



THE GOVERNMENT OF THE BAHAMAS

INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC) UNDER THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Communicated to the UNFCCC on November 17, 2015

The Bahamas is pleased to communicate its Intended Nationally Determined contribution and the accompanying information to facilitate clarity, transparency and understanding under decisions 1/CP.19 and 1/CP.20.

Introduction

The vulnerability of The Bahamas to the impacts of climate change is well known given its geographical vulnerabilities (limited land masses, low-relief and dispersion of islands), environmental vulnerabilities (high temperatures, storm surges, sea level rise, flooding, tropical cyclones and non-tropical processes), the concentration of socio-economic activities and critical infrastructure in narrow coastal zones, its dependence on tourism and the limited human and institutional capacity. The Bahamas is also highly dependent on the imports of fossil fuels for energy needs which places a heavy burden on its economies as a result of the vagaries of global petroleum prices.

Based on the available scientific consensus we can expect more frequent and intense impacts over time.

It is within this context that The Bahamas is expected to adapt to the impacts of climate change while at the same time pursue a low carbon pathway in conformity to growing international and public pressure for environmentally friendly development that reduces their “carbon footprint” and exposure to climate change, while also increasing energy security.

In response to the challenges faced by climate change, The Bahamas has developed a National Climate Adaptation Policy (2006), a National Energy Policy (2013) and amended its Forestry Act (2014). The Bahamas has also worked

together with other CARICOM countries to form an implementation plan to deliver the strategic elements and goals of a Regional Framework for Achieving Development Resilient to Climate Change (2009-2015) which was developed to manage the effects of climate change on development.

Under preparation is a pilot project in Harbour Island to test and demonstrate ways of transitioning to a low carbon and climate resilient development pathway.

Despite these efforts, in order to respond to rising sea levels, the salinization of fresh ground water resources and the loss of potable water across The Bahamas a rapid transition to the use of reverse osmosis facilities to provide for this essential service has resulted in an increased dependence on processed water to meet the needs of a tourism and services dependent economy. The net effect is that in responding to climate change and increased use of fossil fuels has resulted as well as a dependence on imported technologies.

This document presents The Bahamas' Intended Nationally Determined Contribution (INDC) in accordance with Decisions 1/CP.19 and 1/CP.20, of the United Nations Framework Convention on Climate Change (UNFCCC) that invites Parties to communicate to the Secretariat their INDCs towards achieving the objective of the UNFCCC as set out in Article 2 of the Convention.

The Planning Process

The Bahamas INDC builds on the participatory multi-stakeholder and cross-sectoral consultative processes undertaken during the development of the Bahamas Initial and Second National Communications to the UNFCCC, its National Energy Policy as well as the formulation of a mitigation assessment using the Long Range Energy Alternatives Planning (LEAP) model for the Commonwealth of The Bahamas.

These processes created genuine national ownership of the INDC and highlighted synergies with other UNFCCC-related processes.

National Circumstances

The Bahamas consists of an archipelago of 700 islands and more than 200 cays, islets and rocks in the western Atlantic Ocean. The islands cover approximately 100,000 square miles (mi²) of ocean between latitudes 21° and 27° North and longitudes 72° and 79° West with a total land area of only 5,382

mi² (13,940 km²). Much of the land is a few metres above mean sea level and the highest point is only 206 ft (63 m) above mean sea level and the hydrological records indicate that sea level has risen over the past century by one foot (or 0.3 meters).

The economy is mainly based on Tourism which is the major contributor to GDP and foreign exchange earnings of The Bahamas with the financial services sector being the second largest contributor to GDP. The banking and finance sector accounts for approximately 15% of GDP. The Bahamas is one of the world's fastest growing of the larger ship registry centres, with nearly 1,600 vessels. There is a small but growing industrial sector, and Grand Bahama is home to several industries that include crude oil storage for trans-shipment. New Providence, the island on which the country's capital is located, is home to brewing, distilling and light manufacturing. There are a number of companies that produce paper products, furniture and bedding, and a small food processing industry. The agriculture and fisheries sectors combined account for 3 to 5% of GDP.

