



The Bermuda Environmental Sustainability Taskforce

BLUEPRINT FOR ENVIRONMENTAL SUSTAINABILITY - 2012

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This Blueprint has been developed following several requests for input on what BEST believes to be the critical ingredients of an environmental platform. It is intended to outline what it means to be a sustainable community and what it will take to get there.

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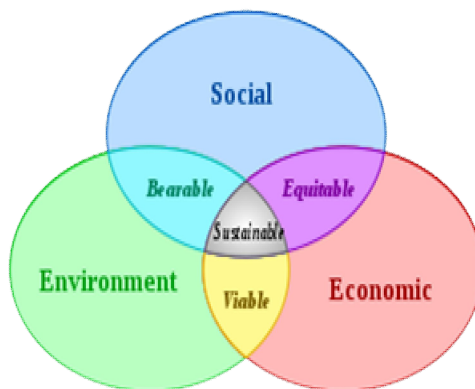
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Introduction

The Bermuda Environmental Sustainability Taskforce (BEST) Blueprint for Environmental Sustainability is intended to be a launching pad for effective discussion of, and appropriate action on, the various environmental concerns facing Bermuda today. This Blueprint doesn't propose all-encompassing solutions, but rather outlines the many environmental, social and economic issues that BEST believes Bermuda's leaders and decision-makers must be addressing. We hope that it will be received as an outline of what it means to be a sustainable community and what it will take for us to get there.

Environmental sustainability is defined as meeting the needs of the present generation without compromising the ability of future generations to meet their needs. The United Nations 2005 World Summit resolved that sustainability requires the reconciliation of environmental, social and economic demands. These are more commonly known as the "three pillars" of sustainability, and a sustainable community can be represented as being at their confluence. Following this, a strong appreciation for the complex interconnections between the physical environment, the economy and society is an integral part of any viable sustainability blueprint. This Blueprint therefore proposes a holistic approach when articulating environmental concerns and, while organized into sections representing each of the three pillars, recognizes that many of the areas discussed could easily be considered under a different banner due to the high level of interconnectivity between the three.



Sustainability is at the confluence of the physical, social and economic environments¹

The issues currently facing Bermuda are broad and our Blueprint is but a window. Our prime interest is in having Bermuda become a more hospitable and nurturing environment for current and future residents and visitors, and a positive global example of environmental sustainability. We have focused on the content of this Blueprint. The process, equally important but not discussed here, to achieve cost-effective and long-term sustainable solutions will require comprehensive research, extensive and far-reaching public consultation, cost-benefit analyses and strong political will. We look forward to constructive discussion of the content of this Blueprint, as well as the opportunity to work with Bermuda's political, business and community leaders, and the public, to preserve and enhance the quality of life for all.

1. Physical Environment

The physical environment has an influence on a vast spectrum of social and economic issues ranging from health and wellness to the success of tourism and international business. A dictionary definition puts the physical environment as “the part of the human environment that includes purely physical factors (such as soil, climate, water supply),”² highlighting the interconnectivity between human and our surroundings.

Bermuda is one of the most densely populated territories in the world. Our natural resources and landmass are limited, requiring that we use them in a sustainable manner if we are to have long-term benefits and avoid negative health effects. Given our small size and reliance on the natural beauty of the island itself to attract tourist and, to a lesser degree, business clients, maintaining and improving the physical environment is particularly critical.

In the preface to her paper on Environmental Education in the 21st Century, University professor Joy Palmer writes “few would doubt the urgency and importance of learning to live in sustainable ways...of conserving the world’s natural resources...and of taking care of the Earth today so that future generations may not only meet their own needs, but also enjoy life on our planet.”³ The protection of our physical environment is reliant not only on well-considered, environmentally-conscious decisions by Government leaders, but also on the actions of each and every resident and visitor. Much of our environmental impact is determined by our individual and collective consumer habits, energy consumption patterns and the many other choices we make in our everyday lives.

A key ingredient for maintaining the long-term sustainability of our physical environment is an ongoing education of all Bermudians on the importance of our physical environment, locally and globally, and the reasons we should preserve it.

We examine the following six aspects of the physical environment as examples.

1.1 Natural Resources

A resource can be defined as a source or supply from which benefit is produced, with a natural resource being anything obtained from the environment that is used to satisfy human needs and wants.⁴ Bermuda's natural resources include rainwater, soil, fish stocks, corals, sand, cedar, limestone, clean air and abundant sunshine. Each plays an important role in satisfying local needs and/or enabling Bermudians to generate the income necessary to satisfy our wants. The Bermuda Government's 2009 document entitled "A Strategy for the Sustainable Use of Bermuda's Living Marine Resources", for example, concludes that "Bermuda's marine environment is one of our most valuable resources, being critical not only to the tourism industry but also the overall quality of life on the island. It provides a living for some, and recreation and relaxation for all." In other words, these natural resources are critical both to our survival and our quality of life.

Natural resource management is concerned with the management of such resources with a particular focus on how such management affects the quality of life for both present and future generations. Bermuda already has laws and regulations in place to protect our natural resources. However, the active monitoring and enforcement of such rules are critical to their effectiveness, as is a closer adherence to the rules and to established procedures, particularly by policy- and decision-makers. Protection for agricultural and other conservation-zoned areas is especially in need of stringent attention.

In addition to sustainably managing our valuable resource base, we must also be looking for further opportunities to enhance and benefit from it. Bermuda averages 7.1 hours of sunshine per day, for example, providing high potential for solar energy opportunities. Similarly, Bermuda is one of the few remaining locations in the world with relatively healthy reefs.⁵ Stepping up protections, possibly in the form of a marine park or parks, and promoting ecotourism and scientific research projects would have the dual benefit of enhancing our marine life and attracting revenue.

BEST encourages all interested parties to uphold and strengthen existing resource and land zoning protections, and push for re-development of "brownfield" sites as preferable to new development on "greenfield" sites. BEST supports a tightening of Ministerial discretion so that the overturning of DAB decisions, the weakening of "Section 34" covenants, and the encroachment on zoning protections would be restricted to instances where a credible, documented case is presented that such action is of national importance and to the benefit of all Bermudians.

