, men and women included.</p> <p>Changing conceptualisations of family and community.</p>	<p>Natural Environment: Land erosion and slippage, sea level rise, air pollution, topography in Scotland District.</p> <p>Built Environment: lack of green spaces in central urban area, unsuitable and unsafe buildings and public spaces.</p>

7. FUTURE CHALLENGES AND ISSUES

The future challenges to be faced by the country are strongly linked to the challenges faced in implementation, namely: limited land size which is being lost or not adequately exploited; policy implementation issues; financial limitations in achieving policy targets as well as the maintenance and replacement of ageing networks; providing employment opportunities; and addressing gender and age-based issues including stigma, discrimination and apathy.

While the country has an institutional framework to guide and manage physical development, operational challenges will continue to exist unless a number of issues are addressed, including the delays in implementing legislative revisions and implementing plans. Other operational challenges include: lack of adequate human resources; lack of availability of technology; delays due to bureaucratic procedures; lack of data collection and research; and a lack of monitoring and evaluation of policy interventions. Many of these institutional challenges will remain until fiscal constraints are eased, reliant mainly on the return of robust economic growth.

The need for management of vulnerable lands is also an issue given the threat of sea level rise and land erosion due to heavy rainfall and flooding. The Government has taken action to address sea level rise, beach and coastal erosion, and inland erosion, especially in the vulnerable Scotland District. However, given the predicted increase in the intensity and frequency of extreme weather events, efforts must be enhanced, especially in the utilisation of new civil engineering and construction technologies to address these issues. In addition, and as noted in the Barbados Growth and Development Strategy (2013-2020), there is the need for the legislating and enforcement of building standards and (further) incentives to promote energy conservation (Barbados Economic Affairs Division, 2013). In relation to not fully utilising current land resources, there is a need for Government to address the issue of determining ownership of disused land and derelict structures in the UC to facilitate upgrading and infilling.

A continuation of the movement out of the UC can also be expected unless the issues above are addressed. In addition, this continuation will also be driven by increased demand with the return of overall economic growth, and potential gentrification with proposed high-end developments in the Bridgetown area having the possible effect of pushing out lower income individuals as land values and subsequent land taxes increase. In addition, urban crime and a lack of upkeep of urban spaces and housing can also force individuals out of the UC.

As with physical development, the country also has a framework in place to deal with gender issues as well as specific issues affecting the youth and the elderly. However, although there is a National Youth Policy, there have been delays in implementing policies on gender and ageing, attributed in part to a lack of appreciation of these issues at the level of policy-makers. Therefore, there is need to continue advocacy efforts to ensure both the mainstreaming of gender and ageing in the public sector, at all levels. One of the future challenges noted in the NPA for the elderly, given the fiscal constraints of Government, is encouraging the private sector, financial institutions and relevant NGOs to invest in housing for the elderly.

To expand employment opportunities, especially for the youth, apart from the adoption of macro policies to spur general economic growth, there is a need for curriculum reform in the education system as well as the development of opportunities in new emerging sectors related to ICT and the creative industries. There is an institutional framework in place to link the demands of industry with technical and vocational education at the post-secondary level; however, the secondary school system is academically-based, leaving graduates with limited work experience and the specific skills demanded by employers. In relation to emerging sectors, the International Telecommunications Union (ITU) (2014:17) notes: 'The increasing adoption of ICTs in everyday life, and the growing marketplace for digital goods and services, are creating opportunities for youth to find employment that transcend traditional paradigms'. In addition, and in a similar vein, climate change not only provides threats to livelihoods, but also presents opportunities for the development of new sectors, industries and products to address the threats and chart new economic pathways; this is particularly in relation to developments in renewable energy technologies, energy conservation, and innovations in such areas as transport, solid waste management, water desalination, construction and agriculture. Development in such areas not only promotes overall sustainable development, it also provides youth with a comparative advantage in the labour market.

Table I 9: Summary of Future Challenges and Issues

	Institutional Challenges	Economic Challenges	Social Challenges	Environmental Challenges
Managing Urbanisation and Urban-Rural Linkages	<p>Funding constraints in:</p> <ol style="list-style-type: none"> (1) Expanding human resources and training public servants in the necessary skills to design, plan, implement and monitor and evaluate policies and programmes related to: urban infilling; construction and maintenance of low and middle income housing and the network infrastructure. (2) Maintenance and expansion of infrastructure (housing and networks). <p>Institutional reform constraints:</p> <ol style="list-style-type: none"> (1) Lack of political support at the Central Government and agency level (2) Cost of change (3) Resistance to change (4) Lack of buy-in by staff at all levels 	<p>Lack of economic growth and subsequently lack of Government finances to implement or incentivise development plans to ensure effective use of limited land space, upgrade and upkeep network infrastructure, and implement institutional reforms.</p> <p>Continued local and foreign demand for land in the coastal area of the UC increasing prices, leading to increased demand for non-UC land which can potentially lead to transfer of land out of agriculture.</p> <p>Growth in vulture capital, due to economic stagnation, leading to loss of national resources at below normal market rates.</p> <p>Development of central Bridgetown area (Pierhead Marina Development and a new cruise ship terminal at the Port) have the potential to spur gentrification of immediately surrounding areas, with the detrimental effect of increasing land prices and out-migration by low income persons in the area.</p> <p>Expected increased cost of maintenance and repair of infrastructure due to increased extreme weather events and increased use of private motor vehicles.</p>	<p>With the return of economic growth will come increased incomes and hence continued demand for land outside of the UC.</p> <p>Urban crime and lack of upkeep of the urban landscape and urban housing leading to the continued trend of migration out of the UC as certain areas become viewed in a negative manner.</p>	<p>Effects of climate change leading to loss of land for development and damage to network infrastructure due to: sea level rise, soil erosion, and land slippage.</p> <p>Saltwater intrusion into the near-coast water table leading to greater water scarcity and pressure on an ageing network at a time of severe fiscal constraints.</p> <p>Increase in wastewater generation and a lack of infrastructure to handle it leads to higher levels of pollution.</p> <p>Changing lifestyles and an aging population lead to the introduction of PHCP into the groundwater environment.</p> <p>Air pollution from increased traffic congestion in UC leading to out-migration.</p> <p>With increased development and 'concretisation' (hardening of urban surfaces) an increase in run-off leads to greater flash flooding and a decrease in recharge of aquifers.</p> <p>This decrease could be exacerbated by climate change and variability.</p>
Addressing Urban Youth Needs	<p>Funding constraints</p> <p>Institutional reform constraints</p>	<p>Continued high levels of unemployment and consequently poverty without relevant institutional and societal change related to: integrating the needs of industry within the education system; providing work experience opportunities for youth; and reducing stigma and discrimination due to age.</p> <p>Lack of economic growth leading to continued lack of fiscal space to expand/ implement new and effective programmes.</p>	<p>Continued social exclusion/ disenfranchisement of youth leading to continued risky behaviours and lack of participation in public sector interventions.</p> <p>Increased criminal activity and its negative effect on society and tourism.</p> <p>Foreign culture penetration leading to a breakdown in traditional values and social capital.</p>	<p>Preclusion of economic/ employment opportunities due to climate change and environmental degradation and its effects on tourism.</p>

	Institutional Challenges	Economic Challenges	Social Challenges	Environmental Challenges
Responding to the Needs of the Aged	Continued 'passivity' in response to an ageing population and the issues affecting the elderly. Funding constraints Institutional reform constraints	Detrimental effect of ageism in employment without the requisite legislation. Continued lack of planning for financial future without dissemination of information on investing and pension issues. Lack of economic growth leading to continued lack of fiscal space to continue to supply free transport and medical services to the elderly. Concerns on future viability of the public pension scheme.	Need to address social stigma and discrimination of the elderly, especially in relation to mental health issues. Continuing weakening of support networks will lead to a greater burden on community and faith-based groups who have taken up a mission to support the elderly. Male 'apathy' to health issues leading to delay in treatments and a greater cost to the individual and support services.	Increased respiratory health issues due to air pollution from increased road vehicles. Continued lack of mobility due to a built environment that is not conducive to the ability of the elderly. Hardening of urban surfaces and subsequent creation of heat islands affecting the less physically able.
Implementing Gender in Urban Development	In the absence of the adoption of a national policy on gender, gender will continue to be treated with neutrality in operation and will not be treated as a cross-cutting issue in public policy, leading to a lack of gender sensitisation and gender mainstreaming. Funding constraints Institutional reform constraints	Continued high levels of unemployment and subsequently poverty and high burden of care for women due to a lack of economic growth. Without the required change in socio-cultural conceptualisations of gender, the continued segregation of females in low paying, low skilled sectors and occupations.	Continued cultural stereotyping of male and female roles resulting in many of the challenges faced by men and women continuing to be present such as: domestic violence; male involvement in violent crime; and women becoming more involved in crime.	Preclusion of economic/employment opportunities due to climate change and environmental degradation and its effects on tourism.
Main Emerging Themes	Funding constraints Institutional reform constraints Lack of appreciation of the specific issues related to vulnerable groups	Lack of economic growth leading to: lack of fiscal ability of Government; high unemployment; and poverty.	Stigma and discrimination and cultural stereotypes disadvantaging vulnerable groups, men and women included. Changing conceptualisations of family and community	Climate change: effect on availability and suitability of land for development; and effect on employment and economic contribution of tourism. Air pollution effects on migration and health. Built environment: suitability for safety and mobility.

II. LAND AND URBAN PLANNING

8. ENSURING SUSTAINABLE URBAN PLANNING AND DESIGN

At the same time Barbados was preparing for Habitat II in 1996, the country was also in the process of reviewing its system of settlement and land use planning, as well as preparing a White Paper on Housing and an amendment to the 1986 PDP Amendment. The White Paper, heavily informed by the Habitat II National Action Plan, was eventually approved by Cabinet in 1997; while the PDP was amended seven years later in 2003.

Within a framework of sustainable development, the 2003 PDP Amendment provides the vision for the future growth and development of the nation by setting out policies to guide relationships among land uses, community facilities and physical infrastructure. It also seeks to coordinate public and private development initiatives. The 2003 PDP Amendment, which was operationalised in 2008 and expired in 2013, is currently in the process of being updated. This amended PDP will address:

- Improving the availability of potable water to the entire island (e.g. creating a Water Reuse Policy);
- Developing agricultural policies, focusing on small farms (i.e. 4 acres or less);
- Exploring linkages with tourism (e.g. gastronomic tourism);
- Advancing climate change adaption and building resilience;
- Modernising planning rules and regulations;
- Improving urban design and land use management; and
- Engaging younger persons in the planning process.

The Town & Country Development Planning Office (TCDDPO)¹² also plans to make the new PDP more accessible by making available a copy of the Executive Summary online.

In addition to the PDP, other policies which speak to sustainable urban planning and design include the Barbados Sustainable Development Policy (BSDP), 2004, and the National Strategic Plan of Barbados 2005–2025: Global Excellence, Barbadian Traditions (NSPB).

To ensure sustainable urban planning and design, a multidisciplinary approach is practiced which seeks to integrate social, technical, economic, political, and ecological considerations into the process. For example, Environmental Impact Assessments (EIA) are now required for certain proposals where projects could impact the natural environment and society. Also, as part of a more collaborative process, the Barbados Planning Society – a non-profit association comprised of town planning-related professionals from the public and private sectors – can make interventions within the regulatory system to guide practices toward sustainable outcomes.

A concerted effort has been made to ensure green and open spaces are integrated into the development process. Besides the protection afforded to extant park spaces, subdivisions that are more than 25 lots are now required to have open spaces of 180 sq. ft. per lot, while the Urban Renewal and Development Programme, under the Barbados Tourism Investment Inc., has led to the rehabilitation of eight open spaces around the island.

Another achievement in this area occurred in 2014 when Bridgetown was selected to participate in the IDB's Emerging and Sustainable Cities Initiative (ESCI). The ESCI is a technical assistance programme that helps intermediate cities in Latin America and the Caribbean to identify, prioritise and structure projects to improve their environmental, urban and fiscal sustainability.

¹² TCPDO is responsible for the development and implementation of national policy on land use and physical planning in Barbados

9. IMPROVING URBAN LAND MANAGEMENT, INCLUDING ADDRESSING URBAN SPRAWL

Physical development in Barbados remains orderly, guided by the sustainable development policies of the PDP and the TCDPO's planning controls. Actually, the island is one of the few countries in the region to have a physical development plan. Over the years, Barbados has benefited from the creation of additional public open spaces. There have also been active efforts to revitalise Bridgetown, and to minimise and control large overhead billboards (i.e. they are only erected temporarily for select purposes). Another best practice is the adaptive reuse of buildings. Here, an excellent example is the conversion of old houses in Belleville into medical offices.

It is believed that urban sprawl, as it is generally defined, does not occur in Barbados. The Urban Corridor constrains urban sprawl. Instead, intra-UC development occurs. With that said, between the years 1990 to 2010 a situation arose where the number of new housing units grew in tandem with the number of unoccupied units. Although there had been no significant population growth during that period (the population grew 6.65%, at a rate of 0.33% annually), housing units grew by 14.56%, while unoccupied units grew by a startling 117.89%. As shown in Table II 1, the situation is patent in urban areas where unoccupied units increased from 5,625 in 2000 to 10,540 in 2010, although the suitability for habitation in these vacant units is unknown. These figures imply that the purported high level of unmet demand for housing may be superficial, with the possibility that the supply of housing is inappropriate to the type of housing demanded. This high level and growth of unoccupied dwelling units also challenges the call to allocate agricultural areas outside of the UC for new residential developments.

Table II 1: Housing Units, 1990-2010

Poverty Status	1990		2000		2010	
	Country-wide	Urban	Country-wide	Urban	Country-wide	Urban
Occupied	75,211	-	83,210	58,021	78,936	53,477
Unoccupied	6,993	-	8,379	5,625	15,237	10,540
Total	82,204	-	91,589	63,646	94,173	64,017
Source: CDB (2012)						

As part of the National Consultation for Habitat III, the TCDPO has been able to get the commitment of the Ministry of Housing, Lands and Rural Development that there will be no acquisition of new lands for housing development within the Urban Corridor. Instead, the Ministry will focus on the restoration and adaptive reuse of abandoned and derelict units. Not only would such a strategy be more cost and time efficient as there is existing water, electricity and roads infrastructure, but it would also address social and environmental issues such as vagrancy and pest control. The UDC and NHC have already undertaken studies to identify abandoned and derelict lots.

Consideration is also being given to alternative housing solutions to replace the cultural preference for single detached, low density housing options. In fact, the maximisation of land use through the construction of additional high rise apartments is one of the Government's key "green" priorities for the housing sector (GOB, 2013b) where to achieve greater utilisation of land, high-rise solutions were implemented at Country Park Towers, Valerie and Dalkeith Woods, with other proposed sites at White Park Road and Country Road being reviewed.

Related to improved land management, the revision of the 2003 PDP Amendment will speak to:

- Finding a balance between housing and agriculture
- Improving solid waste management
- Improving housing density – growing up, not out
- Improving sewage disposal – eliminating pit latrines and suck wells
- Preventing development within drainage courses and flood-prone areas
- Designating a specific area (the coastal urban corridor) for urban type development

10. ENHANCING URBAN AND PERI-URBAN FOOD PRODUCTION

Urban Agriculture, an industry located within or on the margin the UC, has long been a practice to support food security and generate income. For the most part, urban agriculture in Barbados takes the form of backyard vegetable and fruit gardens (e.g. herbs, legumes, tomatoes, banana, breadfruit, coconut, mangoes), small-scale urban farms, and micro-scale livestock farming (e.g. chickens, Barbados Blackbelly sheep, and goats). However, because the distinction between urban and rural in Barbados is not as marked, it is unlikely that the inputs utilised in heavily urbanised areas are different to those utilised in rural areas. The crops grown are generally the same, except that in urban areas there may be a higher incidence of container gardens.

While no known studies have been conducted on urban agriculture in Barbados, it is estimated that its contribution to the agricultural sector is less than 20%, when compared to production in rural areas¹³. The Government's main initiative that enhances urban and peri-urban food production is their campaign to encourage Barbadians to grow more of their own food and to create container gardens.

Although not focussed solely on urban agriculture, the UDC holds a garden competition with UDC tenants to encourage them to install gardens around the houses, both flowering plants and vegetables. The competition is aimed at encouraging residents to improve their surroundings thorough vegetation, as well as providing food for their households. The UDC notes that 'these activities are mainly subsistence and would provide very limited commercial output, if any'¹⁴. Further enhancement of this programme will require collaboration between the Ministries of Health and Agriculture, the TCDPO and the UDC to determine the conditions under which urban agriculture could be promoted.

In addition, the Global Environmental Facility Small Grants Programme (GEF-SGP), implemented by United Nations Development Programme (UNDP) is currently providing non-governmental organisations with technical and financial support to execute nine projects promoting agriculture, eight of which fall within the defined urban corridor of Barbados¹⁵.

11. ADDRESSING URBAN MOBILITY CHALLENGES

Inadequate transport services, particularly during peak periods, and insufficient pedestrian facilities were two urban mobility challenges highlighted in the Habitat II report. These areas of concern were further addressed in the NSPB, where a number of strategies (e.g. improving the adequacy and reliability of the public transport system) and targets (e.g. a dedicated school bus service by 2008) were laid out.

There are three bus services currently operating on the island: the Government-operated system, the Barbados Transport Board (BTB), consisting of large omnibuses; and two privately owned services consisting of a fleet of small buses called route taxis (commonly referred to as ZRs), and a fleet of larger minibuses (Moore, et al., 2014). At present, there are 280 Government-operated buses, 5 of which have disability access. Senior citizens and school children in uniform, with proper identification, pay no fares on the Government-operated buses.

It was announced in 2015 that the Ministry of Transport and Works (MTW) will begin construction of a new River Bus Terminal in Bridgetown, costing \$2.5 million (Nation News, 2015). In addition, in an effort to improve bus scheduling, the BTB is piloting a programme that involves the use of a global positioning system (GPS) to track the movement of 18 buses over a given time period. The project will assist in developing time schedules and monitoring fuel usage. However, a challenge encountered during the implementation of the project was the lack of cooperation from some bus drivers due to limited understanding of the benefits to be derived (Moore, et al., 2014). There have also been improved street furnishings around the island by the local Adopt A Stop company which provides and maintains bus stop shelters and benches across the island. Financed from displayed advertising, the bus shelters are constructed of local materials, have a tropical design, and are lit by solar power. There are also future plans to install solar powered Wi-Fi in the shelters. The TCDPO recognises the need to develop bicycle lanes, as well as accessible sidewalks and infrastructure. The provision for these will be incorporated in future major road works. Likewise, in 2015 the MTW secured an IDB loan for the Road Rehabilitation and Improving Connectivity of Road Infrastructure project which will (i) improve flows and safety at selected intersections; and (ii) strengthen the MTW's institutional capacity.

¹³ J. Paul, personal communication, June 22, 2015.

¹⁴ UDC, personal communication, July 9, 2015.

¹⁵ The accompanying Appendices document provides brief project summaries.

The civil works component will entail the rehabilitation and improvement of roads, bridges and culverts; construction of roundabouts and sidewalks; and features to reduce congestion and improve safety.

12. IMPROVING TECHNICAL CAPACITY TO PLAN AND MANAGE CITIES

Following a recent institutional strengthening exercise, the TCDPO currently employs 72 persons (up from 60 in 1999), of which 24% are professionals and 40% are technical. The work of the Chief Town Planner is complemented by a Deputy Chief Town Planner, Senior Town Planners responsible for development control, enforcement, and forward planning, as well as Town Planners and Planning Assistants with responsibility for the island's five (5) development control areas. At the TCDPO, officers have been trained in Geographic Information System (GIS), one person up to a Masters' level, and there is also a dedicated GIS server.

The Barbados Town Planning Society (BTPS) is the relevant non-governmental association for planners in the country, from both the public and private sectors. Founded in 1968, the BTPS's objectives are: *'inform development-related stakeholders of critical issues through the coordination of symposiums and seminars on relevant, pressing topics; Empower people and communities to influence decisions that affect them; Improve the planning system in accordance with the principles of sustainable development and good governance; Encourage discussion on matters which affect our communities and their ongoing development'*¹⁶. There are also several other professional organisations in the country including associations of: Architects; Architectural Technologists; Engineering Draughting Technicians; Professional Engineers; Quantity Surveyors; Land Surveyors; and Contractors.

Educational institutions in the country also play a part in improving technical capacity through the provision of training in related aspects of urban planning and management including: Associate Degree certification in Architectural Studies, Building and Civil Engineering and Land Surveying at the Barbados Community College; and a Masters in Building and Construction Management supplied by the local campus of the University of the West Indies. Regionally, the University of the West Indies in Trinidad offers a Masters in Urban and Regional Planning, and a Postgraduate Diploma in Land Administration.

An effort is also being made to engage the youth to follow career paths in these areas. The TCDPO works closely with the Ministry of Education's Media Resource Unit, providing tools and electronic information for teachers to use in the class room. Through this collaboration, students studying trigonometry and geometry are taken into the field where the practical application, or relevance, of techniques such as triangulation is demonstrated. Students are also introduced to GIS, in which they have shown great interest. In addition, the Emerging and Sustainable Cities Initiative (ESCI) has capacity building components, for example in the area of disaster risk reduction.