Statistics from the World Bank show that The Bahamas' contribution to the total global greenhouse gas emissions is almost negligible - 0.01%. Significant sources of GHG emission come from the energy and transport sectors.

Adaptation

Recognizing that mitigation alone will not protect us from the negative effects associated with a changing climate; The Bahamas understands the urgent need for adaptation.

Adaptation activities are important to The Bahamas for the survival of its people and alleviation of poverty. For example, sea level rise will result in loss of fresh water lens which will increase the inhabitant's dependence on Reverse Osmosis (RO) for the production of potable water. These plants are expensive and fossil fuel intensive, thus increasing GHG emissions. The cost of doing business is predicated on basic input, energy and water, which determines electric supply. As these costs continue to rise, primarily due to adaptation to climate change, the cost of doing business in The Bahamas becomes significantly higher. This creates a domino effect and has negative implications for the country's economic outlook and stability.

Cognizant of the potential further impacts of climate change, The Bahamas has expanded its adaptation focus. Near shore marine environments play an integral role in the protection of the critical infrastructure across the archipelago. In 2008, as a part of the Caribbean Challenge Initiative, we

committed to the protection of 20% of our near shore marine environment by 2020, and have this year achieved half of our goal. These protected areas will conserve and protect habitat for Grouper and Bonefish spawning aggregations, coral reefs, sea grass meadows, mangrove nurseries and important bird areas. There are many other sectors that require extensive measures of adaptation.

The following table outlines adaptation measures undertaken and options.

Sector	Adaptation Options
Agriculture, livestock development and Fisheries	Formulate and implement strategies and measures which will help to enhance food security and sustainable food production
Tourism	Work with stakeholders in the tourism sector to develop a strategic plan, which incorporates Climate Change considerations and appropriate measures such as water conservation programmes, as well as general sustainability concerns.
Health	<p>Options include:</p> <p>Tracking data on environmental conditions, disease risks, and conditions, related to climate change.</p> <p>Enhancing the science base to better understand the relationship between climate change and health outcomes.</p> <p>Identifying locations and population groups at greatest risk for specific groups at greatest risk for specific health threats, such as heat waves.</p> <p>Expanding capacity for modeling and forecasting health effects that may be climate - related.</p>
Financial and Insurance Sectors	An option available is to reduce property insurance cost for high-elevation lots and impose higher property insurance for properties at lower elevations.

Coastal and Marine Resources and Fisheries	Adopt short-, medium-, and long-term measures to protect coastlines and increase the resilience of coastal ecosystems, enforcement of setbacks, and restoration of coastal wetlands;
Energy	Promote the use of less carbon intensive fuels;
Forestry	An option is to further quantify costs for Forest Estate Management Plan, four (4) Pine Islands (Abaco, Grand Bahama, Andros, New Providence) alone amounts to between \$75M-100M for monitoring, imagery and sustainable forestry management practices.
Human Settlement	Relocation of communities from the shoreline. This has already proven effective. New coastal defenses have been built and existing ones strengthened. Building codes have been made more robust to mitigate against increase wind loadings; and adapted to a loss of freshwater by employing reverse osmosis facilities throughout our islands to provide access to potable water
Transportation	An option is to regulate motor vehicle emissions by setting and enforcing standards, and enforcing proper maintenance of private and public vehicles; other options include: Introducing a system that captures data critical to climate change. E.g. Number of motor vehicles; national mandatory communications and data submissions with/to Dept. of Statistics
Water Resources	Continue the trend of employing reverse osmosis facilities throughout our islands to provide access to potable water to adapt to loss of freshwater by saltwater intrusion. As an option address retrofitting water and sewage infrastructures

Mitigation

In light of the expected climate change impacts for The Bahamas and, taking into account its tourism based economy, taking action to implement climate change mitigation policies in the country is necessary to reduce climate change impacts and assume responsibility for the country's GHG emissions. The Government of The Bahamas has recognized the importance of addressing climate change both from a mitigation and adaptation perspective and is committed to playing its part as a responsible member of the global community, and as a signatory to the UNFCCC, making efforts to achieve the objective of the UNFCCC, regardless of our contribution on a global scale.