1.2 Ecosystems and Biodiversity

Bermuda is home to a diverse range of flora and fauna, with over 8,000 species of plants and animals,⁶ several of which can be found nowhere else in the world. In recent years, scientists have discovered a variety of previously unknown, cave-adapted species in our limestone cave systems with properties that could be of interest to medical researchers.⁷

Bermuda's ecosystems and the biodiversity within them together comprise our natural heritage, a unique resource we would do well to celebrate and protect. However, much of this natural heritage is under threat from over-exploitation, the introduction of foreign species and accumulating pollution; all fed by the increasing pressure for development to accommodate a resident population of 64,200⁸ — increasing by an average of 380 each year due to “natural increase (births minus deaths)”⁹ —and up to half a million visitors each year.¹⁰ Under these pressures, many of Bermuda's endemic species have been pushed into extinction, while surviving ones such as the cahow, skink and killifish remain severely threatened.¹¹ Vehicle emissions and storm water run-off from our roadways are having serious negative effects on our amphibians, reptiles and endemic pond-fish, including physical deformities and endocrine disruption, which can prevent species from being able to reproduce.¹² Toxic levels of petroleum hydrocarbons, and trace amounts pharmaceuticals, personal care products and newer generation pesticides in our ponds should trigger questions and concerns about the potential effects of these and other chemicals on human health.¹³

While there is investment in individual and isolated local research projects such as the Bermuda Biodiversity Action Plan¹⁴ (BAP) developed by the Department of Conservation Services, and the Marine Environmental, Air Quality and Bermuda Mercury programmes conducted by BIOS, there appears too be no comprehensive environmental protection plan that sets out both short- and long-term goals and the strategies to reach them. The public would benefit from a more steady, formal stream of information on protective and restorative measures for Bermuda's biodiversity and delicate ecosystems, including conscious decisions to purchase non-toxic household products, using cleaner forms of transportation, and disposing of all products and by-products responsibly.

BEST promotes revisiting the Biodiversity Strategy and Action Plan and related research projects with a view to expanding and consolidating them into a comprehensive Environmental Strategic Plan that will serve as an over-riding framework for government, business and private organizations to reverse degradation of our ecosystems. As part of this, BEST supports increased allocation of resources towards important environmental research, and the wide and sustained dissemination of the findings, especially the practical steps we can each take to protect and enhance our own health and the health of our ecosystem.

1.3 Conservation & Protection Areas

Bermuda's open spaces and environmental assets have an important role to play in ensuring the success of both the economy and society, including attracting tourists, ensuring that Bermuda remains an appealing location to do business, maintaining local fisheries and sustaining the health and wellness of residents.

Despite laudable objectives and ample policies to protect and preserve Bermuda's public and private amenity areas via zoning restrictions, there continues to be steady and growing development pressure and encroachment on these resources. The State of the Environment Report, commissioned by the Ministry of the Environment in 2005, cites a 21% reduction of conservation lands from 1970 to 2000.¹⁵ The Report states that increased development pressure has been primarily on Bermuda's undeveloped land, despite a bank of over 700 acres of "brown field" (previously developed) sites. Additional acres of open space have been lost from 2000 to the present, mostly through ministerial over-turns, SDOs and other weaknesses in our current planning and legal system.

Each of the previous Plans, as well as the current Bermuda Plan 2008 and a growing volume of commissioned reports, advisory bodies and town hall meetings, document and declare the importance of protecting Bermuda's environmental assets as "the key to achieving a sustainable future for Bermuda".¹⁶ Of the respondents to the Bermuda 2000 questionnaire, 74% considered it "very important" to prevent further development of open spaces.¹⁷ Similarly, in the 2005 Public Perception Study on Sustainable Development, 85% of respondents expressed "concern", with 56% and 66% of respondents respectively indicating that the protection of open space and the marine environment are "critically important" to the long-term success of Bermuda.¹⁸

BEST is strongly supportive of the intent of the 2008 Bermuda Plan to preserve and protect Bermuda's conservation and protection areas. However, we find it counter-productive that policies and regulations sometimes contain qualifiers and exemptions that may render them practically meaningless. As an example, Section 34 of the Development and Planning Act 1974 has enabled Environment Ministers to enter into what was intended to be environmentally favourable covenants with landowners. Recent applications have shown that the discretion accorded Ministers allows for amendments to these covenants in ways that negate the original agreements and even contradict the spirit of the law.¹⁹

BEST believes that weaknesses within the Bermuda Plan 2008, which potentially put our remaining conservation areas at risk, be strengthened and that development be required to strictly comply with established zoning policies and regulations. BEST also believes that Ministerial discretions in the Development Act 1974 must be tightened to steer decisions on Special Development Orders, appeals, creation and amendment of Section 34 agreements toward upholding and away from undermining the strategic objectives of the Bermuda Plan 2008, which are designed to preserve our natural resources.

1.4 Waste Management

Waste management is a substantive and growing environmental issue for Bermuda. Our per-capita consumption of products ranks with some of the most affluent of industrial nations.²⁰ Attending that level of consumption, Bermuda generates more waste per capita than most industrialised nations, including the United States.²¹ Some of our methods of handling waste have room for improvement. Bermuda is currently storing more asbestos per square mile than anywhere else in the world.²² We also discharge up to a million gallons of raw sewage into the ocean each day due to very limited sewage treatment facilities.²³ We provide limited recycling opportunities and recently reduced collection of recyclables by half. We deposit used cars and appliances, reportedly an average of 700 truckloads of waste a week, at the ocean's edge as managed "landfill."²⁴ Research done by the Bermuda Institute of Ocean Sciences (BIOS) has shown high levels of metals, PCBs, PAH and dioxin in sediments within 80m of this facility.²⁵ Such findings highlight the importance of addressing our waste issues, both for human and ecosystem health.

Bermuda's relative wealth, its reliance on imports and the global growth in cheap disposable products and consumer lifestyles, exacerbates our waste management problems. Disposing of waste is economically expensive and, where products are not disposed of appropriately, the environmental costs can be great. We have done little to legislate against the importation of cheaply made and highly disposable goods and we have spent little on communicating with the public on better product choices and disposal practices.

