

SUSTAINABLE DEVELOPMENT  
**MASTER PLAN**  
FOR ANDROS ISLAND





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# 1 • A SUSTAINABLE DEVELOPMENT MASTER PLAN FOR THE PEOPLE AND THE ENVIRONMENT OF ANDROS

*The Island of Andros lies 40 miles to the West of Nassau, the capital of The Bahamas. Encompassing a land area of 2,300 square miles, an area greater than all the other 700 Bahamian islands combined, Andros remains largely undeveloped. Vast mangrove and coppice forests, the third largest coral reef in the world, seagrass beds, sand flats, and a concentrated system of blue holes support the country's commercial and sport fishing industries, nature-based tourism activities, agriculture and freshwater resources.*

The central challenge confronting the Government of The Bahamas is to design a Sustainable Development Master Plan that will harness the island's wealth of natural assets without sacrificing the very ecosystems that underlie its economy and sustain the well-being of its citizens.

Yet the full potential of Andros remains untapped; the island lacks the essential infrastructure and educational opportunities to support its people's livelihoods and those of generations to come.

To address this challenge, the Office of the Prime Minister (OPM), with support from the Inter-American Development Bank (IDB), has engaged in an innovative process to design a sustainable Master Plan for Andros Island. **The main goal is to identify public and private investment opportunities, policy recommendations, land and sea zoning guidelines, and other management actions to guide sustainable development of the island both for its people and its environment.**

The Andros Master Plan (AMP) is also connected with several concurrent national efforts, including the National Development Plan, commenced by the Government in 2014, which will provide a road map for the future development of The Bahamas.

## 2. THE ANDROSIANS' KEY PILLARS

*The natural resources of Andros are plentiful, but the full social and economic potential of the island in the country remains untapped.*



Public infrastructure is largely in disrepair, air travel is unreliable and access to freshwater is limited for the southernmost communities. Ad hoc development involving dredging, habitat conversion, poor sewage treatment and other stressors are beginning to threaten Andros' ecosystems and the many services they provide to people. These problems are challenging in their current form, but likely to have even greater consequences for shoreline communities in the face of rising seas, more intense storms and the acidic waters that put fragile reefs at risk and pose major coastal hazards for the people and infrastructure on the low-lying island.

**There is broad interest in balancing development and the conservation of natural habitats, but current legislation to address these issues is limited.** Andros and The Bahamas lack a coordinated vision and the supporting legislation to meet the current and future societal, environmental and economic challenges on Andros.



The goal of the Sustainable Development Master Plan for Andros Island is to provide a comprehensive framework and actionable plan for guiding decision-making and investment over the next 25 years by addressing eight **key pillars** identified by the Androsians:

- **Food and water security are important regarding food and freshwater supply throughout the island.** They can be sustained by better infrastructure to transport goods (roads, water mains, harbors), sustainable fishing practices and stock monitoring, development and best management practices in agriculture and forestry reducing risk to land crab habitat and freshwater,
- **Connectivity and accessibility are important regarding the possibility for Androsians to access opportunities and services.** They can be sustained by better transport infrastructure (roads, bridges, airports), secured nautical access to main harbors and new ferry services linking each district and Nassau, improving access to the island for tourists as well as facilitating movement for locals,
- **Education and capacity building are important regarding Androsians' knowledge and possibility to access job opportunities.** They can be sustained by the improvement of school infrastructure and the implementation of different types of training regarding fishing, agriculture, forestry and nature-based tourism activities, fostering the ability of the Androsians to make the best of their wealth of natural resources,
- **Livelihoods and income equality are important regarding the development of social and economic capital.** They can be sustained by better infrastructure and the economic development of fishing, agricultural, forestry and nature-based activities, increasing visitation and total expenditure,
- **Land use planning is important for sustainable development and the exploitation of land and marine natural resources.** It can be enforced by defining development and no-development areas,
- **Health and wellbeing are vital,** they can be sustained by better social infrastructure (clinics, schools, sport centers), better connectivity with Nassau (airports, harbors), development and best management practices in agriculture and fishing,

- The development of activities in Andros, governed by enforced or new policies can **strengthen local government**, through more responsibilities,
- **Coastal resilience is crucial considering the high vulnerability of Andros to climate change effects (sea level rise, flooding, erosion).** It can be sustained by the conservation of key natural habitats (mangroves, coral reefs and seagrass), enhanced by sustainable fishing, agricultural and forestry practices, the enforcement of policies and protected areas. On the other hand, infrastructure development near the shoreline can amplify coastal risks linked with climate change and sea level rise.