13. CHALLENGES EXPERIENCED AND LESSONS LEARNT

The main land use issues relate to:

- Competing demand among sectors (e.g. residential, tourism, agricultural).
- Potential for contamination of groundwater due to the pervious nature of coral rock.
- Restricting activities above aquifers.
- Management of land resources to meet aspirations of citizens and provide sustainable economic development (current and future generations).
- Full cost valuations of the use of natural and environmental resources including land have not been developed or used to any great extent for land use planning and policy development¹⁷ (UN-DESA, 2004a, p. 10).

Although reforms and modernisations are on-going, it has been observed that the TCDPO still uses out-dated internal management techniques and operates under antiquated planning and environmental legislation. There is also limited availability of land use data. Intra- and inter-departmental information sharing is a major issue which hampers decision-making. One reason for the stymied information exchange is the fear that data collected by the public service will fall into private sector hands for financial gain (e.g. private entities creating and selling maps based on land and surveys data generated by civil servants). In

¹⁶ See: <http://www.barbadosplanningsociety.org/>

¹⁷ Note, the TCDPO approached the MED and proposed that a carrying capacity of sand in Barbados for the construction industry be undertaken.

such cases, issues of intellectual property and copyright will have to be addressed. There also should be greater dialogue and collaboration among various planning professionals to improve access to information.

Improved transparency in the planning process, especially notifications of applications and decisions, is needed, and the TCPDO is partially addressing this issue through the posting of monthly statistical reports on its website which includes applications submitted by type and parish, building starts, and certificates of compliance issued. While development in Barbados remains orderly, conformity to planning regulations is still a challenge (i.e. persons view them as restrictive). Therefore, effective strategies to engage and communicate to the public, including Government officials, of the various aspects of the planning process are required. Parliamentary representatives and Constituency Councils can play a role in engaging the public, particularly for development projects.

Barbadians do not make the best use of open spaces, mainly visiting these areas when there are planned activities (e.g. concerts). This underutilisation has to do with lack of amenity value such as shade and public conveniences, and culture, rather than perceptions of safety and security. The same applies for open spaces in residential subdivisions, many of which are overgrown and underutilised by residents.

In relation to urban mobility, the implementation of innovative approaches such as park and ride systems, as currently used for special events, and water-ferry systems have been lacking. The development and implementation of a national transportation policy, a bus replacement policy, and synergistic relationships between public and private operators are also challenges identified by the BTB. Ensuring persons with mobility issues have adequate access to transportation service along the various transit routes must also be addressed.

In terms of urban agriculture, there is a socio-cultural barrier which constrains the sector. As Barbados transitioned from an agricultural based economy to service-based economy, persons became reluctant to be involved in primary agriculture production due to the associated stigma (i.e. links to slavery and poverty) and risks such as loss of crops due to climate hazards or theft. However, this perception is currently changing. With that said, socio-economic and environmental constraints persist.

There is also limited access to land and capital to pursue food production. While the PDP guides the sustainable use of land in Barbados, exceptions include the approval of some public and private sector housing projects within the defined agricultural belt. This has resulted in the displacement of many small farmers (despite their prior occupancy of the space) as new residents complain to the Ministry of Health regarding externalities associated with livestock farming. Environmental constraints have been largely linked to livestock production, which is prohibited in many urban and peri-urban areas in Barbados by covenants. Limited access to water during the dry season, while in the wet season the absence of appropriate infrastructure (protected agricultural structures), also leaves producers exposed to increased risks and liabilities. Some lessons learnt in the area of urban agriculture include:

- Public attitudes can be easily changed when sensitised about the social, economic and environmental benefits of having a strong local food production system.
- There is a currently strong demand for the implementation of sustainable agricultural food production systems such as organic agriculture and permaculture.

14. FUTURE CHALLENGES AND ISSUES

The main future challenges facing the country in land and urban planning revolve around institutional and economic issues. While the country has a clear land and urban planning institutional structure, there are governance issues and communication issues related to insufficient information on the status of planning applications and the process in general, which the TCDPO is currently addressing, and concerns about the lack of active engagement of non-governmental stakeholders and intra-agency cooperation.

Although the legislated planning process calls for the input of several Government agencies, there have been concerns in relation to the timeliness of responses from these agencies to the TCDPO with respect to planning application. In addition, there are concerns related to insufficient use of ICT and the need for the general modernisation of the process. Failure to address these issues may result in lost investments and foregone economic growth, in addition to the socio-economic consequence of such.

In addition to structural institutional issues, the current economic situation of the Government has limited its fiscal ability to address pressing issues such as the provision and upkeep of green spaces, the redevelopment of derelict lands, the modernisation of the public transportation institutional and physical infrastructure, and training and upskilling of personnel involved in urban planning and management.

While institutional strengthening and capacity building is required to cope with future threats, there are socio-cultural constraints in implementing required changes such as a preference for detached, low density housing, negative attitudes to public transportation, stigmatisation of agriculture, and a lack of penetration of renewable energy transportation. The updating process of the 2003 PDP Amendment which is currently underway will be challenged to address these issues given that part of the aim of the new amendment will be to: find a balance between housing and agriculture; improve solid waste management; and increase housing density. Given expressed conflicts between housing and animal husbandry due to odours, and the displacement of farmers for housing developments, addressing and ameliorating this current conflict between these two land uses will be a challenge going forward. In relation to solid waste management, the current lack of utilisation of recycling and general management of household and urban agriculture waste will need to be addressed by any future urban agenda. Any future agenda will also need to consider the lack of wastewater management and rainwater harvesting.

The implementation of the next PDP amendment will also be challenged in relation to increasing housing density which has been a perennial problem which previous PDPs have attempted to address. The main challenge here relates firstly to getting citizens to accept 'high-rise living' and high density housing which has not been part of the country's culture. In addition, giving the ageing population of the country, the maintenance of mechanical access to higher floors (elevators, stair lifts) in high-rise developments will need to be a priority if alternative housing solutions cannot be provided that are appropriate to their physical mobility restrictions.

The main issues to emerge with respect to future challenges are outlined in the table below while the main themes to emerge relate to:

- **Institutional Challenges:**
 - o Lack of transparency in planning systems
 - o Lack of modernisation
 - o Lack of engagement of non-governmental stakeholders
 - o Lack of intra-agency coordination in planning and managing new developments
 - o Lack of buffer zones in urban areas
 - o Lack of enforcement
 - o Lack of integration of transport system
- **Economic Challenges:**
 - o Lack of fiscal ability to address issues such as green spaces, derelict land, transportation problems, and education and training
- **Societal Challenges:**
 - o Societal attitudes to living spaces, public transport and agriculture
- **Environmental Challenges:**
 - o Limited resources to address environmental issues
 - o Lack of uptake of innovative methods to address the consequences of climate change
 - o Lack of buffer zones between activities competing for space in the UC.

Table II 2: Summary of Future Challenges and Issues

	Institutional	Economic	Social	Environmental
Sustainable Urban Planning & Design	<ul style="list-style-type: none"> Although efforts underway to address it, there are still concerns about transparency in the planning system. Lack of modernisation of the planning system through greater use of technology (e.g. GIS tools in analysis and decision-making). Slow response by Government to implement technological systems and cost-effective procedural changes that can help to modernise the planning system and improve efficiency. Lack of effective engagement by the TCDPO with stakeholders (planning professionals and the general public) to improve access to information as well as enhancing the understanding of the planning process. 	<ul style="list-style-type: none"> Green spaces within developments are not as functional as they should be as there are a lack of mechanisms in place for their management and maintenance. 	<ul style="list-style-type: none"> Cultural preference for detached, low density units in what is considered safe and healthy living environments. This will act as a constraint in encouraging urban living in new high density developments. 	<ul style="list-style-type: none"> Limited resources for research, modelling and development of appropriate climate change adaptation strategies. Hardening of the environment with subsequent heat island effects. Lack of utilisation of alternative, sustainable building materials.
Land Management & Urban Sprawl	<ul style="list-style-type: none"> Lack of a coordinated approach to land use, transport and the physical environment in newly developed areas (e.g. Warrens). Lack of establishment and maintenance of 'buffer' zones within urban areas. 	<ul style="list-style-type: none"> Lack of financial resources to address: the re-use of previously developed land in urban areas as new residential areas; rehabilitation of neglected, derelict or abandoned housing stock, including industrial and commercial properties. 	<ul style="list-style-type: none"> Lack of acceptance of urban areas and "vintage" buildings as desirable living spaces. Lack of a culture of high-rise living 	<ul style="list-style-type: none"> Lack of development of buffer zones create convenient dumping areas, or lead to the creation of habitats for disease vectors, and pose threats under extreme climate events such as storms and droughts.

	Institutional	Economic	Social	Environmental
Urban Agriculture	<ul style="list-style-type: none"> Lack of coherent vision for the future of agriculture that takes the views of the diverse farmers and producers, the Government and various other non-governmental institutions into consideration. Lack of integration between the governmental and the non-governmental agencies that are responsible for providing guidance to the agriculture sector. Lack of modernisation of the agricultural sector. Lack of clear standards which address the nuances of the industry are required. Lack of flexibility in covenants that prohibit livestock production to permit small livestock rearing (e.g. rabbit rearing) and aquaponics which would have minimal impacts on neighbours. 	<ul style="list-style-type: none"> Praedial larceny acting as a deterrent to becoming involved in agriculture. Lack of utilisation of vacant lots or abandoned properties for urban or peri-urban agriculture. 	<ul style="list-style-type: none"> Incompatibility between human settlements and the odours associated with animal husbandry. Lack of mandatory recycling and composting of organic household waste within urban areas as a source of fertiliser and mulch for urban producers. 	<ul style="list-style-type: none"> Insufficient monitoring and control of types of pesticides used. Lack of use of 'new' water (from wastewater) and the use of treated waste as a fertiliser. Lack of appropriate management of livestock waste. Lack of appropriate space in urban areas to facilitate food production. Lack of rainwater harvesting and recycling in urban agriculture.
Urban Mobility	<ul style="list-style-type: none"> Lack of effective management of illegal parking in the UC. Unreliable public transport system. Lack of control over unsafe and at times dangerous driving practices perpetrated by the private transport operators. Lack of profitability of the public sector transport system puts additional fiscal burdens on Central Government. Public and private transport services need to be more integrated in order to provide a safe and sustainable level of service (e.g. public/private partnership arrangement) and pilot scheme underway to attempt to address this. 	<ul style="list-style-type: none"> Limited infrastructure for non-motorised travel. Lack of real-time public transport information system that can be accessed via mobile devices as well as information displays at transport hubs and stops. Lack of enforced requirements that all public buildings, amenities, and transport be accessible to persons with mobility challenges as well as in the case of emergencies. Lack of incentives for transport pooling and sharing schemes. 	<ul style="list-style-type: none"> Negative attitudes to public transport and innovative transport sharing schemes and mass transit systems. Lack of social acceptability and awareness of mobility difficulties. 	<ul style="list-style-type: none"> Limited uptake of renewable energy sources for transport systems. Prevalence of negative externalities from transport systems (e.g. storm water run-off, land-take, noise and light pollution).
Technical Capacity	<ul style="list-style-type: none"> Lack of requirements for planners and managers to have training in sustainable approaches such as LEED certification, the adoption of EMAS systems, Green Accounting practices, and independent certification and regulation. 	<ul style="list-style-type: none"> Lack of fiscal capacity to address the cost of creating the technical capacity and providing on-going training. With increased personal cost of professional training and certification, reduced replacement and upskilling of urban planning professionals and managers. 	<ul style="list-style-type: none"> Lack of status for professionals with accreditation in green and sustainable expertise. 	

III. ENVIRONMENT AND URBANIZATION

15. ADDRESSING CLIMATE CHANGE

As a SIDS, Barbados is particularly vulnerable to many of the anticipated impacts of climate change like sea-level rise, intensified and increased frequency of extreme weather events, higher temperatures, and variable levels of precipitation. In response, the island has established a participatory governance mechanism to address climate change, inclusive of a National Climate Change Committee, and the development of a draft Climate Change Policy Framework.

One of the main mechanisms in the planning process which seeks to address the potential impacts of climate change is the requirement for EIAs for certain developments, particularly in the coastal zone. The TCDPO has also adopted an integrated approach to planning, whereby they collaborate with several entities including the Coastal Zone Management Unit (CZMU) and the Drainage Unit to determine whether projects should receive planning approval. Flood zones and areas at high risk of landslides and slumps have been mapped, and new development in these areas is very strictly controlled, if allowed at all. However, some of these maps are unavailable to the public, including developers.

Healthy coral reefs are critical for additional shoreline protection. To facilitate climate change adaptation (CCA), the CZMU monitors water quality (temperature among other parameters) around reefs every quarter. Similarly, their 5-year reef monitoring programmes, which have been on-going since the 1980s, monitor the health of Barbados' reefs. Long term erosion monitoring also occurs through beach profile surveys every quarter.

Several engineering works have been undertaken along the urbanised south and west coasts, with protection against sea level rise and extreme storms integrated into the design. The objectives of these works are usually for shoreline stabilisation and climate resilience, as well as the protection of vulnerable infrastructure like coastal roads. Additionally, the CZMU's Integrated Coastal Zone Management (ICZM) Policy recommends development setbacks according to an estimated hurricane erosion line for a hurricane with a 100 year return period.

The Coastal Risk Assessment and Management Programme (CRMP), funded by the IDB and implemented by the CZMU, aims to build resilience to coastal hazards through improved conservation and management of the coastal zone. The programme consists of three components: (1) Coastal Risk Assessment, Monitoring and Management; (2) Coastal Infrastructure; and (3) Institutional Strengthening for ICZM. Seven hazards will be studied and mapped; and vulnerability and risk assessments will be completed for each hazard to estimate likelihood and damages. The mapping will be done on a GIS platform and used as an important decision-support tool in CZMU's future work.

The Ministry of Health has managed the GEF-sponsored Climate Change Adaption and Health project, which focused on the human health risks posed by changing climatic trends. Health risks identified for Barbados related to:

- Drought mitigation (wastewater reuse)
- Water quality issues (waterborne diseases)
- Rainfall and vector borne diseases (Dengue fever and chikungunya)

The primary intervention outcomes included:

1. The development of an Early Warning and Communication System for climate influenced health risks;
2. Adaption of international guidelines for safe reuse of wastewater;
3. Development of guidelines for safe storage of rain water;
4. Integrating climate change into the routine work plan of the Environmental Health Department (water quality surveillance system and wastewater reuse licensing and monitoring);
5. Construction of a fish rearing facility; and
6. Enhanced public awareness to climate change and health.

16. DISASTER RISK REDUCTION (DRR)

Barbados is susceptible to a number of natural, man-made, and hybrid hazards and disasters such as hurricanes, floods, earthquakes, landslides, cave-ins, and other major accidents. Habitat II identified the need to plan, develop and manage human settlements in a manner which integrated disaster planning and management into the overall process. Since then, the Government has actively pursued the establishment of such a framework.

The Department of Emergency Management (DEM)¹⁸ has adopted the Comprehensive Disaster Management Strategy and Framework which guides the national disaster management agenda and explicitly makes the linkages among disaster risk management (DRM), sustainable development and climate change. There is also the National Disaster Management Programme which focuses on DRM advocacy, institutional strengthening of the National Emergency Management System, community disaster risk resilience, DRM mainstreaming in key sectors, and the incorporation of science in DRM. The Emergency Management Act (2007) further makes provision for: *inter alia*, country-wide emergency management planning and administrative mechanisms, EIAs, special area planning, and the delineation of vulnerable areas. There is also in draft form a National Multi-Hazard Disaster Management Plan, and a Chemical, Biological, Radiological and Nuclear Response Plan.

The control and prevention of inland flooding is the responsibility of the Drainage Unit, which, in collaboration with the TCPDO, is also expected to ensure construction activity allows for adequate drainage. Additionally, the CZMU monitors coastal erosion and vulnerability; while the Ministry of Agriculture monitors soil erosion in the Scotland District which is susceptible to significant land slippage (SALISES, 2012).

All past CZMU projects have been building toward DRR, particularly along the urban west and south coasts. Each project has updated the monitoring processes and coastal data, implemented engineering works for increased coastal resilience, and supported institutional capacity building.

Regarding housing, the 1993 Barbados National Building Code was updated in 2013. The Code is comprised of standards that seek to minimise risk (e.g. fire-rated elements of structure and components that would ensure buildings or parts of buildings do not collapse in a fire for up to two hours). A building manual is also being prepared, to be used in conjunction with the Code, which will guide the construction of houses that can withstand hurricane force winds. At present, there is no mandatory compliance to the Building Code. However, the Ministry of Transport and Works (MTW) is working towards the finalisation of the legal and administrative structure for its mandatory implementation.

Examples of DRR projects in urban areas include:

- The Caribbean Disaster Management Project, focussed on flood mitigation in Speightstown. Currently there is an Early Warning Systems (EWS) Project being implemented in Holetown.
- The Adaptation for Climate Change and Disaster Mitigation: Township Planning Strategies for Storm Surge in the Caribbean Project (2005). This IDB/CDEMA project located at Speightstown allowed for a Coastal Vulnerability Assessment of the St. Peter coastline and the development of a draft toolkit which provides guidance on the replication of the project in other coastal areas.
- The Caribbean Tsunami Information Centre (CTIC)/UNDP/USAID funded Community Early Warning Project is aimed at improved awareness to natural hazards, enhanced national capacities for public warning, and reduced vulnerability to natural hazards through enhanced alerting in Holetown.

The accompanying Appendices document to this report outlines current GEF-SGP projects in CCA and DRR.

17. REDUCING TRAFFIC CONGESTION

Habitat II recognised the need to alleviate traffic congestion within the National Centre, Bridgetown. Two decades later traffic congestion remains a key area of concern for the island, particularly in the Mixed-use Corridors. The high levels of traffic congestion in and around the island's town centres have been attributed to the significant increase in the number of motor vehicles on the roads in recent decades. Between 1999 and 2009, the number of vehicles on the road had grown at a compounded annual growth rate of 6.8 %.

¹⁸ Established in 2007.

While this figure fell during the period 2008 and 2010 to an estimated growth rate of 3.8% per annum, compared to acceptable international standards of 2.5% as a sustainable growth rate, the growth rate of vehicles in Barbados is not sustainable (Moore, et al., 2014).

One of the Government's strategies to alleviate traffic congestion is to develop "a more reliable public transport system that will encourage greater use of mass transport systems to alleviate traffic congestion" (GOB, 2013a, p. 101). The MTW's Road Rehabilitation and Improving Connectivity of Road Infrastructure project will also address reducing traffic congestion.

18. AIR POLLUTION

The Environmental Protection Department (EPD) is responsible for monitoring air quality and controlling air pollution in Barbados. The Draft Ambient Air Quality Policy Paper, prepared by the EPD, is currently under review for re-submission to the MED. An Indoor Air Quality Policy Paper has also been developed.

Table III 1: Existing and Proposed Legislation that Address Air Quality and Air Pollution

Existing	Proposed
<ul style="list-style-type: none"> • Health Services Act - CAP 44 • Marine Pollution Control Act- CAP 392A • Town and Country Development Planning Act- CAP 240 • Registered Sugar Factories Smoke Control Act - CAP 355A • Road Traffic Act CAP 295 	<ul style="list-style-type: none"> • Draft Environmental Management Act/ Environmental Protection Act • Regulations to address water pollution, air pollution, noise pollution, hazardous material, and clean standards.

The EPD's Ambient Air Quality Passive Monitoring programme monitors criteria pollutants such as sulphur dioxide (SO₂), nitrogen dioxide (NO₂), volatile organic compounds (VOCs), and ozone (O₃). Tubes with absorbent materials for the respective pollutants are deployed, and the samples are collected and shipped to an overseas laboratory for analysis. The programme requires monthly sampling for 12 months. Testing was completed in Bridgetown in 2013 and in Oistins and Speightstown in 2014. Currently Holetown and two rural sites are being monitored. The data collected via passive sampling cannot be used to compare to international standards which utilise standardised continuous monitoring protocols. However, the assessments collected monthly average levels for SO₂, NO₂, O₃ and VOCs at a number of sites in the study area. The data collected will be used to establish baseline data for the respective pollutants at those locations.

The EPD also conducts the Barbados component of the Global Atmospheric Pollutants (GAPs) programme which is funded by Environment Canada and utilises passive monitoring to track persistent organic pollutants levels worldwide. As before, the project involves the deployment of tubes with absorbent materials for the respective pollutants. The samples are collected and shipped to Canada for laboratory analysis. GAPS sampling is conducted continuously starting in January of every year with samplers changed and sent for analysis on a quarterly basis.

The main factors impacting air quality in Barbados, particularly in urban areas, include:

- Vehicular maintenance facilities
- Vehicular traffic (e.g. the average age of buses in the Government-operated fleet is 10 years, and none have catalytic converters).
- Indiscriminate backyard and open burning
- Manufacturing operations (e.g. furniture, wrought iron, marine vessels)
- Industrial facilities (e.g. power generation, sugar factories, asphalt processing, cement manufacturing, distilleries)
- Quarrying and road works
- Fossil fuel storage, service stations and related activities

While no minimum standards have been established for atmospheric pollutants as yet, recommendations are being made in the Ambient Air Quality Policy Paper¹⁹. Other initiatives being undertaken by the EPD to reduce air pollution include public awareness campaigns, regulatory inspections and compliance programmes for key emissions generating sectors, and complaints investigations.