The Tynes Bay Incinerator currently handles Bermuda's general solid waste. The plant is slated for expansion or replacement²⁶ to accommodate a volume of waste that was unforeseen just twenty years ago when it was constructed.

While we cannot stop the flow of waste, we can reduce both the quantity and hazardous content associated with it by seeking viable opportunities to reduce, re-use and recycle and educating the public about these opportunities and their importance. We can favour imports that use less packaging or more environmentally-friendly packaging, encourage the use of non-toxic household products, and foster a second-hand market to limit the disposal of potentially useful items. We can limit or halt the importation of troublesome products — plastic bags, for example, that are now either restricted or completely banned in over a quarter of the world's countries,²⁷

BEST recognizes the scale, complexity and cost involved in formulating and executing a comprehensive waste management strategy. However, by improving existing waste-handling processes and programmes, and expanding communication with the public, Bermuda can avoid the greater costs to ecological and public health.

1.5 Energy

The vast majority of Bermuda's energy supply is currently generated from imported fossil fuels derived from oil, the combustion of which is widely associated with a range of adverse local environmental and health effects as well as global-scale climate change. Reliance on imported fossil fuels is not only associated with present and future negative environmental effects, but also contributes greatly to our energy costs — among the highest in the world. These costs are unpredictable and liable to increase, with gas prices rising by around 10% over the past year and 5% in February 2012 alone.²⁸ Recent reports predict several adverse impacts on Bermuda resulting from changes to the global climate. However, our per capita greenhouse gas emissions of 14.44 metric tonnes are currently more than twice the world average and over 14 times the sustainable level suggested by climate scientists.²⁹

Bermuda's high per capita greenhouse emissions result in part not only from our reliance on fossil fuels but also from our relative wealth and high consumption patterns, with our per-capita emissions rising steadily over the past two decades.³⁰ There are, however, many simple ways that we can reduce our energy consumption without compromising our quality of life — ranging from energy saving power strips, light bulbs and appliances to hot water heater timers to smaller, more fuel-efficient cars. On a larger scale, energy audits and better energy management in multi-storey buildings, and a movement away from energy-intensive (and therefore expensive) processes such as desalinization of sea-water, could also greatly reduce our carbon footprint without compromising quality of life. Such small- and large-scale solutions can bring significant cost savings to households, businesses and the Government.

The 2011 Bermuda Energy White Paper entitled "A National Energy Transition" contains Bermuda's first national energy policy and provides a plan that, if followed, should enable us to use energy in an increasingly sustainable manner, not only limiting the damaging environmental and health effects associated with fossil fuel use but also enabling long-term energy security.³¹ This document and the dialogue surrounding it comprise an excellent first step in tackling Bermuda's energy issues and include many of the critical ingredients that should enable cost-effective and long-term solutions.

BEST believes that every Bermudian has a role to play in reducing energy consumption and embracing renewable solutions. BEST supports efforts to translate what is a well-researched and widely-consulted plan contained in the Energy White Paper into tangible, positive action leading ultimately to a smaller energy footprint with a cleaner and more sustainable energy base.

1.6 Pollution

With over 3,000 residents, 1,680 dwellings and 2,300 motor vehicles per square mile, Bermuda easily ranks among the most densely populated territories on earth.³² This, compounded by our disproportionately high greenhouse gas emissions and waste production per capita, results in an immense potential for pollution in both our terrestrial and marine environments. As early as 2003, concentrations of airborne particulate matter on East Broadway were found to exceed acceptable levels set by the Bermuda Clean Air Regulations (1993) and elevated mercury concentrations were found in human fetal cord blood and in some species of local fish.³³

Pollution can be defined as the introduction of a contaminant or contaminants into a natural environment at levels that cause instability, disorder, harm or discomfort to the ecosystem. Pollution can take the form of chemical substances or energy, including noise, heat or light, and can negatively impact both human and environmental health. Identifying, minimising and ultimately preventing pollution will not only help to ensure the long-term survival of our many special, and often unique, ecosystems, but also has the potential to reduce healthcare costs, improve overall quality of life, and encourage tourism. A 2007 study, for example, estimated the total economic value of Bermuda's coral reefs alone to be \$722m annually, and 14% of tourists interviewed as part of this study confirmed that they would not come to Bermuda should the coral reefs lose their "pristine" quality.³⁴

The continual updating, passing and enforcing of legislation that recognises current international environmental best practices, as well as the recommendations coming out of local research, will play an important role in reducing the harmful effects of pollution. Changing mindsets, including what is often referred to as our "throwaway mentality",³⁵ will also be essential. This will require increased awareness and education, ideally as part of the national school curriculum, on the issues facing our environment and how each individual can play an essential role to address them. Several aspects of pollution affecting the island, including plastic pollution from the North Atlantic gyre and greenhouse gas-induced sea level rise, are transnational in nature and will require international cooperation on a large scale to successfully address. Perhaps one of the best ways that we can encourage such cooperation is to lead by example.

BEST believes that much can be done to reduce current and future levels of pollution in our environment. Enforcement of legislation that recognises current international environmental best practices, including the requirement for comprehensive Environmental Impact Assessments (EIA) prior to undertaking large development projects, will play an important role in reducing the harmful effects of pollution. On a smaller scale, educating the public will be key as each individual can play an essential role in reducing pollution in both our terrestrial and marine environments.

2. Social Environment

The social environment can be defined as the culture in which an individual is educated and/or lives in, and the people and institutions with whom the person interacts.³⁶ The social environment can impact on, and be impacted by, both the physical environment and the economy. As a result, achieving a healthy social environment is an important piece in the overall goal of elevating sustainability in all areas and must be considered imperative.

A successful social environment creates a feeling of solidarity among its members, who are more likely to keep together, trust and help one another and think in similar ways.³⁷ Such feelings of solidarity help to foster economic opportunities and a collective consideration for the environment. Successfully addressing the issues within our social environment will help us to arrive at a place where we love, trust and look out for each other — regardless of colour, age, or social standing — and where individual decisions are not self-interested and short-sighted, but sustainable and in the best interests of the community as a whole. To get to such a place, we need to recognize that each and every one of us is important in making Bermuda one of the most beautiful, friendly and welcoming places in the world, and in shaping this country's future.