The electricity and transport sectors are the main usage sectors of fossil fuels in the country and the electricity demand is expected to increase in the medium term. Accordingly the Government has defined the policy framework for a low carbon development plan through the National Energy Policy, that sets a target to achieve a minimum of 30% renewables in the energy mix by 2030 and will allow for a 10% Residential Energy Self Generation Programme within the year. This comprehensive programme of efficiency improvement and energy diversification will allow The Bahamas to provide high-quality, affordable, environmentally-friendly energy and to reduce the amounts of imported oil that the country uses. Energy diversification will involve moving from a high dependence on petroleum to increase the contribution of other sources such as renewable energy from solar, ocean and wind. Indeed, The Bahamas is well positioned to tap local renewable energy resources such as wind and sun.

Through Public Private Partnerships and government funding, The Bahamas will focus on the development of indigenous renewable energy resources with the goal of increasing the percentage of renewables in the energy mix to a minimum of 30% by 2030. For The Bahamas, as for many non-oil producing nations, the development and diffusion of renewable energy resources and technologies will help realize important economic, environmental and social objectives. Renewable resources such as wind, solar, waste-to-energy and biomass are indigenous to the country, and if developed adequately, can provide cleaner, and in the long term, more affordable alternatives to fossil fuels. This will not only lower the country's oil bill but also will improve energy security through diversification of the energy base. Also, increased use of renewable energy will lessen environmental impacts and reduce the country's carbon footprint – and thus its contribution to greenhouse gas emissions.

The Bahamas National Energy Policy establishes linkages with other sectors, (transport, construction, finance, inter alia) of the economy in order to achieve policy coherence and fulfill the achievement of the country's energy goals.

The transport sector will play a strategic role in ensuring that it becomes more energy efficient. To this end, a range of strategic interventions will be undertaken. For example, the transport sector strategy will discourage the importation of inefficient motor vehicles by linking the tax regime to mileage per gallon and the engine capacity and also by lowering import duties on hybrid and electric cars. The transportation policy will encourage the development and implementation of energy related measures such as: efficient traffic management; carpooling; park and ride; use of clean fuels to minimize pollution; flexi-work hours and tele-commuting; an efficient public/urban mass transit transport system; encouraging non-motorized transport; and promoting vehicle and road maintenance programmes. Supporting legislation and infrastructure for use of biofuels will be put in place.

The construction industry will be held to the energy efficiency standards outlined in an energy-efficiency building code; this will require architects and engineers to design, build and renovate buildings to incorporate energy efficient lighting and cooling systems and utilize building materials and employ energy efficient construction methodologies. Consideration will also be given to providing incentives for constructing carbon neutral buildings that would use no energy from the national power grid but focus more on renewable and more sustainable energy sources. Energy conservation and efficiency and use of renewable energy also will be further promoted and facilitated for the hotel and tourism industry. This will lead to a more sustainable and green tourism industry, which is becoming increasingly important in the global tourism arena.

The Finance Ministry will develop and implement a programme of incentives and fiscal measures to enable and support investments in modern facilities and infrastructure in the energy sector; energy efficiency and conservation initiatives; and the further advancement of renewable energy options. The domestic financial sector will actively seek to participate in investing in energy sector development. It will be important for adequate information to be disseminated and incentives to be created to enable the participation of local financial institutions in the financing of energy projects, particularly those related to renewable energy. A system of shared decision making will be stated and agreed upon. This will ensure that economic decisions that consider energy-related issues are collaborative and would also ensure that those decisions are consistent with the Bahamas National Energy Policy.

In addition to The Bahamas National Energy Policy, the Forestry Act was amended to allow for the establishment of a permanent forest estate. Under the amended Act, 20% of the land cover is designated into one of three categories (forest reserves, protected forests and conservation forests) and will be subject to a management plan for suitable management and environmental

conservation. The establishment of the National Forest Estate will deliver global environmental benefits along with domestic livelihood support and human development. It will safeguard future land degradation on the Pine Forest Islands through the improvement of the provision of forest ecosystem goods and services. It will reduce GHG emissions from deforestation and forest degradation and increase carbon sequestration. Results of a mangrove ecosystem study on one Pine Island (Andros) indicate that approximately 5,661,077tCO₂eq may be removed from the atmosphere through the proper management of the ecosystem. Proper management will improve the functionality of our mangrove ecosystems and increase their carbon sink ability. It will also reduce the vulnerability of forest ecosystems to climate change and other human-induced impacts: due to improved harvesting practices reducing human impacts while increasing the productivity in forest dependent communities.