These eight key pillars, identified by the Androsians and on which the master plan is founded, represent the areas seen as most important for the development of Andros.

# 3. THE PARTICIPATORY DESIGN OF THE MASTER PLAN

## 3.1 Project implementation

The Andros Master Plan formed a part of the “BH-T1040: *Ecosystem-based Development for Andros Island*” project, funded by the Inter-American Development Bank (IDB), which is divided into three components:

- I. Ecosystem service valuation to assess scenarios of development for the island,
- II. Capacity building,
- III. Design of the sustainable Master Plan.

The Natural Capital Project (NatCap) in partnership with The Nature Conservancy (TNC) and the University of the Bahamas (UB) implemented component I. The SEV Consulting Group (SEV) implemented component II. BRL Ingénierie (BRLi), as lead consultant, and Blue Engineering (Blue) worked on the third component.

## 3.2 Comprehensive participatory approach

The Andros Master Plan was informed by extensive public consultations, designed to ensure a stakeholder-led master planning process.

The project team held different rounds of public consultation in each district of Andros in July and October 2015, January, May and November 2016. In addition, key stakeholder meetings and one-to-one interviews were led in Andros, in parallel with technical field visits. The goal was to ensure that the Androsians concerns and vision are reflected in the Master Plan.

As a result of this process, the Androsians identified:

- The above-mentioned key pillars on which the master plan is founded,
- The human activity sectors existing in and around Andros that require multi-sectoral management:

Infrastructure development, Dredging and mining, Transportation by water, Fishing activities, Agriculture, Forestry, Nature-based tourism, Protected areas.

- The most appropriate human activities on which to base Andros' sustainable development up to 2040.

The efforts of NatCap, TNC, COB, SEV, BRLi and Blue Engineering were guided by a number of key stakeholders, notably the Technical Advisory Committee (TAC) — comprised of community groups and policymakers — and the Office of the Prime Minister (OPM).

### 3.3 Ecosystem services approach to development planning

#### THE ECOSYSTEM SERVICES APPROACH

The central challenge of the 21st century is to develop economic, social and governance systems capable of ending poverty and achieving sustainable levels of population and consumption while securing the life-support systems that underpin current and future human well-being. Essential to meeting this challenge is the **incorporation of natural capital and the ecosystem services it provides into decision-making.**

The Caribbean region pays sometimes insufficient attention to land use planning and other measures to protect its natural assets. As a result, in many Caribbean islands including Andros, environmental quality is deteriorating and natural disasters continue to set back development efforts, as demonstrated by Hurricane Matthew in October 2016. It is imperative that Andros, as all Small Island Developing States (SIDS), operates a transition towards **sustainable and inclusive growth and development**, which not only improves economic performance, but also conserves the environment, reduces inequality, strengthens resilience, and promotes social inclusion.

The “ecosystem-services approach” is defined as a strategy for the integrated management of land, water and living resources that promotes **conservation and sustainable use in an equitable way.** This concept addresses the **crucial links between climate change, biodiversity and sustainable resource management** providing multiple benefits. It can illustrate the importance of considering where to invest in both infrastructure and conservation in order to achieve sustainability goals.