Past attempts to address our social issues have tended to focus on the symptoms and have sometimes been expensive, ineffective and even counterproductive. We might better achieve “win-win” solutions if we understand that the various dimensions of sustainability interact in many ways, and take into account the complex and unavoidable interactions of environmental, economic and social factors. Through collaborative discussions, research and consultation, comprehensive planning with long-term goals, and intelligent management of resources and processes we can move toward truly integrated environmental health.

We examine the following six aspects of the social environment as examples.

2.1 Family

Socialisation is the process by which children learn how to function in a society. As a primary agent of socialisation, family plays a critical role in shaping the life and behaviour of an individual.³⁸ At a basic level, a stable, caring and low-stress family environment helps to produce happy and productive members of society that contribute to our collective economic wellbeing and are more likely to care about their environment. The traditional family unit in Bermuda has been losing ground. The 2010 Census of Population and Housing revealed small increases in the proportions of people divorced and those never married. Also revealed was that 22% of Bermudian women give birth to their first child while still in their teens.³⁹ A recent documentary by the Coalition for the Protection of Children revealed that 50% of all black female-headed households with children were living at or below the poverty line in 2000, a percentage that is not likely to have improved as the economy has eroded since then.⁴⁰

While a stable, caring family unit is a factor in providing both financial and emotional support, there are other support systems that can assist in producing untroubled and contributing members of society where the traditional family unit is not in place. In support of the role community can play, a young Bermudian college graduate wrote, "I was 'raised in a village' — a network of people helped my single mother raise me, and loved us without seeking any compensation in return. Teachers invested countless hours in making sure I would be a success, and pushed me when I wouldn't have pushed myself. Elders kept me in check in the presence and absence of my mother. People took interest in me and told me that I could do or be anything I wanted to be. People loved and supported me — but they also disciplined me if necessary and helped shape my character."⁴¹

This concept of "villages", in which everyone in the community loves and in some way supports their neighbours and their neighbours' children, has a role to play for some of the more vulnerable family structures (such as single-parent households) to be able to function successfully. As economic pressures have increased, and single-parent and two-parent families have had to work even longer hours to keep a roof over their families' heads, it is likely that these "villages" are now more important than ever.

BEST supports a re-valuing of the traditional family unit alongside a strengthening of the "village", the community. We would also support that instruction of life skills be included in all school curriculums starting in primary school, with similar services being universally available and easily accessed throughout life to help families with parenting skills, managing finances, accessing quality health care, and improving job and other basic skills.

2.2 Housing

Between 1970 and 2000, the percentage of land used for residential purposes in Bermuda increased twice as much as population growth and was accompanied by a 21% reduction in open space.⁴² As explained by Bermuda's Sustainable Development Unit (SDU), while "many Bermudians believe that [Bermuda's housing] problem is centred in a lack of available housing... The issue [is] that the majority of housing in Bermuda is simply not affordable."⁴³ There appears to be a conflict between speculative housing development and housing built to fulfill society's needs, with most housing being constructed at the middle to upper-middle price range while the real need for housing is at the lower end. Speculation-driven housing construction may be forgiven where there is much land available, but here in Bermuda where open space, arable and other amenity land areas are already small and rapidly shrinking, the social costs of speculative housing construction outweigh the benefits to the community.

The average gross salary in Bermuda rounds to \$4,500 per month and, as late as November 2010, the average monthly rental price was \$4,543 for a single family property or \$3,576 for a two-bedroom apartment.⁴⁴ This suggests that, after payment of rent, meeting day-to-day living expenses is likely to be a struggle for many families with a single provider. As explained by Bermuda's SDU, the "concern with unaffordable housing is that where rent or mortgage is exorbitantly high, families are forced to take on 2nd and 3rd jobs to make ends meet. Further complications include an inability of parents to enroll their children in extracurricular activities due to a lack of funds. These children are often left to their own devices after school...". According to family advocate Sheelagh Cooper, the escalation of many of Bermuda's social problems, including gang violence, prostitution and poverty, are fundamentally caused by economic issues, the root of which is often a lack of affordable rental accommodation.⁴⁵

According to the Bermuda Rent Commission, rent control prices, ranging from \$900 to \$1,300 per month for a studio to \$2,200 to \$2,800 per month for a three-bedroom, are applicable to 54% of properties on the island.⁴⁶ Despite these controls, anecdotal evidence suggests that many of these properties currently rent for more than the stipulated maximums. Better publicising and enforcing of Bermuda's rent control laws could help many lower income families meet their day-to-day expenses and lead to a reduction in the social problems associated with families in economic distress. In addition, these actions could increase the ability of renters to one day afford to buy a property of their own.

BEST supports that speculative residential development be actively discouraged and that future development take place on brownfield rather than greenfield sites, where possible. In addition, BEST supports efforts to address the lack of affordable housing that focus on ensuring fair and affordable rents, rather than building more homes in an already saturated marketplace. This could potentially include allocating more resources to the Rent Control Commission and better communicating its role and the laws in place to protect renters of lower valued properties.

2.3 Transportation

Traffic congestion and pollution are commonly associated with increased stress and negative health effects. Despite this, the size, number and speed of vehicles in Bermuda have increased in recent years with the result that Bermuda has one of the highest road traffic densities in the world and a road fatality rate that was reported to be six times worse than that of the UK.⁴⁷ As with housing, transportation is a sector in which there is a conflict between the community's needs and "market forces". Ideally, we should be promoting public transportation. Where personal transportation is used, vehicles should be the safest and most efficient to serve their purpose, particularly as larger and less fuel-efficient vehicles extend our existing reliance on fossil fuels.

The ability to drive a motor vehicle on our roads must be viewed as a privilege rather than a right. We must work to change mindsets behind the dangerous driving habits that have largely become culturally acceptable if we are to prevent future road fatalities and promote the safety of all users of our roads. As stated by Road Safety Officer David Minors, successfully addressing road safety issues will require both enforcement and responsibility for personal driving habits.⁴⁸ Enforcement could include more speed checks, breathalyser tests, and far stricter penalties for dangerous driving and high speeds, particularly for repeat offenders.