Also of relevance here is the BNS 258: 2011 Motor vehicles-exhaust emissions, which is a voluntary standard that applies to exhaust emissions from all motor vehicles sold or offered for sale in Barbados.

19. CHALLENGES EXPERIENCED AND LESSONS LEARNT

Climate change can also contribute to increase incidences of vector-borne diseases such as dengue fever and chikungunya. In 2013, there were 1,137 reported cases of dengue, with the highest incidences in the urban parish of St. Michael. Chikungunya was first recorded in Barbados in 2014, again with St. Michael having the highest number of cases. The development of programmes to reduce the incidences of these vector-borne diseases is on-going; however, success will largely depend on public education and cooperation.

Table III 2: Cases of Dengue (2009-2014) and Chikungunya (2014) by Parish

	Dengue Cases						Chikungunya Cases
	2009	2010	2011	2012	2013	2014	2014
Christ Church	9	61	43	76	231	61	17
St. Andrew	4	12	6	7	21	12	0
St. George	8	47	16	25	98	35	3
St. James	3	36	14	28	71	45	12
St. John	1	12	3	14	21	7	4
St. Joseph	3	11	4	6	18	14	2
St. Lucy	0	12	7	10	27	14	4
St. Michael	25	149	60	156	362	194	70
St. Peter	5	31	5	11	22	23	6
St. Philip	6	61	9	28	101	32	6
St. Thomas	1	19	6	16	40	16	9
Unknown	26	119	32	53	125	37	1
TOTAL	91	570	205	430	1137	490	134

The District Emergency Organisation (DEO) was established to assist the DEM in enhancing the disaster management in various communities. However, major challenges encountered related to inadequate spatial definitions, and the need for continuous and sustained mobilisation of resources to support the programme. Lessons learnt include:

- A strong institutional framework is required for Community Preparedness Programmes (e.g. terms of reference for various components, protocols for engagement, comprehensive plan of action).
- A robust and dedicated management and coordination structure.
- Active participation of volunteers in the governance and operations of the community programme.
- On-going and dynamic marketing and public awareness of the programme.

Other DRR challenges include:

- Weak inter-ministerial consultation limiting the mainstreaming of DRR;
- Lack of human resources capacity within the DEM;
- Competing agency demands for limited financial resources to achieve other national priorities;
- While flood zones and areas at high risk of landslides and slumps are mapped and new development in these areas is strictly controlled, some maps are unavailable to the public, including project developers.

¹⁹ Currently, the US EPA Ambient Air Quality Standards are used as reference standards, but they have not been formally adopted by the Government of Barbados.

In terms of traffic congestion, the situation is especially exacerbated in Bridgetown where the roads are narrow due to the historic layout of the city, and on-street parking is commonly practiced, both detrimental to traffic flow rates. Although there has been increased policing of on-street parking practices in recent years, the situation remains challenging. Furthermore, despite serious consideration being given to the establishment of on-street parking charges, and parking metres were purchased, this system was never implemented due to unforeseen administrative challenges (Moore, et al., 2014). The 2015 National Consultation on the New Urban Agenda noted the main causes of traffic congestion as:

- *'Inefficiency of the current transportation system;*
- *Indiscriminate parking/poor parking attitudes of drivers and not taking into consideration the negative impact that indiscriminate parking has on others, especially emergency vehicles;*
- *Lack of enforcement of legislation. Currently there is a ticketing system in relation to illegal parking; however, there is no follow up after the issuing of tickets. It was noted that empirical data indicates 80-85% of parking tickets are not paid;*
- *Lack of use of flexi-time for workers' (p.31).*

The mixed-use allocation of land in Barbados poses a challenge to air quality as there are often inadequate buffer zones between industrial, residential and commercial activities. Greater public awareness of the impacts of daily polluting activities on human health and the environment is also a challenge. From an institutional perspective, the lack of comprehensive environmental legislation impedes EPD's ability to adequately regulate air quality. Insufficient long term environmental research into pollution sources on the island also hampers the development of appropriate local solutions to advance pollution preventative. It has been recognised that inadequate laboratory capacity (human and equipment) contributes to the limited level of environmental research initiatives for air quality.

20. FUTURE CHALLENGES AND ISSUES

The country is challenged to modernise an institutional infrastructure that traditionally dealt with issues related to economic development and social welfare to also now address the environmental threats posed by climate change. The main challenges ahead for the country in dealing with environmental and urbanisation issues are strongly related to the implementation challenges experienced, namely the lack of availability of institutional and human resources to address the causes and consequences of climate change, and societal attitudes and behaviour with respect to unsustainable resource use, disaster preparedness, air pollution and traffic congestion.

The table below outlines the specific future policy challenges in relation to the subsections above. In summary, the main themes to emerge include:

- **Institutional Challenges:**
 - o Lack of monitoring of the causes and consequences of climate change
 - o Lack of involvement of the private sector in reducing their effect on the environment and in the development of solutions
 - o Lack of development of comprehensive strategies to address CC and DDR
 - o Lack of formulation and implementation of legislation, assessments and standards
- **Economic Challenges:**
 - o Limited resources to address institutional challenges
 - o Lack of internalisation of cost of activities detrimental to the environment
- **Societal Challenges:**
 - o Poor public attitudes and lack of understanding of the issues related to climate change such as: the need to adapt resource use and consumption patterns; disaster preparedness; air pollution; and traffic congestion.
- **Environmental Challenges:**
 - o Climate change intensification
 - o Some structures' inability to withstand storm winds or earthquakes
 - o Layout of road network in Bridgetown contributing to traffic congestion and air pollution
 - o Exposure of roads to flooding and storm surge.

Table III 3: Summary of Future Challenges and Issues for Environment and Urbanisation

	Institutional	Economic	Social	Environmental
Climate Change	<ul style="list-style-type: none"> Lack of robust monitoring of environmental parameters, climate impacts, disaster losses, comprehensive and current vulnerability mapping of natural and man-made assets. Lack of private-sector participation in CCA and DRR as it relates to coastal resilience needs. There has been the identification of coastal risks and vulnerabilities under the current coastal risk assessment and management programme, however, strategies for adaptation have yet to be developed. 	<ul style="list-style-type: none"> Limited resources for research, modelling and development of appropriate climate change adaptation strategies. Lack of internalising the cost of pollution. Lack of affordable insurance against climate related events. Fiscal constraints in introducing climate and disaster proofed infrastructure. 	<ul style="list-style-type: none"> Poor public attitudes and practices in relation to resource use and consumption patterns, such as to water, energy, vehicle transport, and recycling. 	<ul style="list-style-type: none"> Increased intensity and frequency of natural hazards. Inability of some structures, particularly the traditional chattel house, to withstand intense winds or earthquakes.
Disaster Risk Reduction	<ul style="list-style-type: none"> Lack of availability of data and information products that would enable people and developers to customise information to meet their needs. Lack of legislation of the Building Code and building standards. Lack of requirements for the inclusion of CC and DRM into EIA procedures. 	<ul style="list-style-type: none"> Lack of resources to fully implement the required, and understood, measures to promote DRR. 	<ul style="list-style-type: none"> Poor public attitude to disaster preparedness and management. 	<ul style="list-style-type: none"> Lack of meaningful advances in urban waste management (solid and sewage waste). Lack of use of natural DRR approaches such as trees as windbreaks, buffer zones. Lack of source control measures to prevent storm water generation and flooding as this usually requires land space.
Traffic Congestion	<ul style="list-style-type: none"> Lack of implementation of recommendations to emerge from previous traffic studies. Lack of integrated and reliable public transport system. Lack of community schooling resulting in major education based commuting during term time. Failure of public transport to adapt to changing land use patterns i.e. lack of proper public transport terminus at Warrens. The support of Unions will be key to encouraging flexible working hours to reduce the amount of cars on the roads at peak times 	<ul style="list-style-type: none"> Lack of timely and comprehensive traffic information. 	<ul style="list-style-type: none"> Preference for private transport due to public transportation issues. Lack of appreciation of consequences of illegal parking for traffic flow. 	<ul style="list-style-type: none"> Historical layout of Bridgetown hampering the smooth flow of traffic. Increased air pollution due to congestion. Road flooding. Absence of alternative routes in places in the event of road blockage due to flooding or inundation from storm swell.
Air Pollution	<ul style="list-style-type: none"> Lack of appropriate and comprehensive environmental legislation. 	<ul style="list-style-type: none"> Cost of moving toward less polluting fuels and the use of renewable energy sources. Lack of internalising the cost of pollution on public health and shifting the burden from the state to the polluter to produce a disincentive to polluting. 	<ul style="list-style-type: none"> Challenges in convincing the public that air pollution is a problem that affects everyone. 	<ul style="list-style-type: none"> Growing traffic congestion and expected emissions of potential contaminants in urban areas from economic activity.

IV. URBAN GOVERNANCE AND LEGISLATION

21. IMPROVING URBAN LEGISLATION

The most relevant legislation²⁰ in Barbados related to the UC includes:

- i. The Town and Country Planning (TCP) Act, Cap. 240 (1968); and the Town and Country Planning Development Order, 1972;
- ii. Land Acquisition Act (1995)
- iii. Coastal Zone Management (CZM) Act, Cap. 394 (2000);
- iv. Urban Development Commission (UDC) Act, Cap. 241 (1997, 2003);

The TCPDO oversees physical development in Barbados and is guided by the TCP Act, TCP Development Order, and the prevailing physical development plan. The TCP Act is defined as:

'An Act to make provision for the orderly and progressive development of land in both urban and rural areas and to preserve the amenities thereof, for the grant of permission to develop land and for other powers of control over the use of land, to confer additional powers in respect of the acquisition and development of land for planning, and for purposes connected with the matters aforesaid' p.7.

The approval of the PDP by parliamentary resolution broadly guides physical development of the country. The five year cycle for amending the PDP allows for a continuous review of planning and development policy, and through resolutions for adoption of the PDP amendments, allows for the ease of recognition in law.

The planning decision-making process is defined by legislation and broadly guided by the PDP with input from several Government agencies. In certain cases ultimate authority rests with the Minister responsible in relation to: change of use of agricultural land over 2 acres; applications for beach front development; and in cases of appeal against decisions made by the Chief Town Planner.

A building code was published for the country in 1993 by the Barbados National Standards Institute and overseen by the Building Standards Authority (BSA), however it has not been passed into law and there are concerns related to additional costs required for compliance and its applicability to low cost housing, particularly the traditional chattel house. The Building Code was revised in 2013 and the MTW is working towards its finalisation for enactment.

Closely linked to the TCP Act is the CZM Act which, through the Coastal Zone Management Unit (CZMU), allows for operation in tandem with the TCPDO in assessing development applications in the Coastal Zone Management Area (see Figure IV 1). The CZMU is also responsible for the development of coastal zone management plans and the delineation of a management area, and the preservation and enhancement of marine areas and coral reef and beach protection.

Specifically relevant to the urban area is the UDC Act which established the commission with a remit for: 're-development and the improvement of social amenities in urban areas, and for related matters' (p.3). The UDC Act vests power in the Commission to redevelop derelict lots or areas, through powers of compulsory acquisition as noted in the Land Acquisition Act 1995. While the definition of urban in the case of the UDC is determined under the Act by the Minister, the operational definition utilised is not the same as the 2003 PDP urban corridor, and comprises mainly Bridgetown and its immediate environs. Areas outside of this boundary, but still within the UC, therefore come under the remit of the RDC.

²⁰ Other related legislation is listed in the companion document to this report titled Appendices.

Figure IV 1: Coastal Zone Management Sub-Areas



Source: <http://www.coastal.gov.bb/>

22. DECENTRALISATION AND STRENGTHENING LOCAL AUTHORITIES

Decentralised Local Government has not existed in Barbados since the late 1960s. Between 1958 and 1967 there was a system of Local Government councils (City of Bridgetown, Northern District and Southern District)²¹. After the abolition of these councils, finalised in 1969, all of the affairs of the country have been run by Central Government, with representatives of the current 30 constituencies comprising the House of Assembly. Despite centralisation at this level, the Royal Barbados Police Force retained its decentralised structure which mirrored the Local Government system and divided into 3 divisions, Central (Bridgetown and environs), Northern and Southern.

Government provides public services throughout the country in terms of education, emergency services, library and postal services, and healthcare through a network of polyclinics and a main hospital in the capital. In 2009 the Government established Constituency Councils across the country to provide a channel through which local issues could be voiced at the level of Central Government. This initiative is describe in more detail in the following subsection.

The use of ICTs to enhance citizen access to Government services has been noted by the Government and an e-government Strategy was adopted in 2006, and an e-government Unit established. The aim of the strategy is to improve service delivery, enhance productivity and efficiency in the public sector, and provide for transparency and better governance through broadening participation (Ministry of the Civil Service, 2015). Notable include the implementation of: ASYCUDA World in the Customs Department to facilitate electronic submission of documents by importers and exporters; eZPay electronic payment system for Government services and eTax system for submitting income tax and corporation tax information; and the Electronic Passport Appointment System by the Immigration Department to reduce waiting times for passports.

The UN e-government Survey ranks Barbados as having a high e-government Development Index (EGDI) at 0.5933; 9th in the Americas, 3rd among SIDS (behind Singapore and Bahrain) and 1st in the Caribbean. However, while the country has a comprehensive telecommunications network and high human capital, the country ranks very low in relation to online service development²².

²¹ http://www.barbadosparliament.com/main_page_content/show_content/13

²² Online Service Development consists of four components [Barbados percentage score in parentheses]: Emerging Information Services [41%]; Enhanced Information Systems [20%]; Transactional Services [12%]; Connected Services [24%] (United Nations, 2014).

Another decentralisation effort is the Community Development Department (CDD) under the Ministry of Social Care. The CDD oversees the physical management of 22 community centres across the island and provides programmes in a variety of areas including education, training, and recreational and cultural activities. The goals of the CDD are to: promote the development and empowerment of communities and of NGOs/CBOs; assist communities in improving their socio-economic conditions; and mobilise and sensitise residents to their resources, skills and opportunities within their communities.

In relation to strengthening core institutions involved in decentralisation of Government services, there are two Government agencies of relevance: the Office of Public Sector Reform (OPSR) and the Training Administration Division (TAD). While the OPSR seeks to action and oversee organisational transformation in the public service, the TAD facilitates training for public servants at all levels in a variety of areas including, *inter alia*, finance, IT, management and leadership.

23. IMPROVING PARTICIPATION AND HUMAN RIGHTS IN URBAN DEVELOPMENT

The most significant demonstration of participation in the development process in Barbados is the Social Partnership, a tripartite body which includes the Government and representatives of the private sector and labour. The formalisation of the partnership in 1993, with the signing of 'the Protocol for the Implementation of a Prices and Income Policy 1993-1995' which is currently in its sixth version, demonstrates the country's commitment to improving participation by the citizenry, and participation is somewhat widespread with national consultations held in a number of areas pertinent to national development including: amendments to the PDP and developments that may change the character of the physical environment; national policies on youth, gender and ageing; and the Country Assessment of Living Conditions. The Government also provides subventions to non-governmental organisations (NGOs) representing special interest groups, and policy development and international reporting actively encourages these organisations' participation. The implementation of thirty Constituency Councils also act as a means to improve public participation in the governance process.

One of the most important aspects related to public participation in physical development is the public consultation process ingrained in the PDP. The 2003 PDP explicitly speaks to the requirement for engaging the public on the development of plans through the use of: information dissemination; public meetings; workshops; and/or open houses '...so that affected communities and individuals have the opportunity to understand and make submissions' (p.12-4). In addition, the public also get the opportunity to influence planning applications which are substantial enough to warrant town hall meetings, or through commenting on Environmental Impact Assessments (EIA), where required, which are open to public scrutiny.

In 2009 the Government instituted constituency councils through the Constituency Councils Act, Cap. 4 (2009) and the Constituency Councils (Amendment) Act, Cap 4 (2015) in all 30 constituencies across the island. A Council is defined as: '...a legally established body of local representatives, who have been appointed [by the Minister responsible] and given the authority to voice concerns of the residents of the Constituency; to maintain links with Central Government and other agencies; and to effectively and efficiently manage resources for the development of the given Constituency' (p.1)²³. The Councils are funded from Central Government, through the Ministry of Social Care with the remit to:

- *'Build relevant databases on the Constituency.*
- *Identify the priority needs of the Constituency.*
- *Make recommendations to Central Government for Programmes and Projects for the Constituency.*
- *Assist local organisations to build capacity.*
- *Refer residents to relevant Government agencies and the Private Sector for support.*
- *Assist where required in the delivery of designated services.*
- *Facilitate the flow of information to and from Central Government.'*²⁴

The Constitution of Barbados protects the fundamental human rights of its citizens, regardless of race, place of origin, political opinions, colour, creed or sex. The country is also a signatory to a number of international conventions including, *inter alia*: Convention on the Rights of the Child; Discrimination (Employment and

²³ See: http://www.councils.gov.bb/cms/index.php?option=com_rokdownloads&view=file&task=download&id=8:counstituency-councils-at-a-glance

²⁴ See: http://www.councils.gov.bb/cms/index.php?option=com_content&view=article&id=10&Itemid=30

Occupation) Convention; Convention on the Rights of Persons with Disabilities; and the Convention for the Elimination of All Forms of Discrimination Against Women. In addition to these conventions, many vulnerable groups are represented at the Governmental and NGO level, with the labour force protected by a strong trade union movement.

24. ENHANCING URBAN SAFETY AND SECURITY

The Royal Barbados Police Force (RBPF) has instituted a number of initiatives to address safety and security, with some specific attention to the urban area. Actions include the establishment of six community police outposts, all in the UC, as well as programmes specifically targeted at youth: the Juvenile Liaison Scheme²⁵, Helping Young People Excel (HYPE), and a Drug Abuse Resistance Education (DARE) training programme. The National Council on Substance Abuse (NCSA) was established in 1995 to work on drug demand reduction in schools and communities. The RBPF's Family Conflict Unit supports the victims of domestic violence. Specific initiatives to address drugs and firearms included the utilisation of technology to identify suspects (PROMAT system) and use of the Regional Integrated Ballistics Information Network (RIBIN).

Figure IV 2: Frequency of Selected Crimes in Barbados 1999-2013

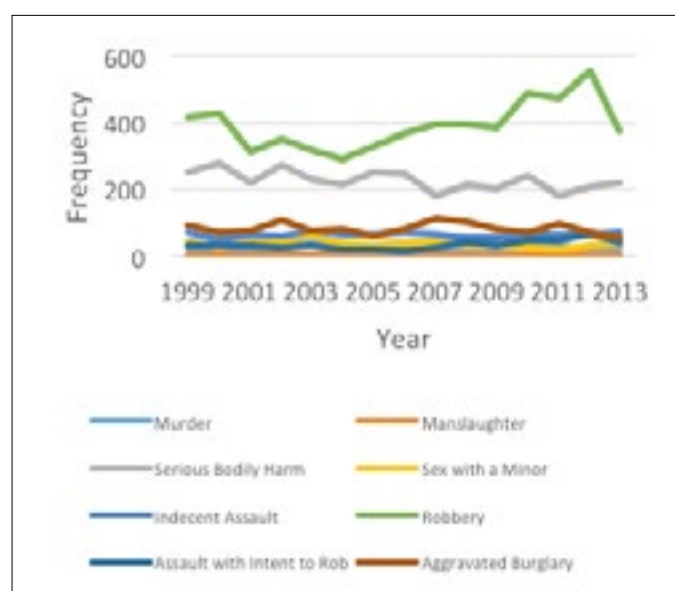
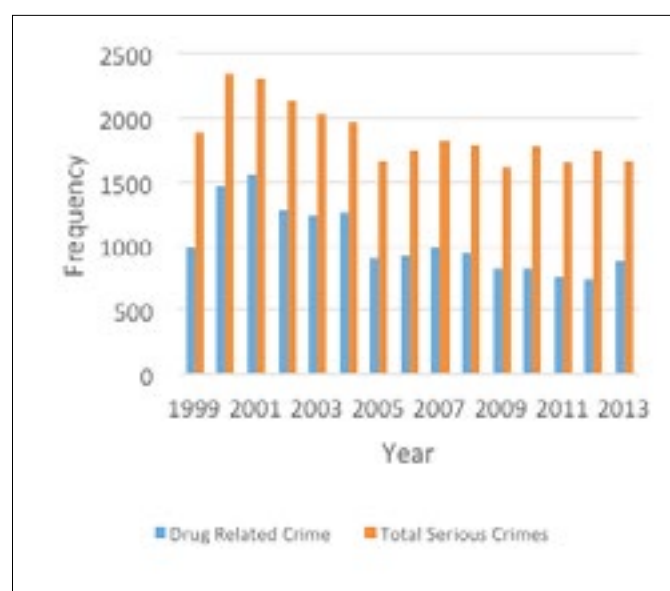


Figure IV 3: Total Serious Crimes and Drug-Related Crime in Barbados 1999-2013



Source: Economic and Social Report (various years)

Disaster management in Barbados is governed by the Emergency Management Act (EMA) (2006) which created the Department of Emergency Management (DEM), a renaming/reorganisation of an agency established in the 1940s. The DEM does not just deal with disaster relief, but also adaptation. The DEM's Emergency Management Advisory Council provides recommendations on policies and programmes, and annual Emergency Management Plans. There is also a national shutdown and reactivation policy for the country. There are 27 Category 1 emergency shelters for members of the public in the event of a hurricane, of which 8 are wheelchair accessible, and District Emergency Organisations operate in all parishes.