These Pine Islands and other designated National Forests across The Bahamas may be considered for inclusion in REDD+ activities, pending further study.

Information to facilitate clarity, transparency and understanding

Time frame for Implementation	The timeframe for implementing the INDC is from 2010-2030
Scope of gases included in the contribution	Carbon dioxide, Methane and Nitrous Oxide
Sectors covered by the contribution	Energy and Forestry

Assumptions and methodological approaches

Methodology for emissions counting	The IPCC Revised 1996 Guidelines for National Greenhouse Gas Inventories and the Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories were used to calculate the GHG emissions and removals as described in the Second National Communication. Emissions of carbon dioxide from the combustion of biomass are assessed but not counted towards the contribution.
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Global warming potentials	The carbon dioxide equivalent was calculated using the 100 year global warming potentials in accordance with the IPCC 2nd Assessment Report
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Fairness and ambition

Through various national policies and initiatives, it is estimated that The Bahamas will reduce its emissions by a minimum of 30% below 2002 levels.

Based on its national circumstances, The Bahamas believes its target to be fair and ambitious considering its genuine efforts to move forward in an effective manner to maintain sustainability while at the same time facilitating its transition to a low-carbon and climate-resilient economy. The Bahamas’ contribution exceeds the requirements for Small Island Developing States as decided in Decision 1 CP/20 paragraph 11 which states that “small island developing states may communicate information on strategies, plans and actions for low greenhouse gas emission development reflecting their special circumstances in the context of intended nationally determined contributions”

It is important to The Bahamas that in order to meet the below 1.5- 2°C objective, each Party must undertake mitigation actions based on the common but differentiated responsibilities and respective capabilities in accordance with the Convention.

Means of Implementation

Until this point, The Bahamas collective efforts to respond to the climate challenge have been realized largely through the use of national resources. In a similar manner efforts to achieve the Millennium Development Goals have come with limited or no support from the international community. The Bahamas intends to achieve these mitigation actions through an economy-wide in GHG emission of 30% when compared to its Business as Usual (BAU) scenario by 2030.

The Bahamas will require international support in the form of finance, investment, technology development and transfer and capacity-building in its efforts to capitalize on greater utilization of renewable sources of energy and adapt to the negative impacts of climate change that affect various sectors of

the economy. The implementation of the INDC is estimated to cost in excess of 900 million dollars to implement mitigation actions alone, through 2030. The cost for implementation is anticipated to be met through multilateral and bilateral support from a variety of sources, instruments and on varying access terms. The Bahamas has limited experience using market mechanisms under the Kyoto Protocol; however, it is open to the consideration of market mechanisms.

The Bahamas will undertake a cost analysis to determine the cost to implement adaptation actions.

Additional information

The Commonwealth of The Bahamas has since becoming a sovereign independent small island developing state made tremendous strides in providing for its citizenry universal access to education, potable water, telecommunications, electricity, transport services and health care across the entire Commonwealth of islands.

The passage of hurricane Joaquin which devastated the south central Bahamas in October dramatizes the vulnerability of our people. Post Joaquin, the islands in the South Central Bahamas have experienced extensive damages to built environment, infrastructure, homes and schools and significant economic losses in the tens of millions of dollars. The storm has directly affected some 5 – 10 000 people. Initial estimates to replace damaged infrastructure are in excess of 60 million dollars.

The adverse impacts of climate change were demonstrated and exacerbated by our geographical (limited land masses, low-relief and dispersion of islands) and environmental (high temperatures, storm surges, sea level rise, flooding, tropical cyclones and non-tropical processes) vulnerabilities. Concentration of socio-economic activities, critical infrastructure in narrow coastal zones, dependence on tourism and limited human and institutional capacity are all factors that make The Bahamas vulnerable to climate change.