Measurements taken at East Broadway in 2003/4 found concentrations of airborne particulate matter that exceeded the Bermuda Clean Air Regulations and that have been associated with a range of respiratory problems.⁴⁹ More recent research also found that our reliance on petroleum-based fuels is having a devastating effect on our wildlife.⁵⁰ Identifying and enforcing local emissions standards, as was promised with the new emissions testing facility constructed over two years ago, would go a long way towards addressing some pollution issues. In addition, reducing our reliance on private transportation would reduce both pollution and congestion. Improvements to public transportation must be viewed as an investment rather than an expense as they can ultimately reduce the costs of maintaining our roads and improve economic productivity by reducing the amount of time and money wasted sitting in traffic. Improvements will not only benefit locals, but will also help to disperse the economic impact of cruise passengers from Dockyard to other areas of the island and improve visitor experiences.

BEST supports efforts to discourage the use of private transportation while improving the efficiency and decreasing the cost of public transportation. BEST would also support promotion of smaller, more efficient vehicles and greener methods of transportation, including cycling and walking, and exploring the potential of electricity or propane/natural gas as propulsion for vehicles. For these initiatives to be successful, BEST promotes the more diligent enforcement of traffic laws, and the timely establishment and enforcement of local emissions standards.

2.4 Cultural Heritage

As a result of our past, Bermuda is today a collection of multi-faceted communities, each rich with a history and heritage that is unique to only this place. Together, we have fostered a collective Bermudian culture that has shaped our sense of identity and helped us to navigate change. The history and stories that have shaped our community are worth preserving as, by so doing, we honour and draw strength from our collective past. These stories embrace where we have come from, celebrate where we are today, and envision where we are going.

Increasingly, communities around the globe are recognizing culture as a legitimate foundation for building community identity and economic resilience, and are including a cultural dimension in their sustainability models. These communities are making the case that cultural vitality is essential for a healthy sustainable society; that a healthy cultural sector is increasingly important to the development of a strong and economically sound community. They have adopted a 'whole systems' perspective and strategy in their approach to local cultural development that is delivering a measurable return on their investment.⁵¹

Safeguarding our cultural heritage—historic sites, cultural landscapes, buildings and heritage districts, among others—and maintaining a strong economy do not have to be mutually exclusive goals. Bermuda's abundance and diversity of cultural assets provide us with a notable advantage in the competition for tourists and business partners who are motivated by an interest in the historical, artistic, natural and cultural heritage attractions of a destination. Cultural tourism is now part of a worldwide boom that is projected to become the world's largest industry.

As a nation of immigrants, starting with the first adventurers shipwrecked on our shores, "Bermudian" is a unique and constantly evolving identity. Instead of drawing divisions among our population, our challenge is to celebrate our differences and nurture our collective cultural identity: namely the hard work, innovation and community spirit that enabled us to become one of the wealthiest communities in the world despite our isolation and limited tangible natural resources.

BEST believes that recognising and fostering our unique and collective culture has an important role to play in our sustainability model. BEST welcomes the creation, promotion and implementation of a comprehensive cultural development plan to conserve and enhance our cultural heritage resources, which give added benefits to cultural tourism opportunities and uphold our community's sense of place.

2.5 Health and Wellness

A 2006 study found that 64% of Bermudians are dangerously overweight and, more recently, the Bermuda Health System Profile (2009) concluded that “Most leading causes of death in Bermuda are now related to chronic, non-communicable conditions caused by lifestyle factors such as inactivity and poor diet”.⁵² Bermuda now spends more on healthcare than almost every other country in the developed world, with an average of 19.8% of household consumption going towards health costs.⁵³ These are worrying statistics, particularly in a time of economic difficulty when many people are losing their jobs and struggling to pay for health insurance.

Many of these costly and fatal diseases can be avoided through simple lifestyle changes — “prevention is better than cure.” BEST applauds the many weight loss challenges that have been developed in recent years. There is a need, however, for a more widespread and sustainable campaign. Many Bermudian staple foods tend to be high in fat and often low in nutrients.⁵⁴ While we should not necessarily eliminate these from our diets altogether, we need to actively reduce portion sizes and incorporate more foods that are low in fats and sweeteners, and high in nutrients.

Physical activity is another important component of a healthy lifestyle, and can be as simple as walking or cycling rather than using motorized transport. Bermuda’s climate lends itself to active outdoor living and, while recreation areas are limited, there are various opportunities available for fitness and recreation. Safe and well-maintained recreation lands such as parks and beaches encourage use, fostering improved health and fitness, increased community and family unity, and reduced stress and an enhanced tourism experience. Such areas are particularly important on a small island with no real wilderness and fewer social options than are available in large cities. Bermuda’s stock of recreational land is small and shrinking. It is therefore important that we preserve and enhance each of our existing recreation areas, from parks and railway trails to the National Sports Centre, and look to supplement these wherever possible. Southlands is a case in point and, while this is referred to in Bermuda Housing Corporation (BHC) marketing materials for the Grand Atlantic development as “Southlands National Park”,⁵⁵ such protections have yet to be legislated.

BEST believes that a healthy lifestyle is an important ingredient to ensuring a sustainably high quality of life. We would therefore like to see a large-scale health and wellness campaign that promotes all aspects of healthy living and begins in primary schools. In addition, we see it as critical to preserve and enhance our limited recreation areas, and actively encourage the positive use of them. Ensuring that the necessary legal protections are in place to protect our open spaces, and preventing the alteration of such protections, will be key. Furthermore, whenever any recreational developments are planned, existing zonings should be respected, key stakeholders must be actively engaged, and the EIA process must be carefully followed in order to ensure that the maximum social and economic value is achieved while minimizing any environmental costs. Ultimately, keeping active and maintaining healthy portions and a balanced diet should have enormous benefits for the happiness of individuals, household budgets, and everyone’s health insurance premiums.