²⁵ See: <http://reform.gov.bb/page/external/Judicial%20Reform/secondchance.pdf>

Table IV 1: Impact of Selected Hazards on Barbados

Hazard	Date	Brief Description of Damage	Damage (US\$)
Hurricane Janet	September 1955	35 people died; 20,000 displaced; 8,100 small dwelling houses damaged	106,700,000
Flood	October 1970	210 people displaced	500,000
Hurricane Allen	July 1980	67 houses destroyed and 698 damaged; damage to agricultural sector; 5,007 people displaced	1,500,000
Flood	October 1984	82 households suffer loss or damage; 100 people displaced	807,000
Storm	September 1986	12 households suffer loss or damage	55,800
Storm	September 1987	46 houses damaged or destroyed; 1 boat destroyed; 230 people displaced	600,000
Storm	August 1995	22 houses damaged; 8 fishing boats damaged or destroyed; several bridges and roads washed away or impassable	200,000
Storm	September 1995	26 houses and 1 boat damaged	500,000
Storm	September 2002	2,000 people displaced	200,000
Storm	September 2004	880 people displaced	5,000,000
Earthquake	November 2007	1 person displaced	Na
Storm: Tomas	October 2010	2,500 people displaced	Na
Source: Chmutina & Boshier (2014:180)			

Anthropogenic hazards experienced in Barbados are mainly fires and road traffic accidents²⁶. Relevant legislation in this area includes:

- Safety and Health at Work Act 2005
- Road Traffic Act 1981
- Transport Authority Act 2007

The Road Traffic Regulations (RTRs) (1984) govern, *inter alia*: driving licenses; vehicle inspection; public service vehicles (PSVs); taxis; speed limits; parking restrictions; traffic signals; pedestrian crossings; and bicycles. The use of front and rear seat-belts is required by law, as is the use of motorcycle helmets. Driving while under the influence of alcohol or drugs is illegal, however enforcement is rated as zero²⁷ and there is no breathalyser testing. There are also no regulations which speak directly to the use of mobile phones while driving.

Other approaches to enhancing road safety include: the Barbados Road Safety Council which was launched in 2012 with governmental and non-governmental representatives to ensure a more collaborative approach to road safety; and signing on to the UN Decade of Action for Road Safety (2011 to 2020). In addition, a Road Traffic Safety Management Systems Standard (ISO 39001) was launched in 2013 with the hope that it would be adopted by the private sector.

Table IV 2: Road Traffic Accidents in Barbados 2004 to 2013

Category	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fatal	34	23	22	38	17	25	22	20	25	18
Serious	133	132	132	108	147	111	113	118	102	95
Slight	2225	2304	2625	2264	2446	2466	2453	2226	2036	1992
No Injury	5593	5828	5897	5897	6140	5715	5945	5259	5044	5300
Total	7983	8303	8676	8307	8750	8317	8533	7623	7207	7405
Source: Ministry of Finance and Economic Affairs (various years)										

²⁶ The estimated cost of treatment for victims of road accidents between 2008 and 2012 was over US\$25 million or US\$6.25 million per annum, more than the cost of the brush with Hurricane Ivan in 2004. See: http://gisbarbados.gov.bb/index.php?categoryid=8&p2_articleid=10071

²⁷ See: http://www.who.int/violence_injury_prevention/road_safety_status/2013/country_profiles/barbados.pdf

25. IMPROVING SOCIAL INCLUSION AND EQUITY

The Constitution of Barbados provides for equal treatment under the law regardless of race, place of origin, political opinions, colour, creed or sex. The fundamental rights relate to:

- a. *'life, liberty and security of the person;*
- b. *protection for the privacy of his home and other property and from deprivation of property without compensation;*
- c. *the protection of the law; and*
- d. *freedom of conscience, of expression and of assembly and association'*

There are also a number of legislative instruments to reduce the risk of social exclusion²⁸.

Following a 1996 assessment of the public services addressing poverty which found inadequacies in delivery, the Government created the RDC (1996), the UDC (1997), and the Ministry of Social Transformation (1999). The Ministry was subsequently rebranded the Ministry of Social Care, Constituency Empowerment and Community Development in 2008. Overall, the current social support framework includes programmes that provide remedial, preventative, supportive and developmental support, including welfare assistance and shelter, with special attention to gender, the elderly and persons with disabilities. Youth development is the remit of the Ministry of Culture, Sports and Youth.

According to the 2010 CALC, social and familial exclusion was most evident among homosexual men, persons living with HIV/AIDS, sex workers, ex-prisoners, the homeless, and migrants, while there were also impacts on the elderly, persons with disabilities, Rastafarians and unemployed youth (CDB, 2012). Issues of inequity are also seen in relation to gender across vulnerable groups.

Despite constitutional protection for all, there is no specific anti-discrimination laws to allow equal access to employment, housing and Government services. In addition, Rastafarians affirm that marijuana use is integral to their religion; however its use is prohibited by law and Rastafarians believe they receive extra scrutiny from the police and immigration officials (United States Department of State, 2013). There is also no mandate in the law for accessibility for the disabled, however the TCDPO has provided for this for public buildings, and evidence suggested it has been adopted by the private sector.

One of the recent pilot projects to address poverty in Barbados is the ISEE-Bridge Project (Identification, Stabilisation, Enablement and Empowerment- Building a Road for Individual Development: towards the Goal of Empowerment). The program is based on a Chilean program called Puente²⁹. The four components of the program include:

1. **I**dentification and assessment of the needs of household members;
2. **S**tabilisation by addressing the needs identified;
3. **E**nabling household members by helping them to acquire survival skills; and
4. **E**mpowering them so that they have the capacity to succeed and excel.

The pilot program included 30 multigenerational households, mostly selected upon referral from the Welfare Department and all heads of household were female. Problems faced included: unemployment; supporting large numbers of children; caring for children with disabilities; and living in sub-standard buildings. The outcome of the pilot programme is currently being evaluated by the MSC.

There is also an extensive NGO network which supports as well as advocates for special vulnerable groups and issues³⁰.

26. IMPLEMENTATION CHALLENGES/LESSONS

A study on institutional strengthening of the planning system in Barbados in 1998 provided recommendations for the revision of the TCP Act and the TCP Development Order. The most relevant revisions speak to enhancing the legal status of the PDP, with refusal of planning permission if applications do not conform to the PDP, and requiring a series of consultations to determine approval under appeal. Currently the TCP Act

²⁸ See companion document entitled Barbados Habitat III Report Appendices for a list of these instruments.

²⁹ For more information see: http://socialprotectionet.org/sites/default/files/_puente_caribe_eng.pdf

³⁰ See companion document entitled Barbados Habitat III Report Appendices for a listing of these groups.

states that any planning applications to the Chief Town Planner should be considered in the context of the prevailing development plan, and 'any other material considerations', with decision options being either the granting of permission 'either unconditionally or subject to such considerations as he thinks fit' (p.21) or refusal. Refusal is subject to appeal to the Minister responsible whose decision is final.

Other pertinent recommendations related to: reducing ministerial discretion; an enhanced role for the TCP Advisory Committee; access to information; heritage conservation; and increased penalties for planning offences³¹. However, with the exception of an increase in fines for two offences in the TCP (Amendment) Act, 2007³², none of the other recommendations were implemented in the intervening period. A similar study conducted in 2010 noted this lack of implementation and recommended that, given that the Act was approaching 40 years old, and practices had changed, that the entire Act (and the related Development Order) be rewritten to remove ambiguities. To date there have not been any major revisions.

Challenges in the implementation of e-government initiatives are noted as: determining data ownership; difficulties in interconnectivity and information sharing; inadequate physical infrastructure; need for a single IT unit and common standards; and IT personnel. Given these challenges, it is not surprising that there are a number of Government agencies websites that operate simply as shop windows with no interactivity, or are 'currently under construction' for several years.

It is evident that there is a need for institutional change, including the expansion of skilled technical human resources. However, implementing institutional change is challenged by a lack of buy-in among key stakeholders and also a general resistance to change; as well as fiscal constraints in providing the required training, especially in IT.

There are also a number of social issues which have constrained progress in urban governance including a perception of the Constituency Councils as politically affiliated bodies which is constraining their effectiveness and affecting the level of participation. In addition, a general loss of community spirit and movement out of traditional communities into new developments has led to lower levels of participation.

There are also challenges in dealing with crime including: limited financial resources, lack of human resources and new recruits, 'cultural assimilation' and a changing nature of crime. Ensuring general safety in relation to urban mobility is also challenged with a minibus culture in public transport which not only promotes elements of social deviancy, but has also led to serious road traffic incidents. Poor quality roads and an absence of pedestrian pavements in areas all pose dangers to road users.

Legislation which is notably missing in relation to social inclusion and equity relates to sexual harassment and anti-discrimination legislation. Delays in the completion and adoption of policies on gender and ageing also needs to be addressed to allow for drafting and implementation of relevant legislation and institutions. These delays are in part due to a level of apathy to these issues, as well as human resource constraints in relation to legislative drafting skills.

While the country has a broad social support framework, it appears that at an individual level that stigma and discrimination is still a concern. The CALC strongly recommends governance reform in this area to promote social inclusion. United States Department of State (2014:1) reports that apart from 'unprofessional conduct by the police', that violence against women and discrimination based on sexual orientation/gender identity were the most serious human rights violations, with discrimination against persons with disabilities, also noted. For Persons with Disabilities (PWD), although the Constitution speaks to equal protection from all, PWD continue to experience discrimination in the absence of laws to prevent this in employment, education and access to state services (United States Department of State, 2014).

³¹ Offences for which fines were increased from \$250 to \$2000 were related to obstructing officers operating under the authority of the TCP Act and in relation to contravention of regulations made by the Minister under Section 79 of the TCP Act.

³² See: <http://www.barbadosparliament.com/htmlarea/uploaded/File/Bills/2007/Town%20and%20Country%20Planning%20Amendment%20Act,%202007.pdf>

Table IV 3: Urban Governance and Legislation- Weaknesses and Cross-Cutting Causes

Main Weaknesses in Governance and Legislation	Cross-Cutting Causes of Weaknesses
<ul style="list-style-type: none"> • Planning approval delays • Onerous task of developing a PDP every 5 years • Contradiction in the law in relation to the definition of Urban Corridor as used by the UDC, and the definition outlined in the 2003 PDP. • New cyber threats to citizen e-security • Lack of public participation in governance • As services are decentralised to a greater degree, can lead to greater development in the areas outside of the UC. • Continued fragmentation of communities • Unsafe use of roads • Lack of adoption/implementation of policies and plans for vulnerable groups. 	<ul style="list-style-type: none"> • Lack of progress in implementing changes • Lack of finance to implement interventions • Lack of cooperation among related Government agencies • Lack of data to identify trends and plan interventions. Main issues related to data include: funding for collection, updating and analysis; lack of harmonised software; lack of statisticians; weak culture of data sharing among Government agencies; lack of easy access to data by the public; lack of feedback on studies from key stakeholders; and lack of analysis. • Lack of utilisation of technology • Foreign cultural penetration • Societal stigma and biases

27. FUTURE CHALLENGES AND ISSUES

There are a number of challenges experienced that need to be addressed going forward. There is a critical need for the modernisation of the overall framework, including: the revision of existing laws as per recommendations from previous studies; new legislation to enhance transparency in the operation of the public service; the completion and adoption of national policies for vulnerable groups; greater collection and utilisation of data for more effective national planning; and the greater utilisation of ICTs across the public service.

There are a number of cross-cutting challenges in implementing such institutional change, including: lack of finance, human resources and institutional will; apathy to public participation and politics; development of deviant cultures; and stigma and discrimination.

Specific changes required in the planning process include revisions to the TCP Act and Orders, more integrated use of technology and a more transparent governance framework with the use of planning committees to adjudicate on large developments, including members of the public and held in public fora. This could perhaps be facilitated through the utilisation of a revised Constituency Council framework. There is also the need for the development of more integrated relationship with agencies required to give clearance through the development of clear protocols and/or memoranda of understanding (MOUs) and stricter application of restrictions on development outside of PDP. Greater coordination overall is also needed, especially in relation to the linking of changes in the transport system with changes in development patterns.

It is suggested that greater utilisation of ICTs would assist in addressing the challenges faced. To do this there is a need to centralise and consolidate the IT branch of the public sector, as well as harmonise IT systems and software, and in general enhance the IT skills base of public servants.

The interrelatedness of urban and rural development policies also suggest that there is a need for a symbiotic relationship between the UDC and the RDC, given the complementarity of their operations, perhaps with the incorporation of the two under a single ministry, specifically the Ministry of Housing, Lands and Rural Development. In addition, given the contradictions in the definition of the UC by the UDC and the PDP, an alteration of the UDC Act to ensure the definitional issues related to the UC are harmonised with the PDP in law, and not as defined by the minister responsible; this would result in additional resource requirements for the UDC as the geographical scope of their remit is expanded.

Apart from strengthening, there is also a need for a greater use of existing powers, such as the need for the UDC to increasingly utilise its powers under the UDC Act that allows for the acquisition of land in its defined area through the Land Acquisition Act 1995 Cap 228, and develop derelict land, or force its upkeep and

development. Other incentives to promote infilling and the upkeep of vacant lands in the UC should also be considered such as subsidised financing for private developers or fiscal incentives.

There is also a need to increase public participation and implement of policies for vulnerable groups through:

- Efforts to reduce negative perceptions of public participation, and increase transparency in the governance process. The implementation of integrity legislation would enhance these efforts.
- Greater involvement of the NGO community to enhance public participation to lobby for the expediting of the implementation of plans and policies for vulnerable groups
- Increase awareness of the activities of Constituency Councils
- Integrate the activities of Constituency Councils in national development plans, including issues related to land use planning

In relation to safety and security challenges in the transportation system, there is a need to address a *minibus culture* with privately-owned public sector vehicles (PPSVs) which flout the road traffic regulations by speeding, reckless driving, playing of loud music, and going off their designated route. Part of the cause of the emerging culture is the highly competitive nature of overcrowded routes and a lack of timetabling. There is a need in this case to have a complete revision of the system to reduce aggressive behaviour, perhaps through the allocation of individual routes to specific cooperatives of individual owners as well as the implementation of timetabling.

V. URBAN ECONOMY

28. IMPROVING MUNICIPAL/LOCAL FINANCE

As the country does not have any autonomous authorities below the level of Central Government, the financing of development comes from national budget allocations. As noted throughout the report the Government is currently experiencing fiscal challenges due in part to the global economic crisis which has resulted in limited economic growth, fiscal deficits and increasing debt levels. These occurrences are constraining the implementation of policies and programmes to assist in sustainable urban development. In seeking to address these challenges, the Government, in addition to its role as a facilitator of private sector activity for economic growth, has sought to reduce recurrent expenditures, increase revenue through additional taxation and the removal of some tax allowances, and enhanced revenue collection through the consolidation of all revenue collection agencies under one body, the Barbados Revenue Authority (BRA).

The Government's current strategic plan (Barbados Growth and Development Strategy 2013-2020) is '*strongly private sector led*' (Moore, 2013:5), with four main drivers of growth noted as FDI, business facilitation, increased productivity and competitiveness. The three key policy targets are:

- 1) Enhancing economic stability, productivity and efficiency;
- 2) Expanding private sector and export-led production and competitiveness; and
- 3) Promoting innovation and diversification.

These policy targets are guided by four broad policy goals:

- 1) Return the Barbadian economy to a sustainable growth rate of 3% by 2017 and 4.5% by 2020 while maintaining macroeconomic stability;
- 2) Facilitate broad based adjustments and reforms in the economy;
- 3) Enhance social and human development; and
- 4) Enhance environmental sustainability in the context of the green economy.

To assist in achieving these targets and goals, the Government has indicated that it will utilize both revenue enhancement and expenditure reduction measures, including:

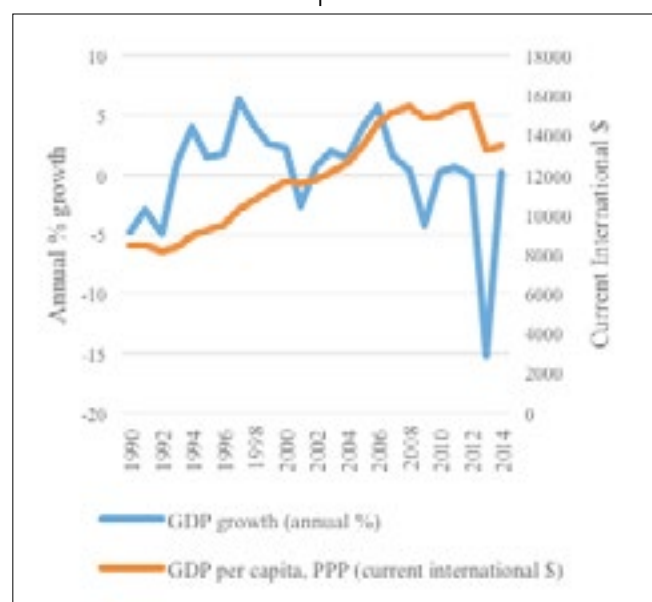
- Reduction in funding for tertiary education
- Promotion of efficiency and reduction of transfers to statutory corporations
- Increased productivity, efficiency and reorganisation/rationalisation of the public service

- Tax allowances for energy audit retrofits to increase the use of renewable energy as a cost saving and sustainable development measure
- The incurrence of debt only for productive purposes such as capital works programmes and investments in specific sectors such as tourism, manufacturing, agriculture and renewable energy
- Tax reform and institutional modernisation initiatives (including the formation of the BRA) to increase revenue collection
- Containing the growth in public sector employment

Through its statutory agencies the Government has provided funds to assist with urban development. For example the Urban Development Commission (UDC) which provides for the cost of improving the living and working conditions of urban households was allocated Bds\$13.5m in 2013/14 financial year with Bds\$7m being earmarked for capital expenditure. The Barbados Tourism Investment Inc. (BTI) which manages the urban rehabilitation programme in Bridgetown, Speightstown and St Lawrence Gap was allocated Bds\$14.9m in 2013/14 with Bds\$10m going to capital works development. The budget for these two agencies was reduced in the 2014/15 budgetary exercise, thus reducing the pace of urban development.

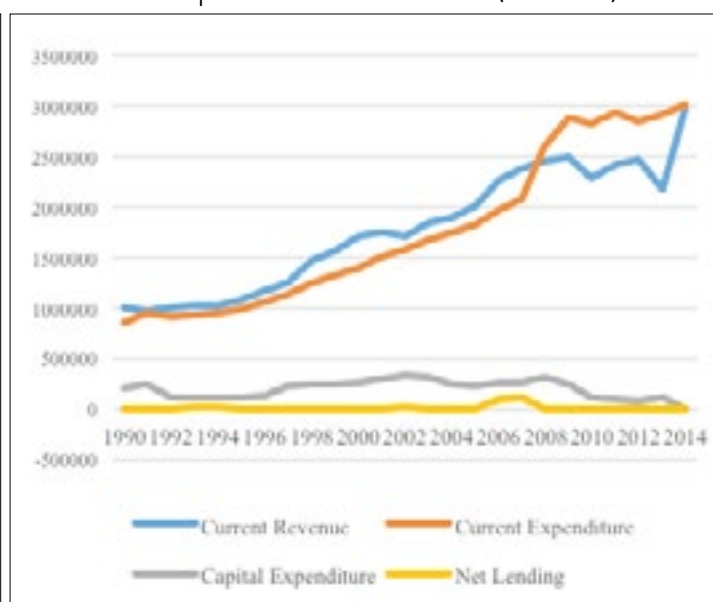
Figure V 1: Selected Macroeconomic Indicators 1990 to 2014

GDP Growth and Per Capita 1990 to 2014



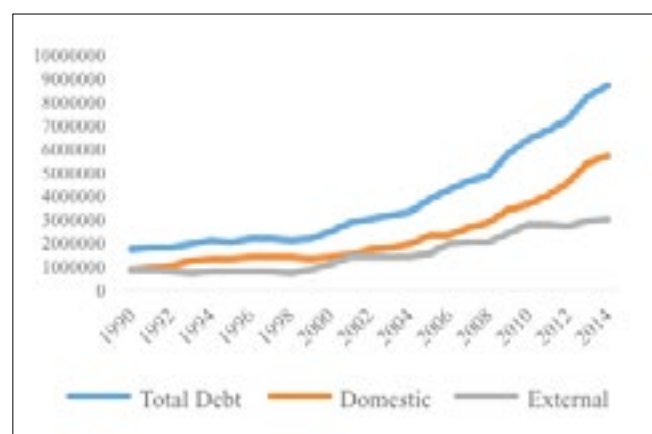
Source: World Development Indicators

Government Operations 1990 to 2014 (BDS'000)



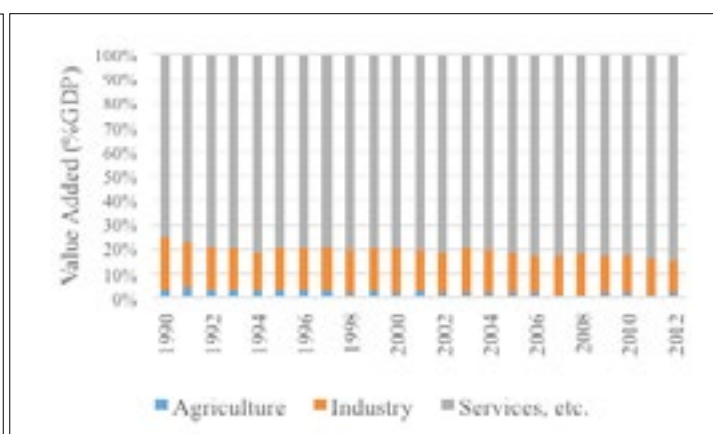
Source: Central Bank of Barbados

Gross Government Debt Outstanding 1990 to 2014 (BDS'000)



Source: Central Bank of Barbados

Value Added in Agriculture, Industry and Services 1990 to 2012



Source: World Development Indicators

29. STRENGTHENING AND IMPROVING ACCESS TO HOUSING FINANCE

In 1997, 74% of households' tenure type was 'owned' (IADB Poverty Study); a similar figure was seen in the 2000 and 2010 Censuses (75%). This level of home ownership is in part due to the extensive network of bank and non-bank financial institutions in the country including an extensive credit union movement with a penetration ratio of 81.5% (World Council of Credit Unions Statistical Report, 2014), and public sector agencies, particularly the NHC. In the case of the latter, some individuals who do not meet the requirements stipulated by the commercial banks or credit unions may be given some leeway/assistance to acquire housing with basic services. It has been observed that lines of credit provided by building material suppliers have been used extensively by persons undertaking incremental construction.