<sup>1</sup> Kates et al. 2001, Dailey et al. 2009

## THE DESIGN OF ALTERNATIVE DEVELOPMENT SCENARIOS

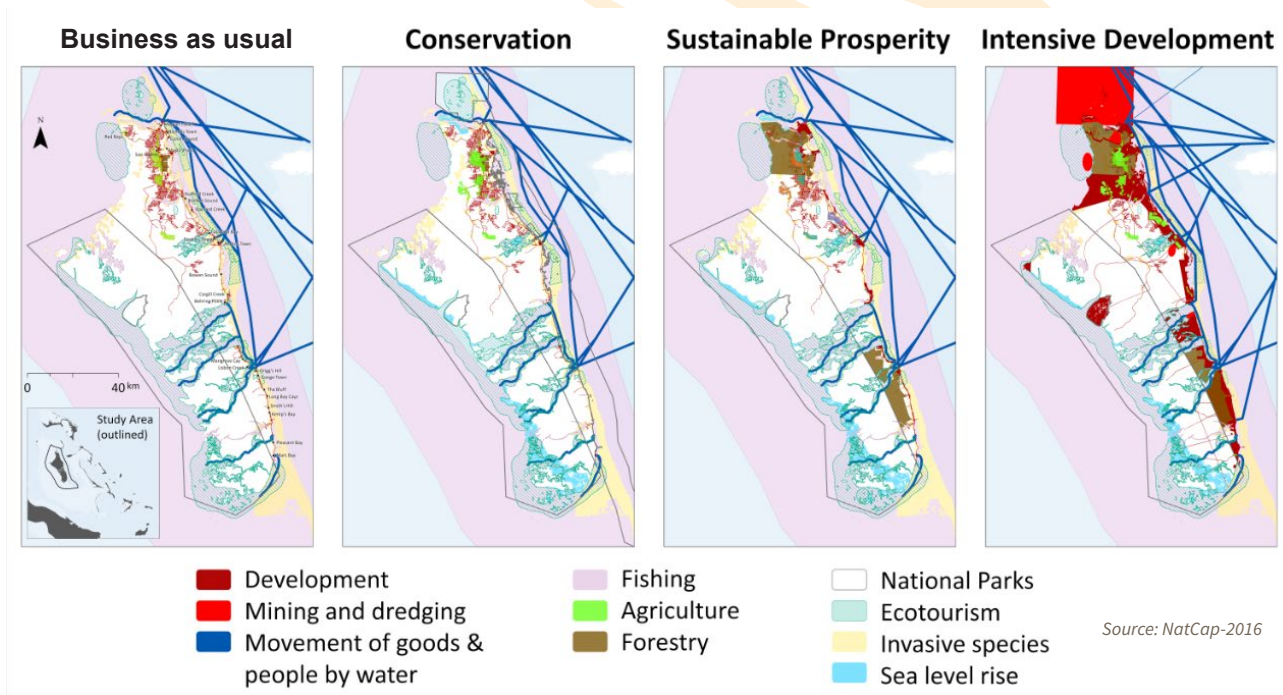
*A scenario describes how Andros might look given a particular sequence of development and investment decisions.*

To create alternative scenarios for Andros, OPM and its partners gathered technical information from Androsians, policy documents and scientific literature, and grouped the range of desired outcomes and recommendations into four future storylines, all of which include projections of sea-level rise and are represented by detailed spatial data that translate each storyline to different maps of a future Andros.

The four alternative future scenarios foreseen for Andros were the following:

- **Business as Usual:** represents a future similar to the current situation with little investment in new infrastructure, educational opportunities, or development.
- **Conservation:** gives priority to ecosystem health and protection of habitats and species rather than economic development.
- **Sustainable Prosperity:** blends human development and conservation goals by investing in critical infrastructure and education to achieve a nature-based economy that can be sustained over time.
- **Intensive Development:** gives priority to major economic development rather than ecosystem health and protection of habitats and species.

*Alternative development scenarios for Andros Island Master Plan*





## THE CHOICE OF THE SUSTAINABLE PROSPERITY SCENARIO

OPM and The Natural Capital Project built on this knowledge about Andros using InVEST (open source software) to estimate the economic and social value of ecosystems and to reveal which scenarios, zoning guidelines and investment priorities will enhance livelihoods, food and water security, coastal resilience and access to education for Androsians and all Bahamians.

Using 2015 as a baseline and projecting 25 years into the future until 2040, the ecosystem service analysis estimates that the Sustainable Prosperity scenario will produce a higher delivery of tourism and services than the Business as Usual scenario, with a similar delivery of fishery related services compared to the Conservation scenario. The Sustainable Prosperity scenario lowers the area of coastal, marine and freshwater habitat at high risk of degradation, and the numbers of people and total income at risk from flooding and erosion compared to the Intensive Development scenario.

*Based on these results and their own experience, the Androsians involved generally favored the Sustainable Prosperity scenario.*



Overall, the Sustainable Prosperity scenario emphasizes investments in projects that align with the eight key pillars.

### 3.4 Design of the ecosystem-based master plan

The Andros Master Plan reflects the translation of the Sustainable Prosperity scenario of development into an actionable plan based on the ecosystem services approach.

*The AMP analyzes the current situation, issues and development needs according to what the Androsians want for their future.*

For each human activity sector, it defines recommendations and actions, the implementation of which will address the different key pillars raised by the Androsians, balancing development of social and economic capital, and conservation of natural capital<sup>2</sup>.



photo credit: ann-sophie zimmerlin 2016

<sup>2</sup> « Natural capital » refers to the living and non-living components of ecosystems that contribute to the generation of goods and services of value for people (Source: Natural capital and ecosystem services informing decisions: from promise to practice – June 2015).