2.6 Carrying Capacity

Bermuda has always been an immigrant-prone society and is no different today, with over one third of its 38,000-strong workforce being foreign-born in 2010.⁵⁶ With 3,200 people per square mile,⁵⁷ Bermuda is one of the most densely populated countries in the world.⁵⁸ Over the past 50 years, we have become a pre-eminent financial services centre, and one of the wealthiest countries, ranking fourth in the world based on GDP per capita.⁵⁹ While our population density alone is likely to put a strain on limited resources, a richer population entails a higher standard of living, which can lead to additional strain on resources such as land, water, housing and transportation. In 2006, a Standard & Poors' report on our economy warned of strains showing in our small-island infrastructure.⁶⁰ The Department of Sustainable Development echoed this warning with its statement that pervasive, unsustainable conditions facing the Island strongly suggest the need for a plan compatible with our limits of growth.⁶¹

Studies have shown high population densities to be accompanied by social unrest, increased accidents, sickness, lawlessness and crime, and a listlessness about engaging in the community's usual preoccupations.⁶² British Psychiatrist Anthony Storr writes, "The closer we are packed, the more easily resentful of each other we become. It is probably on this account that many people find life in cities irritating and exhausting since they are compelled to control aggressive impulses which arise solely as a result of overcrowding."⁶³ More recent research links population growth and density with reductions in the quality and quantity of resources.⁶⁴ Essentially, overpopulation places a competitive stress on resources that can lead to a diminished quality of life.

While any limits proposed for Bermuda's population may be considered subjective, many of Bermuda's resources are undeniably finite. Living "greener", less resource-intensive, lives may increase the threshold population at which a high quality of life becomes unsustainable, but there will ultimately still be a limit. The State of the 2005 State of the Environment Report shows a direct correlation between the increase in our population and the decrease in our open spaces,⁶⁵ for example. The 50,000 vehicles on our roads and incidents of residential developments encroaching on and usurping land designated for tourism purposes are taking a toll on our quality of life and our ability to attract tourism revenue. Our decreasing ability to sustain an overall quality, as opposed to quantity, of life for all residents needs our attention.

BEST believes that Bermuda's population growth must be carefully monitored and managed if the island is to maintain a healthy social and ecological environment as well as to compete globally as a premier business and tourist destination. We must re-view using material "wealth" as the accepted and sometimes sole gauge for measuring "success", noting that the current expansion-driven model fuels population growth. BEST supports a review of tangible versus intangible individual and community wealth. While our total population may currently be in decline, BEST encourages the work of determining an optimum carrying capacity be done in advance of a rebounding economic cycle.

3. Economic Environment

The economic environment is essentially concerned with generating the disposable funds necessary to purchase goods and services. The success of the economy is extremely reliant on the health of both the social and physical environments. Likewise, the health of both the social and physical environments is affected by economic factors. Economic, social and environmental priorities are often complimentary rather than competing, and almost always reconcilable — as is the apparent mutually exclusive but wholly artificial choice between jobs vs. trees.

While the Bermuda economy has shown resilience over the past four centuries and has grown enormously over the past several decades, we are now mainly reliant on a single sector, international business, which is in turn reliant on global events. Cultivating international business will continue to be critical to meet and pay down our recently expanded debt obligations. It will also be important to work to improve our dwindling tourism industry and to consider new avenues for economic diversification in order to provide a broader range of job opportunities and a more robust economic base. Initiatives to improve our tourism product need to grasp that the beauty and serenity of our physical environment and the safety and friendliness of our society remain, and are likely to remain, our two biggest selling points. Similarly, the artificial inflation of our economy through construction booms, driven in no small part in recent years by publically-funded capital projects, provides only short-term benefits and, as experienced recently with the economic downturn and ballooning Government debt, are simply not sustainable in the longer-term. This is particularly true given Bermuda's limited land mass and significantly dwindling reserves of undeveloped space.

For sustainable economic prosperity to be achieved, careful consideration and incorporation of both environmental and social factors must be an ingredient in any seemingly economic decision. From a social standpoint, Bermudians must provide a safe and welcoming environment for tourists and companies alike, and Bermudians must be equipped to play an active role in our economy. From a physical environment standpoint, both our marine and terrestrial environments must be carefully protected and managed to ensure that we can continue to draw tangible and intangible economic benefits from them in the longer-term.

We examine the following six aspects of the economic environment as examples.

3.1 International Business

Despite some contraction in recent years, International Business remains the largest pillar of our private sector economy bringing in close to ninety cents of every dollar of foreign currency arriving on the Island.⁶⁶ This foreign currency is now essential to satisfy the demands of public and private expenditure, the servicing of private and public debt, and the paying down of that debt. With no obvious major alternative revenue streams on the horizon, it will be critical to retain and strengthen our International Business sector for Bermuda to remain solvent.

International Business operates in a global marketplace where there is intense competition for capital. While Bermuda's key attraction is its low tax structure, there are many other low-tax destinations competing for the same capital. To remain competitive, Bermuda must provide additional advantages, which historically have included a pleasant physical and social climate, convenient location between Europe and North America, political stability and a high quality of life. At the most fundamental level, International Business is driven by highly mobile capital and expertise. It is therefore critical to Bermuda's competitive positioning for us to be welcoming to both. Securing the relevant expertise will remain an important factor. Equally important will be an improved dialogue between industry leaders and policy-makers, particularly on how the Island can become a better place to do business.

Alongside its many benefits, International Business places numerous strains on Bermuda's infrastructure, including increased demands on transportation, power generation, water supply and waste facilities. "Bermudianising" the sector as much as possible would foster a reduction in the housing and resource demands and reduce some of the negative social and environmental consequences associated with imported labour. In addition to creating more well-paying jobs for locals, this would foster a greater appreciation for the importance of the sector within the wider community. With a solid education, more Bermudians will be able to offer the necessary skill sets, experience and work ethic required for these companies to succeed.

BEST welcomes more of open, honest and constructive dialogue between policy-makers and business leaders focusing on how Bermuda can retain and refine its competitive edge as a destination for global capital and how to get more Bermudians involved in the sector. BEST also promotes ways for Bermuda's youth be made aware of the many opportunities available on the Island and how best to capitalise on educational opportunities and the various scholarships, internships and jobs available.