All Government projects focus on attaining social sustainability whilst factoring in economic and environmental costs. The design of the dwelling units within the UC seeks to promote environmental sustainability, offer basic/extended resistance to natural disasters (preparation for a one in 25 year severe storm event), and optimal land use. It should also be noted that 70% of the housing stock is privately owned. To improve access to housing, the Government has undertaken various initiatives over the past 20 years:

Housing Every Last Person (H.E.L.P) programme

- Targets vulnerable groups and victims of natural or man-made disasters through the Government's welfare programme.

Housing Everyone an Affordable Realistic Target (H.E.A.R.T) programme

- Provides access to housing for individuals in dire need of assistance.

Both programmes include options such as rental of terraced units, rent-to-own and a starter home programme. These programmes complement the MHLR's programme for persons who require relief and relocation from areas prone to natural hazards such as land slippage (for example the case of Whitehall in St. Andrew), flooding and dilapidated road networks.

500 Lot Programme

- Targets individuals who work for under \$2500.00/month. It should be noted that the NHC provides pro bono legal services for such lots. In the case where the tenant has resided in the unit for at least 20 years and is in good financial standing, the Government is willing to transfer ownership of the property to the residing tenant.

Starter Homes

- Targets individuals who work for under \$3000.00/month.

Regular Homes

- Targets individuals who work for \$3000/month - \$4500/month.

Urban High Rise Programme

- Government projects which make optimal use of the limitations of land particularly within the urban corridor.

Joint Ventures

- Projects which stem from public-private partnerships to provide adequate access to housing.

The credit union movement has been a significant player in the provision of housing finance to its members. For example, the largest credit union in the country, the Barbados Public Workers' Co-operative Credit Union Ltd provides real estate loans and mortgages for its members with approximately 40% of its loans and advances being allocated to mortgages during the period 2014 to 2015. The City of Bridgetown, another large credit union, provided loans for housing, land and mortgages to the tune of 60% of its loan portfolio in 2014. Commercial banks have always played a major role in the provision of housing finance in Barbados. Between 1995 and 2013, commercial bank loans/mortgages for private dwellings increased from Bds\$35m to Bds\$2377m.

30. SUPPORTING LOCAL ECONOMIC DEVELOPMENT

The urban economy can be estimated by deducting established rural activities such as agriculture and mining and quarrying from total GDP³³. This procedure indicates that real GDP in the urban economy increased from Bds\$785.3m in 1995 to a provisional value of Bds\$1026.8m in 2013. These estimates suggest that urban economic activity at the outer limit accounted for over 90% of total real GDP over the period. There was also a general rise in the share of urban production from 93% in 1995 to 97% in 2013. Over the period 1995 to 2013, "urban real GDP" rose by 1.6 percent per annum with most of this growth occurring prior to the recession.

The Barbadian urban economy has seen the concentration of several forms of private sector activity: legal and medical services, financial institutions, international business services and institutions, tourism and hospitality, and public utilities. As observed by Potter et al. (2004) public sector activities are more dispersed across the island, although a high percentage of public sector institutions can be found in the UC. Indeed the provisions in the Physical Development Plan and other regulatory instruments determine the extent to which certain types of activities can be undertaken within the UC.

The Government has established agencies to foster urban economic development in Barbados. The Barbados Tourism Investment Inc. (BTI) has a number of projects associated with urban renewal within the UC as part of its tourism development plan. These projects complement the Government's initiative relating to the development of historic Bridgetown and its Garrison which underpins the heritage tourism drive. There is also an initiative to develop Bridgetown as a Sustainable City. The UDC is charged with the redevelopment and improvement of social amenities in "urban" areas as described previously. These activities help to develop and expand the urban infrastructure and provide the enabling framework for economic activities.

While large and medium size businesses have dominated urban economic activity over the years, there has been a concerted effort to provide for micro and small enterprises. In general, there has been a steady movement of business activity from the Greater Bridgetown area to the outer areas of the UC. Business development has been facilitated by several Government initiatives: Small Business Development Unit of the Ministry of Commerce, the Youth Entrepreneurship Scheme, the Barbados Investment and Development Corporation (BIDC), an innovation fund, and a national microenterprise programme. The lobbying activities of business associations such as the Barbados Chamber of Commerce and Industry, the Small Business Association, the Barbados Coalition of Service Industries, the Barbados Manufacturing Association, the Barbados Hotel and Tourism Association, the Barbados International Business Association and the Barbados Private Sector Association have spurred greater development in the UC. The urban area therefore covers a range of business activities (from small scale to upscale) and is serviced by a relatively efficient public utilities infrastructure. There is also some degree of informal sector activities as expected in any urban area. Such activities include petty trading/vending along the highways and areas of high pedestrian traffic (for example, the bus-stands).

31. CREATING DECENT JOBS AND LIVELIHOODS

The growth of urban economic production inevitably results in employment for a significant number of the labour force. The level of "urban employment" increased from 95,900 persons in 1995 to 121,700 in 2013 with increases being recorded in services and public utilities³⁴. There was some degree of volatility in tourism employment over the period and reflects the effects of the recession experienced by the country.

³³ Section VII: Indicators for 2000 and 2010- Share of National Gross Domestic Product (GDP) that is produced in urban areas provides a more extensive discussion of urban production.

³⁴ As in the case of urban production, data are not collected to fit the physical configuration of the urban sector. Adjusting the national employment data (in the same manner as for the estimates of urban GDP) to exclude agriculture, mining, quarrying and in this case construction (as the data are combined), a rough estimate of urban employment can be provided. Caution must be taken with the use of the data since labour force data are collected at the household level and relate to self-reporting on the sector of employment which may or may not be in the UC.

Unemployment has been a significant problem facing the country since 1995. The national unemployment rate declined steady from 19.5% in 1995 to a low of 7.4% in 2007 and then rose to 12.3% in 2014. The youth (15-24 years of age) unemployment rate tended to be two to three times higher than the national rate: 37.8 % in 1995, 16.3% in 2007 and 30% in 2013. Given the concentration of households in the UC, Barbados can be regarded as having a serious “urban youth unemployment problem”. Several reasons have been cited for the existence of this problem: lack of human capital needed for the labour market, lack of suitable job opportunities for school leavers, lack of work experience and knowledge of labour market needs which make the transition from school to the world of work difficult, and a poor work ethic. Youth unemployment has been associated with social exclusion, criminal activity and deviance. Some efforts have been made to arrest the situation through various social programmes: youth-at-risk, skills training and community development.

The “urban economy” provides a source of income for persons both in the urban and rural areas. Persons commute to the urban area by private and public transportation to work on a daily basis given the small size of the country.

Barbados has developed a decent work programme 2012-2015 in keeping with its ILO obligations. The programme calls for the establishment of labour standards and rights at work, gender equality, sustainable enterprise development, skills development, social protection and social dialogue. In recent years the Government has enacted legislation to reflect the programme: the Employment Rights Act and the Safety and Health at Work Act. In addition, there is a long standing social partnership arrangement which permits social dialogue amongst the Government, private sector and the labour unions, as described previously. Although there is no explicit reference to urban economic development in the Protocols, it is expected that the realisation of the provisions would have some positive effect on urban employment and livelihoods. It is also expected that the drive to sustainable development in the PDP, and recent initiatives to establish sustainable towns in the context of the greening of the economy, would result in sustainable employment and livelihoods for those in the urban corridor.

32. INTEGRATION OF THE URBAN ECONOMY INTO NATIONAL DEVELOPMENT POLICY

There is no doubt that the urban economy has historically played a key role in the national development of the small island development state of Barbados. Over the years the Government has sought to bring some degree of order in the physical and hence economic development of the country through the preparation of Physical Development Plans starting in 1970 with the latest being the 2003 Amendment. These plans have complemented National Strategic Development Plans which cover the social and economic development of the country. While these plans are linked in theory, in many respects there has not been much explicit integration of the two planning processes. Although the PDP makes reference to economic development zones across the country, the issue which must be considered is the extent to which these provisions are followed in the strategic economic development process.

The small size of the country and the extensive network of approximately 1,475 km of paved road allows for a relative easy flow of the population into and out of the urban area. The public and private transportation systems provide ready access to urban economic activity. As indicated in other sections of this report, there has been steady household formation outside of the central urban area of Greater Bridgetown and St. Michael into the immediately contiguous parishes. Persons outside of this central urban area commute to it on a daily basis to work. This situation has given rise to challenges with respect to parking in the urban areas and congestion on the roads. While designated parking areas have been established, there is some degree of informal parking taking place. In relation to road congestion, the use of tax measures and other incentives have not been used. Reliance has been placed on the use of roundabouts and widening of the road system to accommodate the flow of traffic between the urban and non-urban areas. A park and ride system has been used for special events and can be extended to other activities with the appropriate incentives being put in place.

The existence of the main ports (sea and air) in the UC means that the urban economy will always be an integral part of the national development policy. For small islands such as Barbados, the operation of these ports is vital to the overall economic well-being of the country.

33. IMPLEMENTATION CHALLENGES AND LESSONS

While there are still concerns regarding the amount of progress made in achieving public policy targets, the IMF 2015 Article IV consultation 'welcomed' some of the progress seen. Improvements in the balance of payments were seen in 2014, with a slight fall in the current account deficit and a small increase in international reserves. The current account deficit is expected to fall to 5% of GDP, while the Central Government deficit fell from 11.2% of GDP in 2014 to 6.6% in 2015. Revenue growth improved in part due to better tax administration. However, potential demand boosts due to improving external conditions were dampened by the fiscal adjustments being undertaken.

Although some of the progress made was commended by the IMF, challenges were noted as: external risks; continued high fiscal deficits and debt levels; and relative competitiveness of the economy. The IMF Directors note that there is however scope for improved growth and sustainability through stronger fiscal and structural reforms. Recommendations included the divestment of state assets to lower the high debt levels, and a broadening of the tax base and removal of tax waivers and allowances. It is also suggested that the Central Bank of Barbados reorient monetary policy towards preserving the fixed exchange rate regime and discontinue the direct financing of Government.

Overall, the challenges facing the development of the urban economy of Barbados can be examined from four (4) perspectives: institutional, economic, social and environmental.

INSTITUTIONAL

There is a need to collect data to reflect the physical configuration of the urban economy so that a better analysis of its growth and development can be undertaken. Reliance on estimates using national figures can result in a significant under or over estimation of the size and operation of the urban economy.

The range of governmental institutions responsible for urban development needs to be rationalised and strengthened so that a clear and unambiguous mandate and direction can be provided. It also avoids duplication and allows economies of scope to be realised in the process.

The development of the urban economy can benefit from a greater integration of physical and socio-economic planning. The long gestation associated with the preparation and operationalisation of the physical development plans needs to be shortened. While the PDP makes reference to socio-economic developments in the urban and rural areas it is not clear that there is a mechanism to link such development to other socio-economic national strategic plans. A new institutional framework might be needed to link the two planning processes (e.g. the Planning Institute of Jamaica) or the linkage needs to be strengthened.

The private sector needs to be more involved in the planning process as it is not clear that the sector is included in the planning of the urban economy but is expected to lead the process.

ECONOMIC

The country depends significantly on the urban economy which has resulted in some degree of rural economy decline (i.e. the urban bias or primacy). Greater effort is needed to foster rural economic development which would complement urban economic development. The linkage of urban and rural activities can take place in such areas as urban agriculture, rural tourism and community tourism.

Urban business development supported by a governmental enabling process is needed to overcome the issues of urban poverty and youth unemployment. Although these are national problems they are particularly acute in the urban corridor. Private sector investment (small and large business) is needed.

SOCIAL

The social infrastructural development is needed to overcome the challenges of urban poverty and its associated effects – crime, overcrowding, poor sanitation etc. These issues can have adverse effects on business activities and therefore need to be addressed via private-public sector partnerships.

The decentralisation of some activities may also help to alleviate the stress placed on the urban economy.

ENVIRONMENTAL

Road congestion and daily commuting can have an adverse effect on the environment and the economy – pollution, low productivity. Governmental measures would be needed to address this situation.

General Challenges:

- Availability of mortgage finance, commercial and subsidised- however difficulties experienced due to rising prices and scarce land
- Institutional overlaps (e.g. UDC and NHC) which need to be ameliorated. The Government has started to work on the rationalization of its statutory bodies and enterprises
- Traffic congestion, air pollution and informal parking in the urban area stymying growth due to the concentration of economic activity in the UC.

34. FUTURE CHALLENGES AND ISSUES

A new urban agenda is evolving in the context of Barbados. This new agenda is focused on urban renewal with sustainable development or greening the economy being a central thrust. Such agenda should include not only the physical development of the central arrears of the urban economy in the context of heritage development but also socio-economic development to provide for the reduction of urban poverty and unemployment and the development of the rest of the economy. It was noted at the National Consultation on Habitat III that there was a lack of exploitation of the full potential of Bridgetown with a lack of restoration and development of historic buildings which are currently in state of disrepair and perceptions of high crime levels. Extracts from the report on the National Consultation are informative here:

'Bridgetown should not only be commercial but should also be a place where people would want to live. Where there were no derelict buildings, where there were rest-rooms, have pedestrian areas and more green spaces such as in Church Village' (p.20).

'Cruise ships, Bridgetown and the tourism sector needed attention, for example, when ships arrived but Bridgetown was closed, this would require amendments to the Shops' Act and therefore consideration should be given to having longer opening hours for both business and entertainment purposes' (p.22).

The greater use of information and communications technology (ICT) should also play a vital role in the new agenda especially in relation to the generation of new business activities. The use of ICT can diffuse the location of several types of activities which might be currently located in the "urban" area.

There is also a challenge in reducing of traffic congestion and parking challenges which should also be addressed in the new agenda via intra-urban transport which is efficient and flexible in order to boost economic activity in the central urban area.

Failure to devise and implement an urban development plan that falls in line with the country's medium to long term objectives will result in an overall mismanagement of resources. In the event that urban economic opportunities do not keep pace with the changing dynamic within a country's landscape as it relates to the increasing prevalence of job seekers, availability of affordable housing and efficient transportation, urban sprawl will occur. Urban poverty can pose detrimental impacts on a society's level of commerce, its standard of living and the extent of biological diversity. It will result in higher incidences of crime coupled with the emergence of a vibrant informal sector. Urban planning needs to take into consideration the potential growth of the informal sector by seeking to provide avenues for formal businesses (micro and small) to be established within the established legislative framework.

VI. HOUSING AND BASIC SERVICES

35. SLUM UPGRADING AND PREVENTION

Although the Government has implemented a number of initiatives to improve housing standards and, by indicators developed by the United Nations to assess a nation's housing conditions Barbadians are found to be well housed³⁵, the existence of poor housing conditions persists in areas and infrastructure and utility services within some communities require upgrading (UN-DESA, 2004a).

Revisiting Habitat II, it was similarly reported that although progress had been made in the quantity and quality of the country's housing stock, there was still no mandatory compliance to the then 1993 National Building Code, and as a consequence building construction standards, particularly among lower income households, were variable. While the Building Code was subsequently updated in 2013, compliance is still not mandatory, although it is recognised that artisans trained in local institutions are instructed in best practice. However the MTW is currently developing a framework for its mandatory implementation. Meanwhile, both the Building Standards Authority (BSA) and the Barbados National Standard Institution (BNSI) are working towards building awareness of the updated Code and the Barbados Building Standards (e.g. national awareness seminars and televised programmes). Additionally, the Barbados Building Act is presently in the final stages of preparation, and BNSI has a number of existing and planned standards pertaining to safe housing.

The National Housing Corporation (NHC), established in 1973 by the Housing Act, Cap 226, continued the activities of the Housing Board and the Housing Authority which included the provision of low-income houses and land for Bridgetown residents, and acquisition of land for building, erecting houses, clearing slums, redeveloping overcrowded areas, and lending money for the repair and alteration of existing houses around the country (SALISES, 2012b). To improve security of tenure, the Transfer of Terrace Units Programme was introduced in 2008 which allows NHC tenants who have occupied their rental units for 20 years or more and are up to date with rent payments to have their units transferred to them free of cost. It should be noted that the NHC provides maintenance services for all of its rental units.

Another initiative, the Housing and Neighbourhood Upgrading Programme (HNUP), was launched in 2009 by the Ministry of Housing, Lands and Rural Development (MHLR) with assistance from the IDB. The HNUP, recently completed, was designed to: improve housing conditions of low and lower-middle income families; revitalise and urbanise depressed communities; and expand Government's support systems and ability to provide affordable housing. Under the Neighbourhood Upgrading Component, improvements were made to urban sites such as Cats Castle, Greenfield, and Garden Land (e.g. connection to the Bridgetown Sewerage Treatment System, and the option for residents to connect to natural gas mains). Through the Support for Affordable Housing Component, the MHLR was able to offer grants (up to \$10,000) to persons across urban Barbados who fell within a prescribed income scale to undertake repairs to their homes.

As indicated in Section I, the UDC has also spent BD\$30 million on house repairs and replacements, with over 1300 houses built or repaired during the period 1997 to 2005, and the prevalence of pit latrines was reduced from 32% in 1990 to 6% in 2010.

36. IMPROVING ACCESS TO ADEQUATE HOUSING

In the 1996 Habitat II report, the priority shelter issues were:

- a. Insecure tenure for a majority of households renting lots in non-tenantry situations;
- b. Availability of serviced land for lower-income households to rent/purchase;
- c. Existence of available serviced, vacant residential land, while simultaneously there was shortage of land for select income groups;
- d. Squatting on Crown Lands, particularly in Zone 1 water protection areas³⁶.

To this end, the National Plan of Action (1996) had two goals relating to shelter: 1) Adequate shelter for all; and 2) Home-ownership for the widest majority.

³⁵ Barbados does not have slums; however, pockets of poverty exist where improved housing conditions and security of tenure are needed (Innis, 2007, p. 73).

³⁶ Identified as a less serious issue than the others.

In 2009, the NHC launched the Housing Every Last Person (H.E.L.P)³⁷ Programme which was aimed at providing housing for persons earning less than \$4,116 per month. H.E.L.P provides homes at prices ranging from \$100,000.00 to \$175,000.00 for a completed house and lots separately at prices ranging from \$17,500.00 to \$35,000.00 (SALISES, 2012b). One of the developments under this programme was the construction of 20 units at Tweedside Road, The City. In that same year, the Rent-To-Own pilot programme was launched with 16 duplex units at Airlie Heights, Cave Hill, St. Michael. Rent-To-Own gives persons earning less than \$3000.00 per month an opportunity to become home-owners. Recipients pay two months deposit and then make monthly payments equivalent to 30% of income as rent for seven years. By the end of this period, these payments go towards the eventual purchase of the unit.

Another NHC initiative is the Starter Homes Policy, launched in 2011. This policy provides low-income earners (less than \$3000 monthly), an opportunity to purchase a house and lands (between \$70,000 and \$100,000), with the expectation that improvements will be made to these properties over time, based on the financial circumstances of the purchasers (BGIS, 2010).

In terms of financing options, the Housing Credit Fund (HCF), which was initially managed by the MHL, is geared towards improving access to and ownership of adequate housing. The HCF is now administered by the Central Bank of Barbados, and as December 31 2014, was valued at BD\$156,743,836³⁸.

Provision of funding is also available through the General Workers Housing Loans Fund, which was developed to assist low-income earners to attain homes. It provides funding for the construction of homes, repairs, movement of chattel houses to other sites, and the discharge of other mortgages. The maximum amount provided for house repairs is \$5,000 (SALISES, 2012b).

Through collaborations between the MHLR, UDC and the Welfare Department, accommodations are also provided for vulnerable groups such as the homeless, battered women, fire victims, and persons impacted by other disasters.

In relation to private-public partnerships, Government has provided land, professional services, the approval of applicants, pricing guidelines and housing designs, while the private sector has dealt with housing construction and delivered the final products to the NHC at sites such as Coverley Phases I and II, Bulkeley Meadows, Hoyte's Village and Deanstown Heights. The labour and credit union movements have also been involved in the provision of housing with the Barbados Workers' Union development in Mangrove and the Barbados Union of Teachers development in Hothersal.