Source: BRLi 2016

# 4. GENERAL VISION AND ACTIONS FOR ANDROS

## 4.1 The vision for Andros

*In the future, Andros will be a nature-based economy, providing balance between conservation of natural capital and sustainable development of social and economic capital.*



Source: BRLI 2016



## 4.2 The strategic steps

### SHORT TERM STRATEGY (UP TO 5 YEARS – 2020)

*Paving the way to Sustainable Prosperity Development: improvement of the main existing facilities and implementation of the processes necessary to make the next steps a success.*

- **At short term**, priority is given to the repair and improvement of the existing transport and social infrastructure (roads, bridges, harbors, schools, clinics...) to ensure the security, health, education and well-being of the Androsians and generations to come. Access to freshwater is secured. Dumps and sewage systems are developed and managed. Processes are implemented to initiate sustainable fishing practices, small-scale farming and lumber production (training programs, best management practices, implementation of new policies, monitoring of stocks) to supplement Androsians' income and nutrition. Nature-based activities are initiated (training programs, marketing strategy, improvement of tourism information) to enhance nature-based tourism opportunities. Marine and terrestrial protected areas management plans are written or completed to support the conservation of natural habitats. Surveys are launched to analyze issues and solutions regarding mangrove health and Andros' vulnerability to climate change and coastal hazards (sea level rise, flooding, and erosion).

### MEDIUM TERM STRATEGY (UP TO 15 YEARS – 2030)

*On the road to Sustainable Prosperity Development: implementation of cultural, fishing and agricultural hubs.*

- **At medium term**, cultural, fishing and agricultural centers are developed on Andros (Culture Heritage Village, artisanal fishing hub, small-scale farming and processing) to support livelihoods. Nature-based activities are enforced or implemented around blue holes, coral reefs, birding areas and mangroves, enhancing nature-based tourism opportunities. Sustainable practices in fishing, agriculture and forestry are progressing. Connectivity challenges are addressed: nautical access to main harbors is secured and a new ferry service is implemented linking Central and South Andros.

#### LONG TERM STRATEGY (UP TO 25 YEARS – 2040)

*Achieving Sustainable Prosperity with the development of a University as the driver in North, and nature-based tourism in Central, South Andros and Mangrove Cay.*

- **At long term**, a new satellite of the University of the Bahamas is implemented to support education and employment opportunities, and economic growth, helping the development of local services and the improvement of connectivity with Nassau. Morgan's Bluff and Fresh Creek are developed as recreational marinas. Agriculture, forestry and fisheries research programs are ongoing in collaboration with foreign centers of excellence for the management of natural resources. All protected areas are effectively managed allowing both the protection of habitats at risk and the development of nature-based activities. Agriculture and fishing practices are sustainable.