3.2 Tourism

Bermuda's cost of living is several times that of most rival tourist destinations; average hotel rates exceed most, if not all, world cities.⁶⁷ Consequently, Bermuda simply cannot mirror other destinations while remaining competitive. Bermuda's success as a tourist destination has traditionally stemmed from its breathtaking natural beauty and rich cultural heritage. Online destination reviews affirm that these continue to be the key elements of positive tourist experiences. On the review website epinions.com, for example, Bermuda's pros include "lush greenery", "beautiful beaches", "beautiful architecture", "white roofs", "pink sand", "nature", "picturesque", "history", "charming country", "clear water", "many cultural and natural sites to see", "abundance of activities", "serenity", "relaxing environment", "friendly locals", "beauty", "culture" and "fun". Of the 64 reviews written between 1999 and 2010, only one listed "boring" as a con and one reviewer even found Bermuda to be "too cosmopolitan".⁶⁸

Such visitor feedback offers valuable insight into how best to market and improve our tourism product. Many of the experiences that we as Bermudians seek when we travel to cities overseas are often the very things that visitors to our shores are looking to escape. If we try to cater to the one tourist who finds Bermuda "boring", we may risk losing the 63 others who visit for our natural beauty and charm. Aggressive and noisy road users, violence and crime, and deliberate racial discord must be reined in.

It will help if we are mindful that, in addition to eroding the natural beauty that draws so many people to our shores, development, if left unchecked, will ultimately destroy the primary competitive advantage that we have always enjoyed.

To differentiate ourselves from other, more affordable, destinations, our specific advantages should therefore be recognised, preserved, and developed into a unique tourism product integrated into a comprehensive tourism plan. Cultural tourism is now part of a worldwide boom that is projected to become the world's largest industry.⁶⁹ Thus the development and promotion of a cultural component of Bermuda's tourism package would be unquestionably beneficial. According to the Caribbean Tourism Organization (CTO), sustainable tourism is defined as "the optimal use of natural, cultural, social and financial resources for national development, on an equitable and self-sustaining basis, to provide a unique visitor experience and an improved quality of life through partnerships among government, the private sector and communities."⁷⁰ Embracing the concept of sustainable tourism will therefore bring with it the opportunity to enhance the quality of life for Bermudians as well as the quality of the tourist experience as a whole.

BEST strongly encourages tourism planning that looks beyond copycat schemes to the deep recognition of Bermuda's unique potential and its limitations. BEST supports tourism planning that embraces the concept of sustainability, and recognises that a unique tourist experience is critical to the success of the tourism industry.

3.3 Economic Diversity

Countries around the world are recognising the need to balance their participation in the global economy with local autonomy and resilience. Emerging market leaders are not only talking about what is necessary to move their countries into a greater role on the global stage, but are simultaneously investing in maintaining vibrant, sustainable local economies.⁷¹

Although Bermuda has a long history of economic resilience and innovation, our focus in the last fifty years has steadily settled on providing goods and servicing needs related to two key drivers of our economy: international business and tourism. We have virtually become a “company town”, heavily exposed to the changing economic circumstances of these industries. In 2010, these sectors generated \$3.7 billion, or 56% of our gross domestic product (GDP), with customs duties on imported goods and payroll tax being the next largest revenue generators.⁷²

As stated in the BermudaFirst Report 2009, Bermuda is once again at a crossroads. Business and political leaders are actively exploring ways to expand and strengthen our main industries. However, there is also a call from both inside and outside these industries for Bermuda to build more diversity into its local economy. This will most likely involve fostering opportunities for local enterprise and small businesses to flourish. The promotion of green technologies, including alternative energy, as a third economic sector is one area worthy of consideration while others include exploring opportunities for niche market products developed by local businesses and individuals, and developing and promoting our unique cultural assets to the growing global cultural tourism market. Diversifying our economy should have the double benefit of helping to ensure that all Bermudians are able to participate fully in economic opportunities as well as promoting economic resilience in the longer-term.

BEST believes we must actively cultivate and enable the energy and resources of all sectors of our community to build a more economically resilient Bermuda. We want to see a strong local economy that supports diversity, entrepreneurship, self-reliance and community benefit. At the same time, new ventures must fit within the Island’s limited land and human resource boundaries and do minimal harm to our fragile and vulnerable physical environment.

3.4 Island Planning

Since 1992, an assertive plan for higher density development and more dispersed commercial development has been considered for Bermuda. The current Bermuda Plan 2008 has followed this trend, enabling a hierarchy of mixed-use zones at Southside and Dockyard and eight neighborhood commercial centres across the island. The Plan allows for greater flexibility in residential land uses, higher buildings, increased density and reduced lot sizes. The rationale for its policies is that compact mixed-use “towns” and centres will protect our natural resources, relieve pressure to develop greenfield sites, curb urban sprawl, preserve residential amenity and ease traffic congestion by reducing our dependency on the private car.⁷³

While BEST strongly objected in the Bermuda Plan Tribunal process to the intensification of development these policies allow, it supported, and continues to support, the rationale behind these policies. However we believe that these aggressive allowances must be tied into a comprehensive architectural, transportation and neighborhood-integration plan for each centre. Without such a plan, the positive impact envisaged for neighbouring areas and the island as a whole cannot be guaranteed, and the economic and social viability of the centres themselves may not be achieved.

Successful planned communities in the US, Canada and Europe clearly demonstrate that it is possible to curb sprawl while ensuring a high quality of life for residents and measurably improving environmental quality. These self-contained, pedestrian-oriented “smart” towns and villages incorporate a strong and diverse commercial centre, a design scale that does not dominate over the pedestrian, connectivity to the public transport system, and a contiguous green network of gardens, sidewalks, playgrounds, recreational facilities and parks. They support the unique character of the neighboring residential communities and integrate well into the natural landscape.

BEST believes we must incorporate lessons learned from planning models for community sustainability and design our existing mixed-use and neighbourhood commercial centres to not only nurture economic opportunity but to also preserve and enhance the social, cultural and environmental assets of our neighborhoods. BEST believes that well-planned mixed-use and neighbourhood centres will have a greater likelihood of achieving the vitality and viability envisioned for commercial businesses to succeed. BEST would encourage an integrated plan for each of our mixed-use and neighborhood commercial centres that supports community sustainability and is based on the principles of self-sustainable, complete and functional communities.