37. ENSURING SUSTAINABLE ACCESS TO SAFE DRINKING WATER

Barbados' drinking water supply meets the World Health Organisation (WHO) Drinking Water Standard, and is safe for consumption. However, it should be noted that although the island's water quality is high and supply is reliable, Barbados is classified as a water scarce country.

At the time of Habitat II, approximately 94% of all households had access to safe drinking water. According to the 2010 Census of Housing and Population, approximately 100% in both urban and rural areas have access to safe potable water; including those who have access to standpipes or water from a neighbour's property (see Table VII 4 in Section VII).

The Barbados Water Authority (BWA), a statutory corporation with the responsibility of managing, protecting, allocating and monitoring the water resources, extracts its water from aquifers through 22 wells (17 sheet and 5 stream water wells), 8 boreholes and 2 springs (Codrington College Spring and Benn Spring) across the island. The remaining supply is purchased from a privately-owned desalination plant, Ionics Freshwater Ltd. (BWA, 2013; BWA, 2015). The water network across the island consists of over 2000 miles of transmission and distribution mains, and customers receive water via distribution mains connected to 22 pumping stations, 14 re-pumping stations and 27 reservoirs (BWA, 2015).

³⁷ H.E.L.P replaced the H.E.A.R.T Programme (Housing Everyone An Affordable Realistic Target)

³⁸ Details are provided in the accompanying Appendices document.

The BWA has the legal responsibility of ensuring water quality under the Barbados Water Authority Act. Water quality is protected and ensured through the following measures:

- The National Groundwater Protection Zoning Policy, 1963 (updated 2010), protects the groundwater resource, primarily from bacterial contamination. The Policy divides the island into five zones. Zone 1 has the most land use restrictions while Zone 5 has the least. The zones determine waste disposal methods, as well as provide a framework for development control.
- The BWA disinfects water at pumping stations to ensure biological safety.
- Source monitoring is conducted by the EPD³⁹ and the BWA, and is reinforced by a distribution system monitored by the Environmental Health Department (EHD) and the BWA. The EPD and EHD both act as regulators of the BWA.
- The Barbados Agricultural Development and Marketing Corporation (BADMC) monitors water quality for agricultural purposes, while the Pesticide Control Board restricts or bans products that are likely to have a deleterious effect on the environment, particularly the contamination of the potable water supply (UN-DESA, 2004b; GOB, 2010).

As it relates to supply, the BWA has implemented a National Water Conservation Plan and an Emergency Drought Management Plan (GOB, 2010). Also in 2010, the Government signed a contract for a US\$50M loan from the IDB for the Water and Sanitation Systems Upgrade Project (WSSU). The WSSU is intended to address the following major challenges facing the BWA:

- Organisational and operational inefficiencies;
- The current groundwater abstractions exceeding sustainable groundwater yields;
- High Non-Revenue Water which is estimated at 49% of the water produced; and
- A high annual energy cost of approximately US\$13M (BWA, 2013).

38. ENSURING SUSTAINABLE ACCESS TO BASIC SANITATION AND DRAINAGE

Habitat II recognised that the high concentration of residential and business settlements along the south and west coasts had implications for the proper disposal of solid waste and wastewater, as well as the drainage system. Then, only the Bridgetown Sewerage Treatment System (BSTS) was in operation.

Over 90% of the population has access to improved sanitation facilities with sanitation and waste management the responsibility of four agencies:

- EPD: monitors solid waste management and Government-operated solid waste disposal sites.
- Sanitation Service Authority (SSA): collects and disposes non-hazardous municipal solid waste (MSW). SSA operates the Mangrove Pond Landfill; Bagatelle Bulky Waste Disposal Site; Rock Hall Asbestos Disposal Site; and Lonesome Hill Blood and Grease Disposal Site.
- Solid Waste Project Unit: implements the Integrated Solid Waste Management Programme.
- BWA: provision of wastewater treatment and disposal services to the sewered areas of Bridgetown and the south coast (GOB, 2010; BWA, 2015)

Sewage disposal in Barbados varies depending on locality, type of structure, and the water protection zone in which the property is situated. The country is now serviced by two municipal wastewater treatment plants, the BSTS and the South Coast Sewage Treatment System, along with several package treatment plants. Planning is at an advanced stage for the construction of a third wastewater treatment facility along the west coast (GOB, 2010; AQUASTAT, 2015). With that said, the two existing treatment plants only service approximately 7% of the population. The rest, including hotels, rely on package treatment plants and septic tanks. Also, the planned west coast treatment plant is currently not funded, and given the project's scope, financing may not be readily forthcoming (A. Cashman, personal communication, June 5, 2015).

The SSA manages bath houses which provide persons in need with access to sanitary facilities. Their Reed Street Depot is also responsible for cleaning select drains in Bridgetown. Otherwise, drainage management and flood prevention falls under the purview of the Drainage Unit.

³⁹ EPD's monitoring consists of the Groundwater Monitoring Programme (samples are collected from all potable and several agricultural wells once per month), Widescreen Groundwater Monitoring Programme (biannual collection of water samples from potable wells), and the Wastewater Monitoring Programme (once per year during the months of April to September).

In 1996 Barbadians and visitors generated an average 400 tons of solid waste daily. Today, that number has increased to an average 980.17 tons per day, and 358,000 tons per year. To ensure the sustainable management of MSW, the Government is embarking on the construction of a waste-to-energy facility. The “Mangrove Pond Green Energy Complex and Landfill Beautification Programme” encompasses a wind and solar farm, landfill gas-to-energy facility and Leachate Treatment Plant, Waste-to-Energy Facility, new Administration Building and Workshop, the covering and beautification of the existing landfill, and a newly installed state of the art landfill.

The MED is currently implementing a system of separation at source. This initiative was introduced with the launching of a Green Truck and Curb Side Collection Programme. Separation at source is being executed at a private housing development, “The Villages” at Coverley, Christ Church. Of note, the Returnable Recyclables Act has reduced the amount of plastic and glass drink bottles sent for disposal.

At present there are no guidelines for the disposal of old vehicles or the recycling, recovery or reuse of their components. With respect to electronic waste disposal and recycling, the EPD is currently developing guidelines for recyclers, providing information on safe and environmentally sound methods. The EPD also conducts periodic inspections of these facilities and provides guidance on best practices.

39. IMPROVING ACCESS TO CLEAN DOMESTIC ENERGY

As indicated in Habitat II, the country has been committed to increasing energy efficiency in settlements. For instance, through its National Energy Policy (2006), and the Government offers tax incentives for home energy audits.

One of the four goals articulated in the Government’s Medium-term Growth and Development Strategy (MGDS) 2013-2020 is to “enhance energy and environmental sustainability in the context of the Green Economy”, primarily by reducing the country’s dependence on fossil-fuels (GOB, 2013a).

The Barbados Light & Power Company Limited (BL&P), the island’s sole electricity utility provider, has four current and planned programmes and facilities that enhances access to clean domestic energy: the Renewable Energy Rider (RER) Programme, Unit CG02 (Waste Heat Turbine), Lamberts Wind Farm, and St Lucy Solar Farm.

In particular, the RER was developed to facilitate the interconnection to the grid of customers who install photovoltaic or wind systems for their own use and wish to feed any excess energy into the grid. Provision is made through the Electric Light & Power Act (ELPA) 2013, for customers with renewable energy systems over 150 kW to connect to the grid and sell the energy via a power purchased agreement with the utility that has been approved by the Regulator.

At the end of April 2015, the RER had 8.1MW of installed photovoltaic capacity. This represents 3.38% of the installed generation capacity of the BL&P only. Assuming a capacity factor of 21% for distributed photovoltaic systems, this represents 1.5% of the annual gross electrical energy produced by BL&P in 2014.

First introduced in the 1970s, the number of solar water heaters in Barbados had grown to approximately 40,000, with more than 30,000 domestic installations by 2014. This indicates a significant penetration by the industry into the domestic market. The success of the industry in Barbados can be attributed to strong Government support in the form of financial and fiscal incentives, external events in the international energy market, and innovative entrepreneurs. It has been estimated that the cumulative cost of solar water heater incentives, up to 2002, was US\$ 10.75 million with energy savings estimated to be in the range of US\$133.5 to US\$137 million. Savings on primary oil consumption were estimated to be US\$0.3 to US\$4.2 million, equivalent to 30 to 40% of the present domestic consumption (Moore, et al., 2014, p. 99).

The accompanying Appendix document provides summaries of on-going GEF-SGP projects related to renewable energy and energy efficiency.

40. IMPROVING ACCESS TO SUSTAINABLE MEANS OF TRANSPORT

Views on the interest of Barbadians in low-emission vehicles vary. For instance, Nassco Ltd., a local provider of hybrid vehicles, believes that more awareness is needed among the population to promote the transition to sustainable forms of transportation. Beyond improved awareness, it is also suggested that if the price is right, more persons would be inclined to purchase low-emission vehicles. Unless Government works with providers and reduces the import duties on hybrid vehicles, Nassco will continue to have an extremely difficult time selling these vehicles.

Table VI 1: Number of Hybrid Vehicles Imported and Sold by Nassco Ltd, 2009-2014

	2009	2010	2011	2012	2013	2014
Imported	6	6	0	0	7	3
Sold	0	7	3	1	3	4

On the other hand, it has been the experience of Megapower, a provider of electric vehicles (EVs), that most Barbadians are very interested in alternatives to fossil fuel vehicles, with high fluctuating fuel prices and environmental concerns being the main motivators. Therefore, the majority of persons are interested in economic savings to be gained, as EVs are typically three times cheaper to operate and maintain. Between June 2013 and December 2014, the company imported and sold: fifty (50) Nissan LEAFs; one (1) Nissan ENV200; two (2) BMW i3s; and one (1) Gocycle (electric bike). There are approximately 100 dedicated charging points on the island, approximately 20 of which are public⁴⁰. Generally, every customer that has an EV has a charging point, at home, work, or at both locations.

Megapower has found that owning an EV encourages and compliments green living. Around 80% of their customers have photovoltaic systems at their home or workplace, which were installed prior, at the same time, or soon after purchasing their EV. Another sentiment expressed by Barbadians was that public transport (e.g. ZR vans, buses and taxis) should transition to electric vehicles, as they produce lower levels of emissions. Megapower is currently looking into the feasibility of this.

It should be noted that the Government has expressed its interest in sourcing electric and hybrid buses powered from renewable sources as a means of greening the transportation sector (GOB, 2013b). In addition, from 2014 the BTB has been using low sulphur diesel to power its fleet.

41. CHALLENGES EXPERIENCED AND LESSONS LEARNT

The lack of legal status of the Barbados Building Code is a challenge in providing safe and adequate housing. Although locally trained building artisans are instructed in best practice, the lack of compulsory application of the code can lead to the construction of unsafe units with limited legal recourse.

While supporting the upgrade of urban housing, the HNUP is now recognised as being overly ambitious with lessons learnt including:

- Recognising the need for a multi-agency and participatory approach to development projects;
- Addressing land acquisition issues prior to programme execution, especially where multiple landowners are involved;
- Ensuring adequate temporary accommodation for relocated residents; and
- Setting realistic targets.

The lack of a graduation policy means that the majority of NHC units become permanent residencies, despite persons' advancement to higher income brackets. Therefore, the Government is increasingly pressured to provide additional housing that meets low-income housing demands. Another issue is that the heavily subsidised rents of NHC units do not provide sufficient funds for maintenance.

⁴⁰ The following website identifies some of the public and residential charging stations in Barbados: <http://www.plugshare.com/>

A perennial challenge in the provision of housing is the persistence of vacant lots, which was noted at the National Consultation:

'...a study... in 2007 revealed that 40% of land that was made available through sub-divisions by either Government or the private sector remained vacant. At Jackmans, for example, approximately 76 lots were made available by NHC. So far in 2015, only 22 or 23 houses have been completed or were near completion. In the private sector, which is commonly believed to be more efficient than Government, at Bulkeley Heights planning approval was granted in 2006 and in 2015, only two houses were completed' (p.18).

It should be noted that vacant lots also create environmental problems related to illegal dumping, and rat and mosquito infestation. Some of the causes of the vacant lots problems were noted as: *'persons had to wait until the land was paid for before construction could take place. In other cases, the owners lived overseas and their children had no particular connection to the island which meant lots remained unused'* (op cit. p.19).

There are also concerns related to abandoned/derelict Government buildings, however plans are in place to address this with the formation of a Cabinet committee to make recommendations for renovation/reuse of these buildings.

The main factor affecting Barbados' water quality is elevated groundwater nitrate levels, however, these levels have not exceeded the WHO guidelines. Greater public awareness is needed to demonstrate how daily activities can impact groundwater quality, and how this in turn impacts safe drinking water.

Limited legislation inhibits EPD's ability to (1) regulate operators that generate waste to ensure disposal takes place in locations approved for the specific waste types; and (2) monitor waste management/disposal entities to ensure they operate in a manner that is not detrimental to the environment and human health.

Several factors affect the economics and rate of development of renewable energy in Barbados:

- Natural resource availability;
- Availability of proven technology;
- Technology cost and financing options;
- Energy cost⁴¹;
- Transmission issues (proximity to the grid and connection costs);
- Land availability;
- Legislative, regulatory and policy framework;
- Social acceptance.

The present challenges affecting customers' ability to connect their renewable energy systems or sell to the grid stem mostly from administrative uncertainties following the proclamation of the ELPA. The ELPA has introduced a new licensing regime whereby all persons who wish to produce electricity and supply to the grid must first apply for and be granted a licence. However, no structured application form has been designed to facilitate application. Further, no secretariat has been established within the Division of Energy to deal with these issues. Until persons can show proof of licences, the BL&P is unable to interconnect them to the grid. The Division is currently working to address these challenges.

In transitioning to more sustainable transportation, consideration would need to be given to the potential burden on the electricity grid, as well as on agriculture for the production of biofuels (Moore, et al., 2014). It is also recognised that although EVs will help reduce costs and improve environmental conditions, they will not fully solve the issues of sustainable transport. Two concerns are:

1. Removing older vehicles from the roads, while taking into account the large number of persons that can only afford second hand vehicles; and
2. Improvements to public transport systems which encourage usage.

⁴¹ BL&P is required by its regulator to conduct least-cost capital planning and expansion.

42. FUTURE CHALLENGES AND ISSUES

Over the period 1996 to 2015 the country has systematically enhanced housing and basic services. The main future challenges to the country in continuing this trend is related to overcoming the implementation challenges and issues noted above given constraints related to financing development and increasing environmental threats.

Maintaining progress in the provision of adequate housing, the prevention of slum development and access to basic sanitation and water will be challenged if legislation on building standards and the environment are not enacted and enforced. The ability of buildings to withstand high winds, flooding and seismic activity is of paramount importance if the country is maintain and expand its housing stock.

Economic factors are also important in relation to maintaining and enhancing the housing stock with respect to the current financial crisis. Reduced Government revenues are a consequence of reduced private sector investment and income and reduced spending power of the population in general. The reduction in spending power of the population has direct implications for the upkeep and maintenance of residential properties, as well as the incentive to build cheaply in the absence of enforceable building standards, which will place additional pressure on Government to provide assistance. This is not considered a current widespread practice, but has the potential to develop as a problem. Increases in unemployment or underemployment, coupled with depletion of savings, may also place additional pressure on Government to provide low cost housing solutions as persons are unable to afford current residences. This additional pressure on Government is exacerbated by demographic and societal trends related to an ageing population and falling household sizes.

The fiscal constraints of Government will also have implications for addressing health concerns that can emerge as a result of derelict buildings and unkempt vacant land, such as mosquito and rat infestation, and illegal dumping. Lack of finance to implement further infrastructural development such as drainage systems in flood prone areas, sewer systems and the eradication of pit latrines all have consequences for health and safety and the ability to cope with increased frequency and intensity of extreme weather events.

While available information indicates that Barbados does not experience low-quality housing to the extent that they can be termed slums, the current economic crisis has the potential to reverse progress made with an increase in squatting, building on unsafe land to unsafe specifications, and the degradation of houses due to lack of maintenance. In addition, the growth in urbanisation combined with the discharge of untreated and preliminary treated wastewaters have the potential to impact negatively on groundwater quality. This could potentially increase the cost of drinking water production as treatment other than chlorination may be required in the future. Seawater intrusion is also a challenge.

Challenges are not all related to the fiscal ability of Government, but also to society's housing demands. There is a need to develop high density housing in the country given limited land size, and building-up is considered a viable option. However, high-rise living is not part of the culture of the country where there is still greater demand for low density housing. There is also a lack of understanding of the consequences of human consumption and disposal behaviour on the environment, and the wasting of water and indiscriminate/illegal dumping are problems that will need to be addressed. This lack of understanding is also a challenge for enhancing the demand for alternative energy generation at the household level.

Other continuing trends that will be detrimental to the provision of housing and basic services unless they are addressed are:

- Lots sold by NHC at subsidised prices still undeveloped after several years
- Cost of servicing affordable housing areas such as landscaping, maintenance and security
- Lack of titling of properties
- 'Hoarding' of land as investments contributing to the increase of undeveloped vacant lots
- Lack of data on water use efficiency to develop and implement programmes and policies
- Lack of control over private abstraction of water resources
- Lack of integrated wastewater management practices, in particular sustainable urban drainage systems as a means of managing and harnessing storm water run-off
- Current costs of renewable energy systems and electric vehicles still prohibitive for the majority of the population.

VII. INDICATORS FOR 2000 AND 2010

i. PERCENTAGE OF PEOPLE LIVING IN SLUMS

There is no information specifically on 'slums'. However, data drawn from the 2000 and 2010 censuses of housing and population provide the following information on the adequacy of housing.

Durable housing of a permanent nature that protects against extreme climate conditions

Table VII-1: Wall Materials for 2010 and 2000

Wall Materials	2010		2000	
	Urban (%)	Rural (%)	Urban (%)	Rural (%)
Concrete Block	51.20	43.77	48.89	35.66
Wood	16.63	23.06	24.13	34.85
Wood & Concrete Block	16.30	21.26	20.02	25.15
Wood & Concrete	7.29	6.22	2.72	1.13
Concrete	5.26	3.52	1.95	1.42
Stone	3.08	1.97	2.14	1.54
Other	0.23	0.20	0.14	0.25
Total	100	100	100	100

Table VII-2: Roofing Materials for 2000 (Census) and 2010 (Survey of Living Conditions)

Roof Materials	2000		2010
	Urban (%)	Rural (%)	Entire Country (%)
Wooden Shingles	0.7	0.6	0.9
Asphalt Shingles	6.8	4.1	2.4
Roofing Tiles	1.8	1.0	0.4
Corrugated Metal Sheets	74.0	81.8	94.4
Other Corrugated Sheets	12.6	10.7	-
Concrete	1.6	0.8	1.2
Other Material	2.6	1.1	0.8
Total	100.0	100.0	100.1

Sufficient living space which means not more than three people sharing the same room

Information from the Barbados Statistical Service (BSS) in relation to number of rooms in the house and number of persons in the household for 2010. For households allocated as '13 or more persons', less than 5 rooms are considered overcrowding given information that the largest household contains 15 persons.

Table VII 3: Overcrowding Status (2010)

Overcrowding Status	Number		Percentage	
	Urban	Rural	Urban (%)	Rural (%)
Overcrowded Households	147	69	0.28	0.27
Not Overcrowded Households	53167	25355	99.72	99.73
Total	53314	25424	100.0	100.0

Easy access to safe water in sufficient amounts at an affordable price

Information from the Barbados Statistical Service (BSS) for main source of water for 2010. Not stated removed.

Table VII 4: Main Source of Water (2010)

Main Source of Water	Number		Percentage	
	Urban	Rural	Urban (%)	Rural (%)
Piped into Dwelling	50874	23497	96.74	94.32
Piped into Yard	1087	901	2.07	3.62
Friend/Relative Pipe	379	343	0.72	1.38
Public Stand Pipe	207	129	0.39	0.52
Stream/Spring/Well	1	3	0.00	0.01
Other	38	40	0.07	0.16
Total	52586	24913	100.0	100.0

Access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people

Information from the Barbados Statistical Service (BSS) for main type of toilet for 2010. Not stated removed.

Table VII 5: Type of Toilet Facilities (2010)

Type of Toilet	Number		Percentage	
	Urban	Rural	Urban (%)	Rural (%)
W.C Linked to Sewer	3181	37	6.00	0.15
W.C Not Linked to Sewer	46377	22435	87.41	88.83
Other	68	38	0.13	0.15
Pit	2594	2084	4.89	8.25
None	839	661	1.58	2.62
Total	53059	25255	100.00	100.00

Security of tenure that prevents forced evictions

Information on House Tenure and Land Tenure from the Barbados Statistical Service (BSS) for 2010 and 2000 for urban and rural. Not stated removed.