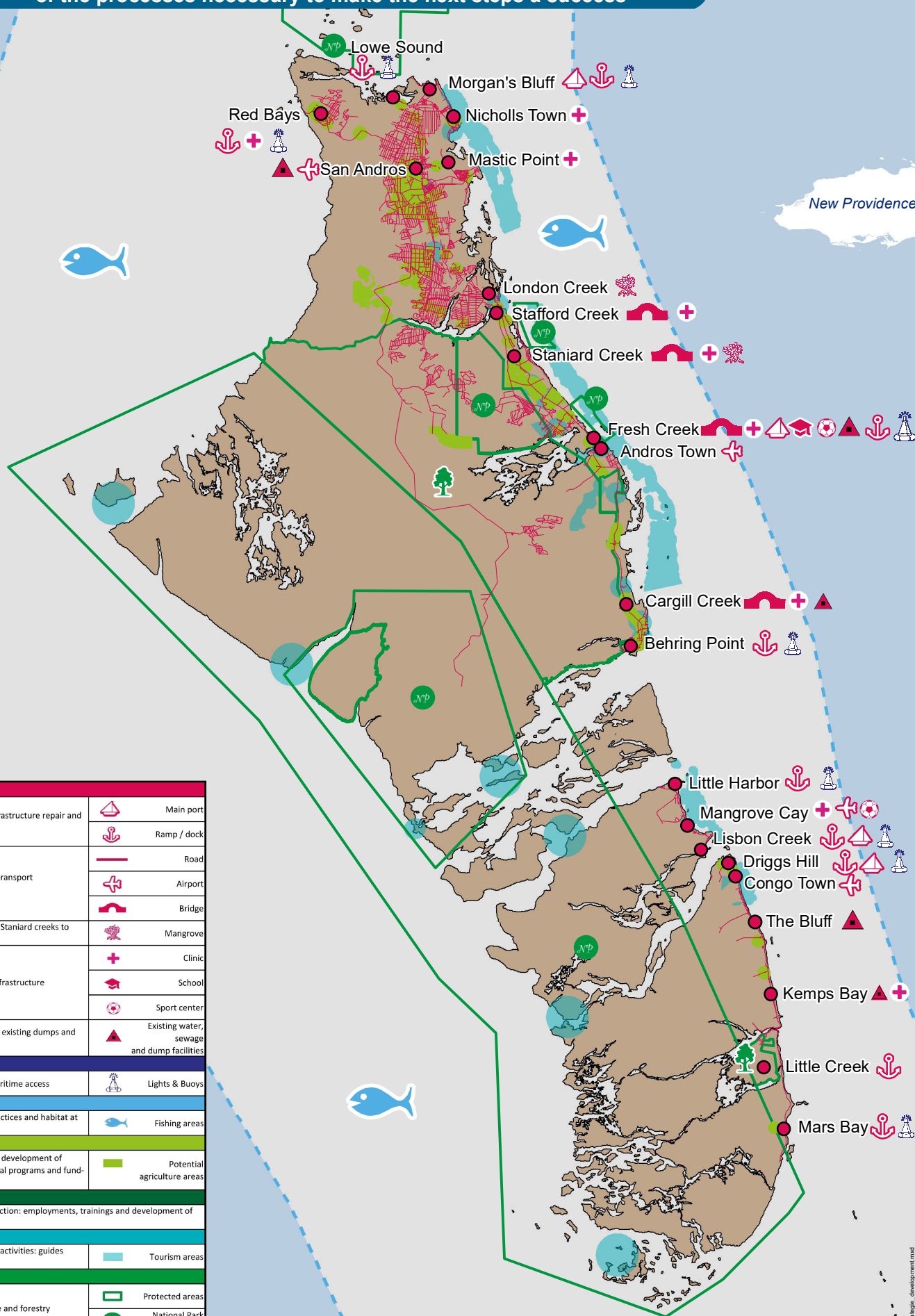


By 2040, the sustainable development of Andros is effective, generating social, economic and environmental benefits, and focusing on the eight key pillars raised by the Androsians.

# Andros Master Plan: Short term strategy (5 years - 2020)

**Paving the way to Sustainable Prosperity Development:**  
Improvement of the main existing facilities and implementation  
of the processes necessary to make the next steps a success

## LAND & SEA USE ZONING CLASSIFICATION SCHEME



Infrastructure development	
Improvement of port facilities: infrastructure repair and implementation of basic services	Main port Ramp / dock
Repair and improvement of main transport infrastructure	Road Airport Bridge
Studies conducted on London and Staniard creeks to improve mangrove health	Mangrove
Repair of main public and social infrastructure	Clinic School Sport center
Development and management of existing dumps and sewage systems	Existing water, sewage and dump facilities
Transportation by water	
Improvement of conditions for maritime access	Lights & Buoys
Fishing activities	
Initiation of sustainable fishing practices and habitat at risk protection	Fishing areas
Agriculture	
Initiation of small-scale farming or development of commercial agriculture: educational programs and fund-raising application	Potential agriculture areas
Forestry	
Initiation of sap and lumber production: employments, trainings and development of forestry management plans	
Nature-based tourism	
Initiation of nature-based tourism activities: guides training and marketing process	Tourism areas
Protected areas	
Management of terrestrial, marine and forestry protected areas	Protected areas National Park or reserve Conservation forest
Finalization of Joulter Cays National Park	

0 2.5 5 10 km

December 2016  
Source : NatCap - BRLI - Blue, BNT, Ministries of Agriculture - Tourism