3.5 Capital Projects

Capital expenditure can be defined as spending that creates future benefits, and is incurred when a business or government spends money either to buy or build fixed assets or to add to the value of existing ones.⁷⁴ Bermuda has experienced an increased investment in capital projects over the past decade with hundreds of millions of dollars being spent to both build new facilities and upgrade existing ones.

When carefully planned, managed and executed, such projects have the potential to bring enormous social, economic and even environmental benefits to a community in both the short and longer term. Given the large scale of many of these projects, measures to minimise any potential negative environmental impacts should undoubtedly be taken. This can be achieved by following the timeline agreed to in the Environmental Charter signed by Bermuda and the UK in 2003 for the conduct of a proper Environmental Impact Assessment (EIA), using the process laid out in the Department of Planning (DOP) Guidance Document (GN106).⁷⁵

As cautioned by Pricewaterhouse Coopers (PwC) in the 2005 Budget Release,⁷⁶ when planning any large-scale publicly-funded project, it is important to be mindful that expenditure on such capital programmes may contribute to and exacerbate existing inflationary pressures through increasing wage scales and increases in the costs of living. It is arguable that overly high levels of investment in such projects, followed by unanticipated reductions due to budget cuts and related public debt, may actually exacerbate the extent of an economic decline, particularly in the construction sector. Ideally, and if possible, capital projects should be used to cushion the economy in times of decline, thus providing much-needed employment and investment when economic times are otherwise difficult. This could also reduce the need to import construction workers during boom periods, with corresponding benefits for carrying capacity and reduced competition between local and foreign construction workers whenever the economy contracts.

BEST believes that capital projects must be preceded by thorough public and stakeholder consultation, extensive cost-benefit analysis, and an open tendering process. Furthermore, strict adherence to the proper Environmental Impact Assessment (EIA) process, effective internal control of funds, and clear and enforced accountability are essential before, during and after project completion. BEST is confident that this combination will produce the greatest economic and social benefit at the lowest environmental cost. In short, such a combination will ensure that the taxpayer receives the best value for money whenever capital investments are made.

3.6 Economy-Relevant Education

As a small island, it is unlikely that Bermuda will be able to offer comprehensive education options at the tertiary level. However, as a wealthy country, we should realistically be able to offer a high standard of both primary and secondary education to all young Bermudians. The Hopkins Report on Education (2007) found that our school system is deficient at the middle school level.⁷⁷ More recently we learned that over 50% of young black males enrolled in the public education system leave before even attaining their secondary school certificate.⁷⁸ The recent full implementation of the Cambridge International Curriculum is a positive step, but the quality of teaching, support structure and strong operational leadership must also be in place to ensure that Bermudian students can reach their potential, both in international examinations and, more importantly, as productive members of society thereafter.

According to the World Bank, "Quality secondary education is indispensable in creating a bright future for individuals and nations alike."⁷⁹ This is particularly true in Bermuda's mainly knowledge-based economy. Alongside dealing with the outcomes of a deficient education system, which quite plausibly include gang recruitment and a rise in violent crime, efforts must focus on improving education as an underlying cause. Furthermore, given that the majority of black Bermudians are educated in the public system, in the interest of attaining equity in the workplace we must ensure that this system can provide its clients with the first class education and/or in-demand technical skills, and encouragement, that will enable them to compete for the higher paid jobs.

As a greater number of Bermudians attain the skills and confidence necessary to compete in what is essentially a global marketplace, the island will not only be more attractive to International Business but the need to import labour will also be reduced, with corresponding benefits for carrying capacity, expat-local social relations, and the environment. The findings of the Strategic and Operational leadership section of the Mincy Report,⁸⁰ along with the per capita cost of our current public education system versus the private system in general, clearly indicate an overhaul of the system need not cost the taxpayer more money, and indeed could even lead to sustained cost savings.

BEST supports completion of the recommendations of the Hopkins Report as a national priority. BEST supports sustained and decisive action to reform and elevate the delivery of public education.

Conclusions

The issues currently facing Bermuda are broad and the Bermuda Environmental Sustainability Taskforce (BEST) recognises that this Blueprint is not an exhaustive prescription nor a one-step solution. We do, however, look forward to constructive feedback and discussion on the content of this document and, ultimately, to the positive action that will move us toward a sustainable Bermuda. As part of this process, we look forward to the opportunity to work with all Bermudians, as well as Bermuda's political, business and community leaders, to preserve and enhance the quality of life for all.

According to the International Union for Conservation of Nature (IUCN), present decisions worldwide tend to weight the economic environment too heavily while not giving enough consideration to the physical environment. This would certainly appear to be true for many decisions in Bermuda. Change is needed to address this imbalance. Sustainable economic prosperity is inextricably linked to the careful consideration and incorporation of both environmental and social factors into every seemingly economic decision. The high level of interconnectivity between the physical environment, economy and society requires extensive cross-ministerial collaboration when formulating, implementing and enforcing solutions. It is the ability and the will to grasp the interdependence of the dimensions of sustainability that will avoid costly attempts to choose between what are too often incorrectly viewed as competing priorities (e.g. the "jobs vs. trees" argument). In reality, economic, social and environmental priorities are almost always reconcilable. Their reconciliation will ultimately result in an elevated quality of life and a healthier Bermuda environment for locals and visitors alike in both the near- and far-term.

This Blueprint has outlined the complex interactions between the physical, social and economic environments and has highlighted the importance of weighting each of these three equally in making decisions and shaping policy. BEST applauds the establishment of the Sustainable Development Unit within the Bermuda Government. It is our view that the SDU has yet to be given the central role that is needed to position the concepts and practices of sustainable development in the future policies and plans for our Island.

Developing practical solutions to the broad spectrum of issues facing us will not be easy. BEST firmly believes that they can be attained through comprehensive research, extensive and far-reaching public consultation, cost-benefit analyses and selfless political will. BEST is certain that we can arrive at decisions that maximise the economic and social benefits for Bermudians while minimising adverse environmental impacts. We look forward to a future in which Bermuda will be experienced and seen as a global example of environmental sustainability.

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