Table VII 6: Housing Tenure for 2000 and 2010 by Rural and Urban

HOUSE TENURE	2010				2000			
	Number		Percentage		Number		Percentage	
	Urban	Rural	Urban (%)	Rural (%)	Urban	Rural	Urban (%)	Rural (%)
Owned	37697	21255	70.63	83.58	39892	22013	68.94	87.50
Private Rented/Leased	12004	2841	22.49	11.17	12551	1984	21.69	7.89
Gov't Rented/Leased	1320	151	2.47	0.59	3566	185	6.16	0.74
Rent Free	2115	1041	3.96	4.09	1465	738	2.53	2.93
Other	238	144	0.45	0.57	395	238	0.68	0.95
Total	53374	25432	100	100	57869	25158	100	100

Table VII 7: Land Tenure for 2000 and 2010 by Rural and Urban

LAND TENURE	2010				2000			
	Number		Percentage		Number		Percentage	
	Urban	Rural	Urban (%)	Rural (%)	Urban	Rural	Urban (%)	Rural (%)
Owned	28867	15310	77.34	71.23	30365	15752	72.78	68.65
Private Rented/Leased	4071	2546	10.91	11.84	6783	3749	16.26	16.34
Gov't Rented/Leased	869	423	2.33	1.97	1302	720	3.12	3.14
Rent Free	3110	2780	8.33	12.93	2317	2042	5.55	8.90
Other	407	436	1.09	2.03	957	681	2.29	2.97
Total	37324	21495	100.00	100.00	41724	22944	100.00	100.00

In addition, the 2010 Survey of Living Conditions indicated that 0.2% were squatting, and 2.4% were living rent free. The ILAC Indicators Report for Barbados notes the following:

Table VII 8: Proportion of Households Living in Unsafe Settlements (%)

	2010	2000	1997
Squatting	0.2	n.a.	n.a.
Makeshift materials	0.1	n.a.	n.a.
Pit-Latrine	3.8	16.5	22.0
No toilet facilities	0.3	0.6	0.6
Unknown sources of water	0.4	2.1	3.3
Overcrowded households	4.0	n.a.	n.a.

ii. PERCENTAGE OF URBAN POPULATION WITH ACCESS TO ADEQUATE HOUSING

Significant (see above)

iii. PERCENTAGE OF PEOPLE RESIDING IN URBAN AREAS WITH ACCESS TO SAFE DRINKING WATER

Table VII 9: Occupied Dwelling Units by Source of Water Supply for Urban Corridor (UC) and Rest of Barbados

Main Source of Water	2000		2010	
	UC (%)	Non-UC (%)	UC (%)	Non-UC (%)
Piped into Dwelling	93.09	85.95	96.74	94.32
Piped into Yard	4.13	8.93	2.07	3.62
Friend/Relative Pipe	1.37	3.18	0.72	1.38
Public Stand Pipe	0.58	1.11	0.39	0.52
Stream/Spring/Well	0.00	0.02	0.00	0.01
Other/Not Stated	0.82	0.82	0.07	0.16
Total	100.0	100.0	100.0	100.0

Source: Barbados Statistical Service

iv. **PERCENTAGE OF PEOPLE RESIDING IN URBAN AREAS WITH ACCESS TO ADEQUATE SANITATION**

Table VII 10: Occupied Dwelling Units by Toilet Facilities for Urban Corridor (UC) and Rest of Barbados

Toilet Facilities	2000		2010	
	UC (%)	Non-UC (%)	UC (%)	Non-UC (%)
WC Linked to Sewer	0.74	0.00	6.00	0.15
WC Not Linked to Sewer	84.37	74.28	87.41	88.83
Pit	13.42	23.51	4.89	8.25
Other	0.46	0.74	0.13	0.15
None	0.42	0.97	1.58	2.62
Not Stated	0.58	0.50	-	-
Total	100.0	100.0	100.0	100.0

Source: Barbados Statistical Service

v. **PERCENTAGE OF PEOPLE RESIDING IN URBAN AREAS WITH ACCESS TO REGULAR WASTE COLLECTION**

100% (Barbados Sanitation Service Authority indicates that 100% of the population of the country have their solid waste collected at least once per week)

vi. **PERCENTAGE OF PEOPLE RESIDING IN URBAN AREAS WITH ACCESS TO CLEAN DOMESTIC ENERGY**

Table VII 11: Occupied Dwelling Units by Cooking Fuel for Urban Corridor (UC) and Rest of Barbados

Cooking Fuel	2000		2010	
	UC (%)	Non-UC (%)	UC (%)	Non-UC (%)
Natural Gas	17.72	1.76	23.39	3.66
L.P.G.	73.75	89.43	69.24	89.86
Electricity	3.38	2.13	4.93	3.56
Wood/Charcoal	0.07	0.12	0.06	0.12
Kerosene	1.98	2.92	0.44	0.59
Other Source/Na	0.43	0.80	0.27	0.44
Not Stated	2.67	2.83	1.67	1.76
Total	100.0	100.0	100.0	100.0

Source: Barbados Statistical Service

vii. **PERCENTAGE OF PEOPLE RESIDING IN URBAN AREAS WITH ACCESS TO PUBLIC TRANSPORT**

Significant

viii. **LEVEL OF EFFECTIVE DECENTRALISATION FOR SUSTAINABLE**

URBAN DEVELOPMENT MEASURED BY:

- a. Percentage of policies and legislation on urban issues in whose formulation Local and Regional Governments participated from 1996 to present;
Not applicable
- b. Percentage share of both income and expenditure allocated to Local and Regional Governments from the national budget;
Not applicable
- c. Percentage share of local authorities expenditure financed from local revenue;
Not applicable

ix. PERCENTAGE OF CITY, REGIONAL AND NATIONAL AUTHORITIES THAT HAVE IMPLEMENTED URBAN POLICIES SUPPORTIVE OF LOCAL ECONOMIC DEVELOPMENT AND THE CREATION OF DECENT JOBS AND LIVELIHOODS

100% at the national level.

x. PERCENTAGE OF CITY AND REGIONAL AUTHORITIES THAT HAVE ADOPTED OR IMPLEMENTED URBAN SAFETY AND SECURITY POLICIES OR STRATEGIES

Not applicable

xi. PERCENTAGE OF CITY AND REGIONAL AUTHORITIES THAT HAVE IMPLEMENTED PLANS AND DESIGNS FOR SUSTAINABLE AND RESILIENT CITIES THAT ARE INCLUSIVE AND RESPOND TO URBAN POPULATION GROWTH ADEQUATELY

Not applicable

xii. SHARE OF NATIONAL GROSS DOMESTIC PRODUCT (GDP) THAT IS PRODUCED IN URBAN AREAS

One of the challenges associated with determining the quantitative nature of urban economic development is the lack of data associated with the geographical dimension of the urban space. While the UC has been specified in the Physical Development Plan, the economic data collection process does not correspond to this specification. For example, real gross domestic product (GDP), which reflects economic production within the geographical boundaries of Barbados, is collected mainly on a sectoral basis. The urban economy can be estimated by deducting established rural activities such as agriculture and mining and quarrying from total GDP. This procedure indicates that real GDP in the urban economy increased from Bds\$785.3m in 1995 to a provisional value of Bds\$1026.8m in 2013. These estimates suggest that urban economic activity at the outer limit accounted for over 90% of total real GDP over the period. There was also a general rise in the share of urban production from 93% in 1995 to 97% in 2013. An examination of the various sectors which would constitute the urban economy suggests a general rise in production taking place in the urban area over the 1995 to 2013 period. There was a decline in agriculture production along with mining and quarrying activity. The other sectors such as business and Government services, utilities, distribution and transportation recorded a general rise in production. Tourism and construction recorded mixed trends. These latter patterns reflect to a large extent the effects of the decline and slow down of economic activity in the economy of Barbados as a result of the recent financial crisis. Over the period 1995 to 2013, "urban real GDP" rose by 1.6 percent per annum with most of this growth occurring prior to the recession.

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ACRONYMS

BL&P	Barbados Light & Power Company Limited	GIS	Geographic Information System
BNSI	Barbados National Standard Institution	HNUP	Housing and Neighbourhood Upgrading Programme
BSA	Building Standards Authority	IDB	Inter-American Development Bank
BSDP	Barbados Sustainable Development Policy, 2004	IOCARIBE	Intergovernmental Oceanographic Commission
BSTS	Bridgetown Sewerage Treatment System	MED	Ministry of Environment and Drainage
BTB	Barbados Transport Board	MGDS	Medium-term Growth and Development Strategy 2013-2020
BWA	Barbados Water Authority	MHL	Ministry of Housing and Lands
CALC	Country Assessment of Living Conditions	MSW	Municipal Solid Waste
CBB	Central Bank of Barbados	MTW	Ministry of Transport and Works
CCA	Climate Change Adaptation	NHC	National Housing Corporation
CCCCC	Caribbean Community Climate Change Centre	NSPB	National Strategic Plan of Barbados 2005–2025: Global Excellence, Barbadian Traditions
CDEMA	Caribbean Disaster Emergency Management Agency	PDP	Physical Development Plan
CDM	Comprehensive Disaster Management	SSA	Sanitation Service Authority
CZMU	Coastal Zone Management Unit	TCDPO	Town & Country Development Planning Office
DEM	Department of Emergency Management	UDC	Urban Development Commission
DRR	Disaster Risk Reduction	UNDP	United Nations Development Programme
EHD	Environmental Health Department	WSSU	Water and Sanitation Systems Upgrade Project
EIA	Environmental Impact Assessment		
ELPA	Electric Light & Power Act		
EPD	Environmental Protection Department		
ESCI	Emerging and Sustainable Cities Initiative		
EV	Electronic Vehicle		
GAPS	Global Atmospheric Pollutants		
GEF-SGP	Global Environmental Facility Small Grants Programme		

APPENDIX 1:

EXTRACT FROM BARBADOS NATIONAL POLICY ON AGEING: THE PHYSICAL AND BUILT ENVIRONMENT¹

6.0 THE PHYSICAL AND BUILT ENVIRONMENT

The determinants of health include not only biological endowment and individual behaviours but also physical and social environments (Beckingham & DuGas, 1993; Roemer, 1985). The physical and built environment refers to both the internal and external aspects of the physical surroundings, their stability or inadequacy, and the tendency of the surroundings to foster or jeopardize health and safety. A safe environment is free of impediments and threats to person or property.

A supportive physical environment is one of key determinants of health and also an essential condition for healthy ageing. The World Health Organization defines health broadly as a person's physical, psychological and social well-being. Deprived living conditions are among the factors that contribute to the poor health status of older persons (World Health Organization, 1998).

Given the projections regarding the ageing population of Barbados, it has become critical that more attention be paid to the improvement of the physical and built environment to meet the needs of the elderly. Policy decisions and new programmes will be required in the areas of housing policy and building code; public roads; public transportation; disaster preparedness; safety and security; and accessibility of services.

2.0 HOUSING POLICY AND BUILDING CODE

2.0.1 HOUSING STOCK

With the projections for an increase in the ageing population in the coming years, as well as statistics that indicate that many vulnerable older persons live alone, it is clear that current options in relation to both supply and adequacy of housing for older persons are limited. As indicated in the earlier chapters there are many challenges accompanying the ageing process which would impact on the functioning of older persons in their homes. There is therefore a need for a varied supply of housing options for older persons ranging from independent living to assisted living facilities for groups, as well as options for individuals living in their own homes. The Government's Senior Citizens' Village at Vauxhall in Christ Church and the Soroptimist Senior Citizens' Complex at Eden Lodge, St Michael are examples of special purpose-built group housing for older persons. The Vauxhall Senior Citizens' Village caters to independent living as well as assisted living for older persons while the Soroptimist Village requires that the senior be capable of functioning independently. Many homes of older persons need to be retrofitted to meet the requirements of advancing age. The elderly poor would often not have the means to carry out such retrofitting themselves.

There is therefore a need for improved policy directions on the provision of housing for older persons, particularly those who are most at-risk. New financial approaches should also be devised to encourage the private sector, financial institutions and appropriate NGOs to invest in housing for the elderly.

The Rural and Urban Development Commissions, key agencies that seek to improve living conditions for the poor, assist with the provision of housing, repairs and modernization including electrical installation and upgrade, and provision of indoor waterborne facilities for the elderly poor. Clear provision is required within their mandates to address the needs of the elderly poor and they should be provided with the necessary resources and infrastructure to satisfy their revised mandates.

Indoor Sanitation

Several older persons live in homes without the option of indoor sanitation, an issue that relates both to accessibility and to health conditions of older persons. Accessibility to pit toilets poses an immense challenge to anyone generally, but is especially problematic for older persons. Pit toilets

¹ Information supplied by the National Assistance Board 11th September 2015.

do not meet modern sanitary standards and urgent attention is therefore required to the provision of modern waterborne facilities in housing for vulnerable older persons.

2.0.2 BUILDINGS (INCLUDING ACCESS TO BUILDINGS)

Many public buildings do not adequately provide for access by older persons, either internally or externally. However, a start has been made by making some newer public buildings more user friendly to older persons by providing ramps, rails and wider doors. There is still a dire need to enforce a Barbados National Building Code, especially with respect to access to public buildings, places of business for use by the public and recreational spaces to be constructed to accommodate the needs of elderly persons.

In addition, at the private level, persons building their own homes seldom, if ever, build with the recognition that they too will reach an age when split levels, steep staircases, narrow doorways and passages/corridors, awkward bathrooms and kitchens will make everyday living difficult. Incentives for home construction and retrofitting to meet the needs of older persons would appear to be a necessary element in a national policy.

6.2 PUBLIC ROADS

The road system of Barbados still requires some upgrading to facilitate comfortable and safe pedestrian movement, particularly by the elderly. Recent developments such as the Bridgetown Road Improvement Project have responded to the need for pavements, traffic lights for pedestrian crossings and other aspects of pedestrian safety. However, the use of wheelchairs or scooters by the elderly on public roads remains hazardous, and independent movement by some of our seniors is therefore severely impaired, if not prohibited, on many of our roads. There are increasing mobility and accessibility challenges for older pedestrians and wheelchair/scooter users, *inter alia*, that must be resolved through appropriate planning in the construction of roads. In addition, there is non-existent or inadequate provision for parking for senior citizens, and concomitant penalties for inappropriate use of such parking spaces are also noticeably missing.

6.3 PUBLIC TRANSPORTATION

Public transportation for the elderly is provided by both Government and privately owned operators. Key elements of Active Ageing Policy are the provision of and accessibility to transportation.

Currently Persons aged 65 and over can travel free of cost on the Government owned buses operated by the Transport Board on presentation of national identification cards. The current annual cost of this service is approximately \$3M for about two million rides (or about 200,000 per month), paid as a subsidy through the Welfare Department. A number of elderly persons are nonetheless still reluctant to take public transportation due to feelings of insecurity and the uncertainty of the service on some routes.

There is also a Government Call-A-Ride system in place, operated through the Transport Board, which provides special buses with wheel chair lifts, to facilitate movement of the elderly and differently-abled persons. These buses assist with transportation to clinic appointments but this service does not adequately cover access to places frequently visited by older persons for business and personal transactions.

Privately-operated taxis, "ZR" vans and minibuses also provide public services for the elderly, but very few of these vehicles are specifically designed or configured to provide comfortable transportation for older persons. There is also a higher cost for this private service.

There appear to be major challenges regarding the provision of the transportation service for older persons and the ability to meet the demand. In addition, the suitability of such transportation for use by the elderly and the arrangements for the comfort of older persons using this transportation are issues of concern. New options for Government owned and privately operated transportation for older persons need to be explored.

6.4 DISASTER PREPAREDNESS

For the purpose of this paper a disaster is defined as either man-made or from natural causes, and may include a fire, flood, hurricane or earthquake. The effects of a disaster may be financial, psychological and emotional and can lead to displacement and dislocation. They can be particularly devastating for older persons and it is therefore recognized that older persons are particularly vulnerable to disasters. While the state is ultimately responsible for overseeing disaster preparedness, individuals must also be reminded of their own responsibility in avoiding and mitigating disaster. The effects can often be reduced through adequate preparations, and mitigated through appropriate insurance coverage.

The National Assistance Board (NAB) has established a Vulnerable Persons Committee (VPC) to make adequate plans for the elderly and PWD in time of national disasters. (See list of members of the VPC in Annex V.) The VPC is required to work closely with the Department of Emergency Management and with the many important stakeholders who play a crucial role in improving the capacity of older persons to prepare for and to withstand disasters.

6.5 A SAFE ENVIRONMENT

Seniors living alone are particularly vulnerable to personal attacks and other hazards. Individual, family, community and national strategies must therefore be adopted to enhance the physical safety and security of our seniors. Training and sensitization of all stakeholders are essential to a successful strategy. Modern safety/security equipment, devices and systems are now available to the wider population but their use is limited.

6.6 ACCESSIBILITY OF SERVICES

Social and other essential services may be fewer and less accessible to the elderly in rural areas than to those located in urban areas, although there may also be pockets of inaccessibility in urban areas. The National Census 2010 and the CALC Survey of Living Conditions 2010 will provide specific information on issues relating to services for the elderly in both urban and rural areas. This would provide the basis for the articulation of a national system for the equitable distribution of social services and support to older persons throughout the country.

6.7 RECOMMENDATIONS: THE PHYSICAL ENVIRONMENT

6.7.1 HOUSING POLICY AND BUILDING CODE

6.7.1.1A National Consultation on Housing, Housing Policy and a Building Code

It is recommended that a National Housing Policy and Building Code with standards and guidelines in relation to both public and private housing, and which would encompass the needs of the elderly, be established and enforced by the Government. The Housing policy would be informed by the recommendations of a National Consultation on Housing, Housing Policy and a Building Code to be sponsored by the Ministry responsible for older persons, in consultation with other Government ministries/agencies and the other social partners. The proposed National Building Code currently under consideration by the Government should be regarded as urgent. This Consultation should take place within six months of the passing of the White Paper by the Parliament.

6.7.1.2 Housing Stock (including access to buildings)

It is recommended that Government provide the framework for the development of an improved and expanded housing stock for older persons and should undertake the following activities in consultation with the relevant stakeholders:

- actively explore all the possibilities for facilitating the provision of low cost/affordable housing for the elderly poor;

- allocate at least 10% of all homes in Government housing development to older persons, given the ever rising proportion of elderly in the population;
- allocate ground floor units to older persons wherever possible in future residential buildings provided by Government and, in the case of multi-storey units, install elevators or lifts;
- re-locate older persons where possible near their existing neighbourhoods when relocation becomes necessary;
- continue to provide appropriate replacement houses, under the relevant programmes for the elderly poor, with a minimum of two bedrooms, on conditions established by the Government, to facilitate caregiver services;
- educate the elderly and facilitate general public awareness and programmes on preventative property maintenance;
- encourage insurance companies to develop an appropriate house Insurance scheme for the elderly;
- ensure schemes to improve the design and accessibility of private homes, public buildings and care giving facilities taking the elderly into account, and with sections of the Building Code which apply to persons with disabilities also applied to the elderly, including the provision of ramps, rails, wide doorways and in some cases elevators or lifts;
- require all new housing, including housing constructed for the elderly, especially those living alone, to be designed structurally to withstand a Category 3 hurricane and be assigned an importance factor of 1 for earthquakes;
- encourage the retrofitting of existing housing to meet the recommended standards through policies and incentives;
- provide incentives to private enterprise and cooperative ventures for refurbishment/retrofitting of existing homes of the elderly;
- provide incentives to private enterprise, financial institutions and NGOs to construct additional villages/complexes, ranging from assisted-living facilities to those catering to independent living, and a variety of retirement homes/facilities for older persons;
- encourage financial institutions to institute and facilitate reverse mortgages for older persons to allow them, *inter alia*, to refurbish and retrofit their homes;
- provide public recreational spaces and encourage private sector developments to provide appropriate recreational spaces that for the use of the elderly and to promote intergenerational activities;
- create awareness and incentives for elder-friendly private and commercial buildings in Government and the private sector; revise the mandates of the RDC and UDC to address the needs of the elderly poor and provide these institutions with the necessary resources and infrastructure to satisfy their revised mandates;
- develop a programme to urgently address the need for indoor water-borne facilities in housing for the elderly poor.

6.7.2 PUBLIC ROADS

It is recommended that, in a series of phased improvements to its road and traffic management, Government should:

- ensure that its future road and traffic management planning provides for traffic lights with audio as well as visual signals at pedestrian crossings, properly timed to accommodate the elderly;
- permit the elderly using wheelchairs and scooters to move around freely and maintain their independence, by providing the following, where feasible:
 - skid free pavements
 - wider pavements
 - suitably inclined ramps
 - reserved parking places
 - railings
- make legal provision for designated parking for senior citizens in public areas, and for penalties against abuse.

6.7.3 PUBLIC TRANSPORTATION

It is recommended that, in a series of phased improvements of the public transportation sector, Government ensure that:

- providers of public and private transportation are sensitized to the needs of the ageing population and encouraged to accommodate these needs;
- clear and improved guidelines are implemented to direct how elderly persons are to be accommodated in using the public transport system, including provision for appropriate signage in relation to seating;
- both the public and private sectors are encouraged to equip future transportation stock with wheelchair lifts and hydraulic capabilities to the fullest extent possible, and that space is clearly designated for wheelchairs in public transportation vehicles;
- the Transport Board provide improved and wider service coverage for both the Call-a-Ride and the general transportation service, including services for the rural areas
- churches, other service organizations and private individuals should be encouraged to provide transportation for the elderly;
- fiscal incentives be used to encourage provision/adaptation of transportation services to accommodate older persons;
- public education programmes be undertaken in relation to the use of public transportation by older persons.