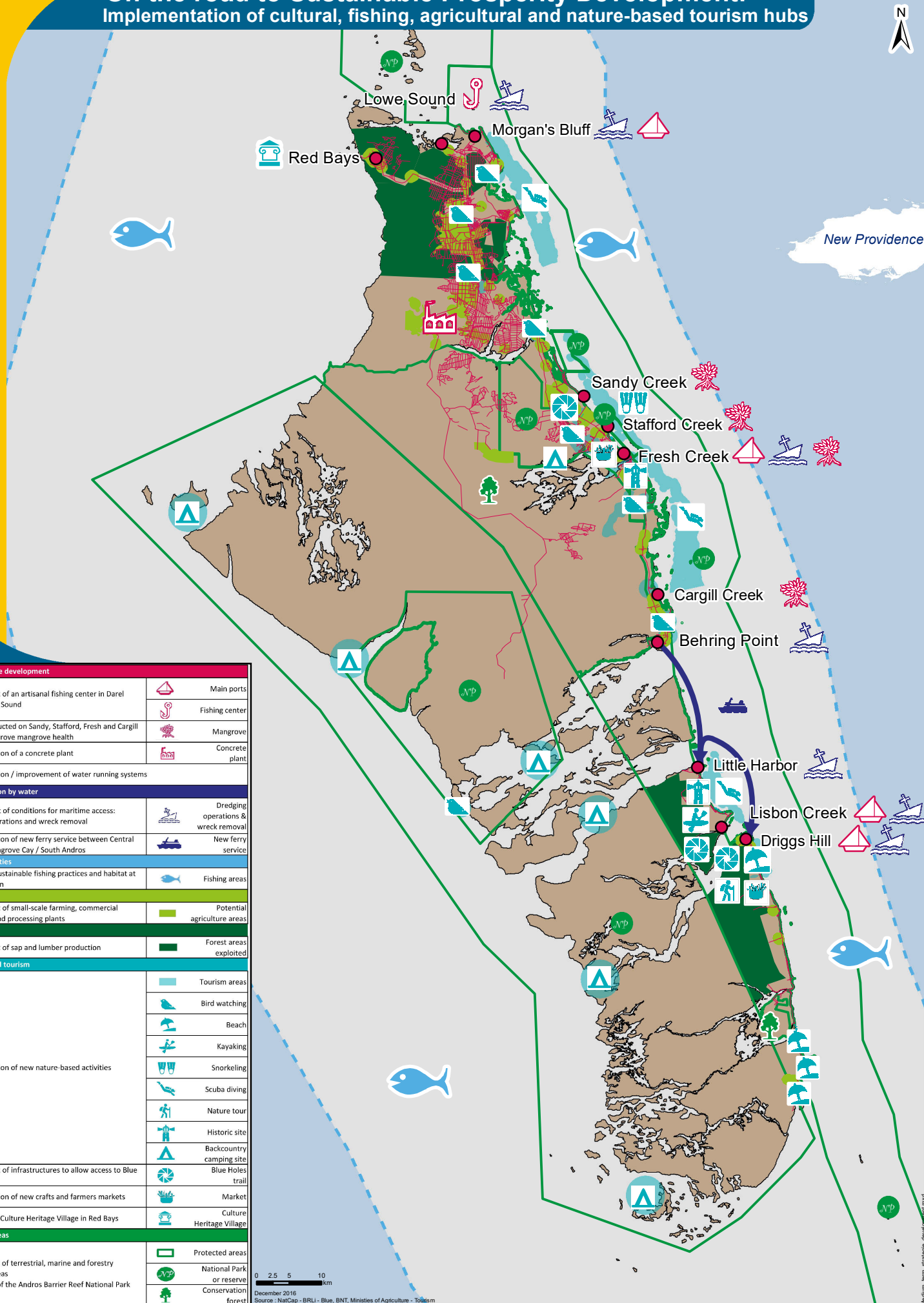
# Andros Master Plan: Medium term strategy (15 years - 2030)

## On the road to Sustainable Prosperity Development: Implementation of cultural, fishing, agricultural and nature-based tourism hubs

### LAND & SEA USE ZONING CLASSIFICATION SCHEME

Infrastructure development	
Development of an artisanal fishing center in Darel Island - Lowe Sound	Main ports
Studies conducted on Sandy, Stafford, Fresh and Cargill creeks to improve mangrove health	Fishing center
Implementation of a concrete plant	Mangrove
Implementation / improvement of water running systems	Concrete plant
Transportation by water	
Improvement of conditions for maritime access: dredging operations and wreck removal	Dredging operations & wreck removal
Implementation of new ferry service between Central Andros / Mangrove Cay / South Andros	New ferry service
Fishing activities	
Progress of sustainable fishing practices and habitat at risk protection	Fishing areas
Agriculture	
Development of small-scale farming, commercial agriculture and processing plants	Potential agriculture areas
Forestry	
Development of sap and lumber production	Forest areas exploited
Nature-based tourism	
Implementation of new nature-based activities	Tourism areas
	Bird watching
	Beach
	Kayaking
	Snorkeling
	Scuba diving
	Nature tour
	Historic site
	Backcountry camping site
	Blue Holes trail
Development of infrastructures to allow access to Blue Holes	Market
Implementation of new crafts and farmers markets	Culture Heritage Village
Creation of a Culture Heritage Village in Red Bays	Protected areas
Management of terrestrial, marine and forestry protected areas Designation of the Andros Barrier Reef National Park	Protected areas
	National Park or reserve
	Conservation forest

0 2.5 5 10 km  
December 2016  
Source : NatCap - BRLI - Blue, BNT, Ministries of Agriculture - Tourism

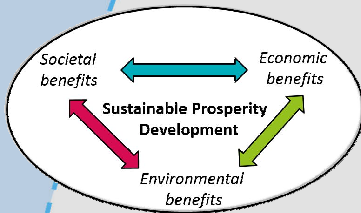




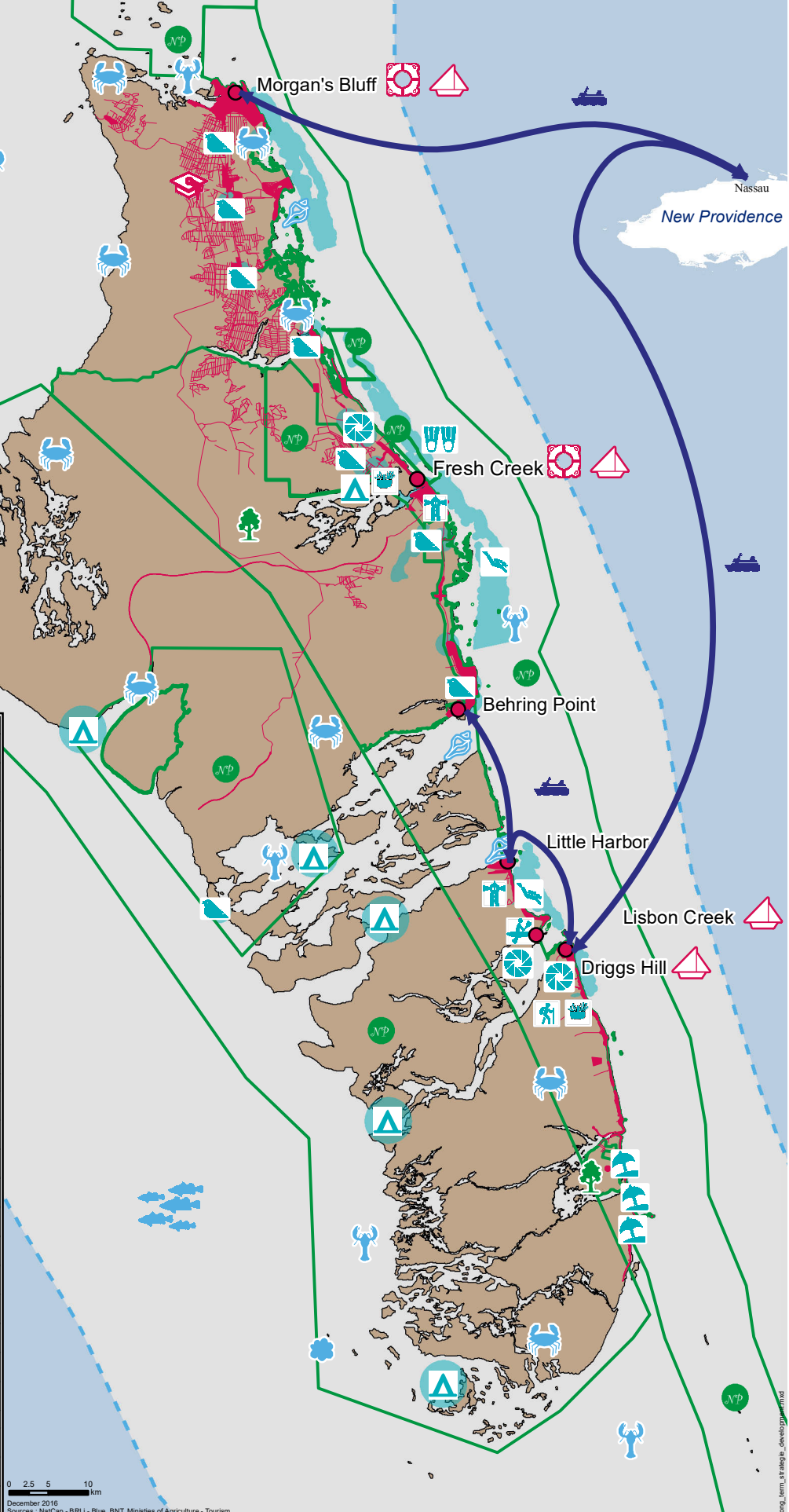
# Andros Master Plan: Long term strategy (25 years - 2040)