6.7.4 DISASTER PREPAREDNESS

Given the devastating impact of disasters on vulnerable older persons, often living alone, it is recommended that Government:

- encourage its agencies and appropriate NGOs and CBOs to improve existing disaster preparedness plans for the protection of the elderly and physically challenged persons, especially those living alone;
- ensure that all possibilities are explored for providing some form of property insurance for an increased number of elderly property owners;
- strengthen public education on disaster preparedness and mitigation, directed to older persons;
- subsidize/facilitate the purchase and installation of devices such as smoke detectors and fire extinguishers for the elderly, particularly those with disabilities.

6.7.5 A SAFE ENVIRONMENT

In order to maintain a safe environment for older persons in their homes and communities, it is recommended that Government:

- encourage the development of programmes to keep a special watch on the elderly known to be living alone, and continue to work with the Royal Barbados Police Force, other ministries/agencies especially Constituency Councils, and caregivers to monitor those designated "At Risk";
- encourage communities to develop systems to ensure the security of vulnerable older persons in their midst, *inter alia* by improving street lighting and the general physical environment of the neighbourhood, for example, de-bushing and the provision of footpaths;
- encourage the increased use of alarm systems for individuals, groups and communities, including the activating of Neighbourhood Watch Programmes;
- promote the use of personalized body alarm systems with centralized monitoring for use in the home by elderly living alone;
- promote the granting of discounts and/or tax incentives for alarm systems and personalized body alarm systems for older persons.

6.7.6 ACCESSIBILITY OF SERVICES

In view of the concerns regarding access to social and other essential services by older persons in some urban and rural areas, it is recommended that the Government:

- carefully examine the findings of the National Population and Housing Census 2010 and the CALC 2010 Survey of Living Conditions to determine where improved accessibility to services for older persons is required in both rural and urban areas;
- examine what special support may be needed to provide equitable services to areas requiring improved accessibility.

APPENDIX 2: SOCIAL SUPPORT LEGISLATION AND LIST OF NGOS ADDRESSING THE NEEDS OF VULNERABLE GROUPS

To support those at risk from social exclusion or exploitation, and prevent poverty and inequity, a number of pieces of supplementary legislation has been enacted including:

- National Insurance and Security Act 1966-15
- Child Care Board Act 1969
- Maintenance Act 1981-21
- Domestic Violence Protection Orders 1992-4
- Sexual Offences Act 1992
- National Assistance Board Act 1997 Cap 48
- Pensions Act- Occupational Pensions Benefits Act 2003
- Constituency Councils Act 2009

NGOs addressing the needs of vulnerable groups:

- Barbados Council for the Disabled
- Barbados National Organisation of the Disabled (BARNOD)
- Barbados Association of the Blind and Deaf
- Barbados Association of Retired Persons
- Barbados Elderly Care Association
- Needy Children's Fund
- Loving Arms Organisation
- National Council on Substance Abuse
- Pinelands Creative Workshop
- Salvation Army
- Barbados Vagrants and Homeless Society
- Israel Lovell Foundation
- National Organisation of Women
- National HIV/AIDS Commission
- Barbados Gays, Lesbians, and All-Sexuals Against Discrimination
- United Gays and Lesbians Against AIDS Barbados
- Business and Professional Women's Club

APPENDIX 3:

LEGISLATION RELEVANT TO URBAN DEVELOPMENT IN BARBADOS

- Agriculture Holdings (Options to Purchase) Act
- Building Code Standards
- Coastal Zone Management (CZM) Act
- Emergency Management Act
- Employment Rights Act
- Fire Safety Act
- Health Services Act
- Land Acquisition Act
- Physical Development Plan
- Police Act
- Road Traffic Act & Regulations
- Rural Development Commission (RDC) Act
- Safety and Health at Work (SHAW) Act 2005
- Security of Tenure of Small Holdings Act
- Shops Act
- Tenancies Control Act
- Tenancies Development Act (TDA)
- Tenancies Freehold Purchase Act
- Town and Country Development Planning (TCDP) - Order 1972
- Town and Country Planning (TCP) Act- Cap 240
- Trees Preservation Act (TPA)
- Urban Development Commission (UDC) Act

APPENDIX 4:

GEF-SGP SUPPORTED PROJECTS THAT ENHANCE URBAN AND PERI-URBAN AGRICULTURE

Best Practices in Sustainable Organic Agriculture at the Deighton Griffith School

- Project Location: Deighton Griffith Secondary School, Kingsland, Christ Church

The project seeks to employ a sustainable agricultural system as a means of improving crop cultivation in the garden plot at the Deighton Griffith School. There are four key objectives:

1. To provide protection from pests as a means of improving the quality of crops harvested by 50% in the first year of cultivation.
2. To increase the use of organic fertilisers by 50% within the first year of cultivation as a means of improving soil fertility in the garden plot.
3. To utilise rain water harvesting as a means of conserving the domestic water supply by at least 50% within the first year of installation.
4. To establish a drip irrigation and mister system which would deliver the direct supply of water needed for crop cultivation.

Community Environmental Empowerment Drive (CEED), Barbados

- Project Location: Multiple districts (urban corridor site is Richmond, St. Michael)

The project's goal is to empower communities with the skills and knowledge to assist with mitigating impacts of global warming. Its three objectives include (i) to educate 120 persons across 6 communities about the effects of global warming over a period of 6 months, (ii) to create 4 global warming infomercials within 4 months and (iii) to impart domestic organic gardening skills using solar powered self-irrigated pyramid gardens, within 6 communities over a period 4 months.

Caribbean Permaculture Research Institute of Barbados

- Project Location: Graeme Hall, Christ Church (adjacent to the Sanctuary)

The Government recognises a real urgency to improve soil conditions that enable food security and have partnered with the Caribbean Permaculture Research Institute of Barbados to highlight the use of permaculture as a strategy for promoting sustainable and regenerative soil practices.

The project seeks to create a financially solvent organisation that will serve as a permaculture educational facility and tropical training site that demonstrates sustainable practices and holistic systems built from the soil up and do so within three years. It also provides two major opportunities for sustainable economic activity through the production and sale of organic agricultural produce and the provision of training courses in permaculture. The facility is located next to an environmentally sensitive RAMSAR site, Graeme Hall Nature Sanctuary.

BARBADOS - Regional Entrepreneurship & Agriculture Program (REAP)

- Project Location: Multiple districts (within and outside of the defined urban corridor)

This project focuses on promoting organic agriculture and entrepreneurship among young people from primary and secondary schools in Barbados. The objectives of the project include training teachers, volunteers and other relevant stakeholders in delivering training and sharing techniques in environmentally-friendly agricultural entrepreneurship ('agri-preneurship') to youth in every parish in Barbados; to develop strong and effective relationships at the school/community level to ensure project ownership and success; and to monitor and evaluate the progress throughout the project to measure the success of the increase in knowledge and understanding of environmental impacts of agriculture and entrepreneurship.

The River of Life Organic Farm

- Project Location: Mangrove Park, St. Philip

The River of Life Organic Farm project focuses on using organic farming to address land degradation and facilitate the rehabilitation of mental health patients. The goal of the project is to sustainably produce wholesome organic food for the country through the use of protected agriculture and good agricultural practices. The three project objectives are as follows:

1. To sell at least 10 tons of food valued at BDS \$60,000 over the first two years of the project, utilising organic, climate-smart farming techniques (thus making the project profitable and self-sustaining).
2. To highlight how an organic farming programme can be used to enhance the environmental, economic and social welfare of those with mental illness and physical challenges, in Barbados.
3. To engage 10 persons with mental and physical disabilities within the assisted living programme over the first year of the project.

The project provides one major opportunity for sustainable economic activity through the production and sale of organic agricultural produce. This would facilitate the gainful employment of several persons who are currently unemployed and homeless.

Genesis Project Farm

- Project Location: Belle, St. Michael

The project seeks to establish an organic farm to satisfy existing international demand for wholesome organically grown foods, as well as bioproducts, using modern farming techniques. Its three main objectives are (1) To produce at least BBD\$170,000 worth of food and biofeeds per year using special holistic/organic methods, incorporating the use of climate smart technologies and alternative energy usage; (2) To utilise bio-feeds in fattening 25 animals (sheep/goats) at a value of BBD\$10,000 during the first year; (3) To build capacity for 5 employees, at least 10 other members and 500 persons of the wider community in sustainable farming practices by direct training and use of electronic media.

Organic Certification for Organic Farmers in Barbados

- Project location: Multiple districts (possibly within and outside of the defined urban corridor)

Barbados has already adopted the CODEX standard for organic farming but has not developed the system for delivery of inspections and certification of these standards. The goal of this project is to implement a national organic inspection and certification system with the OGCA and any number of farmers certified, through this system, as organic. Its objectives include training persons as farm inspectors, building capacity in inspection record keeping, project management, developing an organic farm training module for growers and consumers and promoting the authentic brand of organic.

Community-based Solar Cooled Greenhouse Research Project

- Project Locations: Multiple districts (within and outside of the defined urban corridor)

The Community Based Solar Cooled Greenhouse Research Project focuses on climate change mitigation within the agricultural sector via the development of community based renewable energy greenhouse demonstration sites within three communities across Barbados. The current project proposal seeks to highlight a possible solution to this on-going challenge facing PA farmers in the island of Barbados and the wider Caribbean through the development of an automated climate controlled greenhouse system which is fully powered by solar photovoltaic technology.

The overall goal of the project is to successfully demonstrate that cultivation of hydroponically grown lettuce in a fully automated climate controlled greenhouse system produces higher yields and better quality produce in terms of shelf life and durability over a similar grown in passively ventilated (window vented) greenhouse.

Blended Agroforestry Renewable Energy Project

- Project Locations: Scotland District, St. Andrew (outside of the defined urban corridor)

The goal of BAREP is to address environmental problems using agroforestry, technology and green energy while building the capacity of the farmers to operate more sustainably in the Scotland District and work within the co-operative movement.

The objectives of the project are:

1. Reduce number and intensity of landslides and slippage by at least 50% by Jan 2017.
2. Produce two (2) acres of tree products and four (4) acres of plant produce by Jan 2017.
3. Train and assess at least ten (10) farmers and other participants in the areas of agriculture, project management, information and communication technology, and remedial literacy and numeracy by Jan 2017.
4. Employ at least five (5) poor women under forty-four (44) years of age in management, plant nurseries, harvesting, marketing and sales by Jan 2017.
5. Launch an engaging agricultural website with 100 average monthly visitors by 2016.

APPENDIX 5: GEF-SGP SUPPORTED PROJECTS THAT ADDRESS CLIMATE CHANGE AND DISASTER RISK REDUCTION:

Building Climate Change Resilience in Community Fisheries in Weston, St. James

- Project Location: Weston, St. James (within the defined urban corridor)

This project utilises a community-based adaptation approach to address environmental challenges such as marine pollution and climate change, experienced around the areas adjacent to the Weston fishing community on the west coast of Barbados. The project's goal is to increase the capacity of fisherfolk and other MSME operators in the fishing industry in Weston so that they can develop new fishing techniques and business practices. This will be achieved through education, vulnerability risk assessment and the development of initiatives to increase adaptive capacity of fisherfolk.

Using Climate-Smart Agriculture Practices to Increase Local Food Security and Climate Change Adaptation in the St. George Farming Community

- Project Locations: St. George community (outside the defined urban corridor)

The project's objectives are: (i) To increase the community's awareness of the adverse effects of climate change and beneficial impact of climate-smart agriculture as well as build the capacity of the St. George Farmers Cooperative in managing projects that address community-based adaptation solutions through: conducting a public outreach programme, coordinating project management capacity building, and documenting lessons learned and best practices established through the project; (ii) To measure changes in the level of the community's vulnerability to climate change by using the VRA tool (after implementing the community-based adaptation solutions the anticipated change will be a reduction in the community's overall vulnerability); and, (iii) To develop and implement at least two (2) community-based adaptation solutions in the St. George Farming Community that will increase the adaptive capacity of male and female farmers that are members of the St. George Farmers Cooperative and operating associated farming businesses.

APPENDIX 6: NATIONAL DRR POLICIES AND PLANS

National Policies

- Barbados Dispersant Use Policy
- Emergency Shelter Management Policy (Draft)
- Barbados Housing Policy (Draft)
- Barbados Maritime Distress Policy
- Policy Framework & Standard Operating Procedures For The Systematic National Shutdown And Reactivation Of Barbados
- Welfare Policy And Standing Operating Procedures (Draft)
- Barbados Emergency Broadcasting Protocol
- Protocol For Emergency Assistance To Countries Affected By Disasters

National Plans

- National Emergency Management Basic Plan (Draft)
- Standing Operating Procedures For The National Emergency Operations Centre (EOC)

Sectoral Plans

- Emergency Shelters Standing Committee Sectoral Disaster Plan
- Welfare Services Standing Committee Sectoral Disaster Plan
- Food And General Supplies Standing Committee Sectoral Disaster Plan
- Public Utilities, Road Clearance And Tree Trimming Committee Sectoral Disaster Plan.
- Emergency Telecommunications Plan
- Health Sector Disaster Management Plan
- Welfare Policy And Standard Operating Procedures (Draft)
- Emergency Housing Policy (Draft)
- Tourism Emergency Management Plan

Hazard Specific Plans

- Hurricane Response Operations At A Glance
- Flood Emergency Response Plan (Draft)
- Marine Oil Spill Response Plan (Draft)
- Mass Casualty Management Plan (Draft)
- Hazardous Material Response Plan
- Dengue Emergency Response Plan
- Post-Hurricane Debris Management Plan (Draft)
- Severe Weather Contingency Plan (Draft)
- Anthrax Threat Plan
- SARS Threat Plan
- Pandemic Influenza Plan
- Tsunami Warning Protocol And Standard Operating Procedures (Draft)

General Plans

- General Alert/Mobilization and Site Command Procedures
- Mass Crowd Events Policy and Standard Operating Procedures (Draft)
- Composition And Duties Of DEM Standing Committees
- Standing Operating Procedures For The Agencies Of The National Emergency Management System

Functional Plans

- Land Search And Rescue Plan (Draft)
- Damage Assessment And Needs Analysis Plan And Standard Operating Procedures (Draft)

APPENDIX 7:

CASE STUDY: HOUSING CREDIT FUND

The Government of Barbados created the Housing Credit Fund (HCF) in 1983 through a Bds\$20.0 million loan from the US Agency for International Development (USAID) (CBB, 2004; Watson & Potter, 2001). The original intent was to establish the fund as an independent statutory body which would become a permanent revolving fund for housing finance. However, following protests from the Central Bank of Barbados (CBB) concerning the creation of an independent fund and the generation of credit for housing finance outside of its control, the Government decided that, while it would be administered by the Ministry of Housing and Lands, the fund should be utilised for on-lending Housing Guarantee Funds to participating institutions (Watson & Potter, 2001, p. 338).

Eventually, on February 1, 2004, the CBB assumed responsibility for the management of the HCF. The HCF operates as a second tier mortgage market wholesaler and provides funds to financial institutions which in turn on-lend to individual borrowers. Despite the change in administration, the principal objectives of the HCF remain:

- To help to alleviate the overall shortage of housing in Barbados;
- To improve significantly the existing housing stock;
- To shift the initiative for housing towards the private sector; and
- To broaden the ownership base of housing in Barbados (CBB, 2004).

As of December 31, 2014, the HCF's portfolio was valued at over BD\$150 million (see Table 0 1). While remaining profitable, between the years 2010 to 2013 activity for the HCF, measured by new loan approvals, was sluggish. Disbursements averaged \$4.2 million, which was well below its 2008 peak of \$11.5 million. By 2013, loans outstanding declined to \$108.7 million with principal repayments of \$5.8 million. No loan disbursements were made for that review period. However, 2014 witnessed a resurgence in activity².

Table 0 1: Value (BD\$) of the HCF's portfolio, 2010-2014

2010	2011	2012	2013	2014
\$157,588,076	\$162,770,907	\$168,189,997	\$173,163,164	\$156,743,836
Source: CBB Annual Reports 2010 – 2014 ³				

² Available at: <http://www.centralbank.org.bb/WEBCBB.nsf/webpage/40FCE6544385E2D204257314006B4B59?OpenDocument>

³ Ibid.

APPENDIX 8: GEF-SGP'S PROJECTS ADDRESSING RENEWABLE ENERGY AND ENERGY EFFICIENCY:

Greening Micro, Small and Medium-sized Enterprises in Coastal Communities in Barbados

- Project Locations: Coastal communities of Holetown, Oistins and Weston (within the defined urban corridor)

The Greening Micro, Small and Medium-sized Enterprises (MSMEs) in Coastal communities in Barbados project focuses on climate change mitigation within three coastal communities on the west and south coast of Barbados. It seeks to implement low-carbon technologies and behavioural changes in the business practices of MSMEs which reduce their businesses' overall carbon footprint and facilitate livelihood changes that are economically and environmentally sustainable.

Key activities involved in the project includes: calculating the carbon footprint for MSMEs, training in sustainable business practices, the Development of action plans for 15 of the participating MSMEs operators that will transition them to more sustainable and less carbon-intensive business practices, developing innovative micro-financing for MSMEs and establishing "green business" committees by identifying "champions" from participating MSMEs and partnering organisations.

Community-based Solar Cooled Greenhouse Research Project Blended Agroforestry Renewable Energy Project

BL&P PROGRAMMES AND FACILITIES THAT SUPPORT ACCESS TO CLEAN DOMESTIC ENERGY:

Renewable Energy Rider

The BL&P has developed a Renewable Energy Rider (RER) programme as a mechanism to facilitate the interconnection to the grid of customers who install solar photovoltaic or wind generation distributed systems for their own use and wish to feed any excess energy into the grid. The pilot programme was launched in 2010.

This rider is specific to customers with renewable resource generation facilities utilising a wind turbine, solar photovoltaic or hybrid (wind/solar) power source located on the customer's owned or rented premises. The maximum individual system capacity allowed under the RER is 150 kW. The recently amended Electricity Light & Power Act allows for systems in excess of 150kW to be interconnected to the grid as Independent Power Producers (IPPs) and compensated through a negotiated Power Purchase Agreement (PPA).

This rider is available on a first-come first-serve basis and allows for up to 20MW of distributed renewable energy capacity to be interconnected to the grid. Customers are compensated up to 1.6 times the Fuel Clause Adjustment (FCA) for all electricity supplied to the grid.

Unit CG02 (Waste Heat Turbine)

The construction of the Low Speed Diesel (LSD) B Station in 2005 included the construction of a 2.2MW waste heat turbine. Heat is recovered from the exhaust gases of the LSD engines in an exhaust gas boiler. The steam output of the boiler is used to drive the waste heat turbine. This unit therefore does not utilise any fossil fuel and contributes the improved heat rate of the station. A similar unit exists in the LSD station.

Lamberts Wind Farm

In December 2010, BL&P received conditional planning permission to construct a 10MW (est.) wind farm at Lamberts St. Lucy. The project involves the construction and operation of eleven (11) wind turbines, each with an output of around 900 kW and the construction of the transmission and substation facilities to connect the wind farm to the grid.

The output of the wind farm is estimated to be about 30.2 GWh per annum based on the wind assessment that was previously undertaken. This represents about 3.4% of the island's present annual electricity needs. The Lamberts, St. Lucy location has been assessed as one of the most attractive for wind energy and one of the few sites on Barbados with sufficient setback from residences to accommodate a wind farm of any size. Lamberts is specifically identified in the PDP for wind energy development.

A Joint Venture with the land owner is currently being explored.

St Lucy Solar Farm

BL&P is undertaking the development of a utility scale solar photovoltaic plant. Contract negotiations are on-going with the preferred proponent to supply the Company with a 10MW (AC) solar photovoltaic energy system on an Engineer, Procure and Construct Turnkey basis. The plant will be located on approximately 40 acres of land at the former Trents Plantation site in St. Lucy.

Site preparation has commenced. The plant is anticipated to be in-service in quarter 2, 2016, contingent on approvals.

APPENDIX 9:

LIST OF BNSI STANDARDS RELATED TO HOUSING:

BARBADOS NATIONAL BUILDING CODE 2013

- BNS 7:** 1974 Rigid PVC conduits and conduit fittings
- BNS 11:** Fresh concrete:
 - Part 1:1984 Methods of sampling fresh concrete
- BNS 29:** 1979 Steel nails
- BNS 31:** 1990 Concrete and terrazzo flooring tiles
- BNS 38:** 1981 Hollow concrete blocks
- BNS 69:** 2005 Hydraulic cement
- BNS 95:** Clay bricks and blocks:
 - Part 1:1990 Requirements
 - Part 2:1990 Methods of sampling and analysis
- BNS 150:** 1983 Steel fabric for the reinforcement of concrete
- BNS 151:** 1983 Hard drawn mild steel wire for the reinforcement of concrete
- BNS 159:** 1984 Unplasticized PVC pipe for cold water services
- BNS 160:** 1984 Unplasticized PVC soil and ventilating pipes, fittings and accessories
- BNS 161:** 1984 Plastics waste pipes and fittings
- BNS 166:** 2000 Carbon steel bars for the reinforcement of concrete
- BNS 256:** 2011 Identification of the contents of pipelines, piping ducts and conduits
- BNS CP 16:** National Building Code:
 - Part 1:1981 Plumbing
- BNS CP 18:** 1990 Soil treatment for protection of buildings against subterranean termites
- BNS CP 19:** 1990 The treatment of subterranean termite infestation in existing buildings
- BNS 147:** 1983 Method of thermal testing of flat plate solar collectors
- BNS CP 20:** 1983 Solar heating systems for domestic hot water

NOTES

NOTES

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