**Up to the Sustainable Prosperity:**  
Development of a University as the driver in North, and nature-based tourism in Central and South Andros, and Mangrove Cay

## LAND & SEA USE ZONING CLASSIFICATION SCHEME



Infrastructure development		
Development of Morgan's Bluff and Fresh Creek as recreational marinas		Main ports
Implementation of a new satellite campus of the University of The Bahamas		University
Expansion of towns centers and roads		Development areas
Transportation by water		
Improvement of ferry service between each district and between Andros and Nassau		Ferry service
Fishing activities		
Fishing practices are sustainable, habitat at risk are protected and main species stocks are monitored		Snapper, grouper and bonefish
		Conch
		Sponge
		Lobster
		Land crab
Nature-based tourism		
Increase of nature-based activities		Tourism areas
		Bird watching
		Beach
		Kayaking
		Snorkeling
		Scuba diving
		Nature tour
		Historic site
		Blue Holes trail
		Market
		Backcountry camping site
Protected areas		
Efficient management of terrestrial, marine and forestry protected areas		Protected areas
		National Park or reserve
		Conservation forest



# 5. VISION & ACTIONS BY DISTRICT

## 5.1 Vision & actions for the future of North Andros

*In the future, North Andros will be the economic driver of the island, with the implementation of a new satellite campus of the University of The Bahamas, and expanded activities in agriculture, forestry and fisheries.*



photocredit©anh-sophie gabelini 2016



The future of North Andros will be reflected through economic activities focused on **education, agriculture, forestry and fisheries**.

**Commercial agriculture** will be expanded through the further development of BAMSI and its processing and packaging unit. The implementation of a satellite campus of the University of The Bahamas will attract Bahamian and foreigner students or experts, with the establishment of research programs and Memoranda of Understanding (MoU) with foreign Universities regarding the sustainable management of the island's natural resources. Sustainable and small-sized forest utilization industry will also be developed on the west side, including sap and lumber production. These activities will constitute an **agronomy and research center** around San Andros.

**Fishing activities** will be encouraged by the improvement of harbor facilities and infrastructure in Morgan's Bluff, Red Bays and Lowe Sound, and commercial fisheries will be expanded through the implementation of an **artisanal fishing center** located on Darel Island, including a fish-packaging house. New policies will govern the monitoring and sustainable management of important fish species stocks such as conch, lobster, sponge, snapper, in which local communities will be largely involved.

These expanded activities will lead to increased exports from Morgan's Bluff to markets in New Providence and the United States.

The local economy will also be sustained by the expansion of tourism. A **Culture Heritage Village** will be created in Red Bays, including an Ecomuseum and Ecolodge, to promote the Black Seminole Indians culture, traditions and handicraft. New nature-based activities will be developed such as day-trips to the Joulter Cay National Park, or bird-watching tours. Morgan's Bluff will be developed into a **recreational marina and commercial hub**, attracting more vessels and accommodating significant increase in agro-fishery and forestry exports.

The development of these activities will lead to increases in visitation and population that will be supported by improved transport and social infrastructure (such as roads, port, clinics) facilitating accessibility, connectivity and services. Red Bays,

Nicholls Town and Mastic Point settlements will be expanded to accommodate the increased population.

Through these strategic investments, the AMP reflects a future for North Andros where policy enforcement, best management actions and sustainable practices blend socio-economic development and nature conservation goals to achieve a **nature-based economy** that can be sustained over time. Through the structural and physical changes brought to North Andros, this Master Plan will reshape the district creating **socio-economic benefits**.

From an economic point of view, the improvements in transportation infrastructure and connectivity, which will improve access to markets, as well as the maintenance of key ecosystem services for tourism and fisheries, will expand **economic development and growth**. The increasing demand for tourist services (transportation, accommodation, yachting, recreational fishing, access to protected areas and natural parks) will contribute to heightening the district's reputation and boosting the local economy, through increased incomes, employment rate and GDP. Unemployment is expected to decrease with the creation of many job opportunities related to the **agriculture, forestry, fisheries and tourism sectors**.

From a social point of view, the improvements in public infrastructure such as schools and clinics will develop social capital through **better education and health services**. The investments in educational programs related to agriculture, forestry, fisheries and nature-based tourism sectors will enhance North Androsian people's knowledge and skills, which will improve their access to job opportunities.

*The drawing presented hereafter illustrates how North Andros will look like in 2040.*

*The tables and maps presented hereafter summarize all recommendations and actions foreseen for the future of North Andros for the short, medium and long term.*

# North Andros in 2040



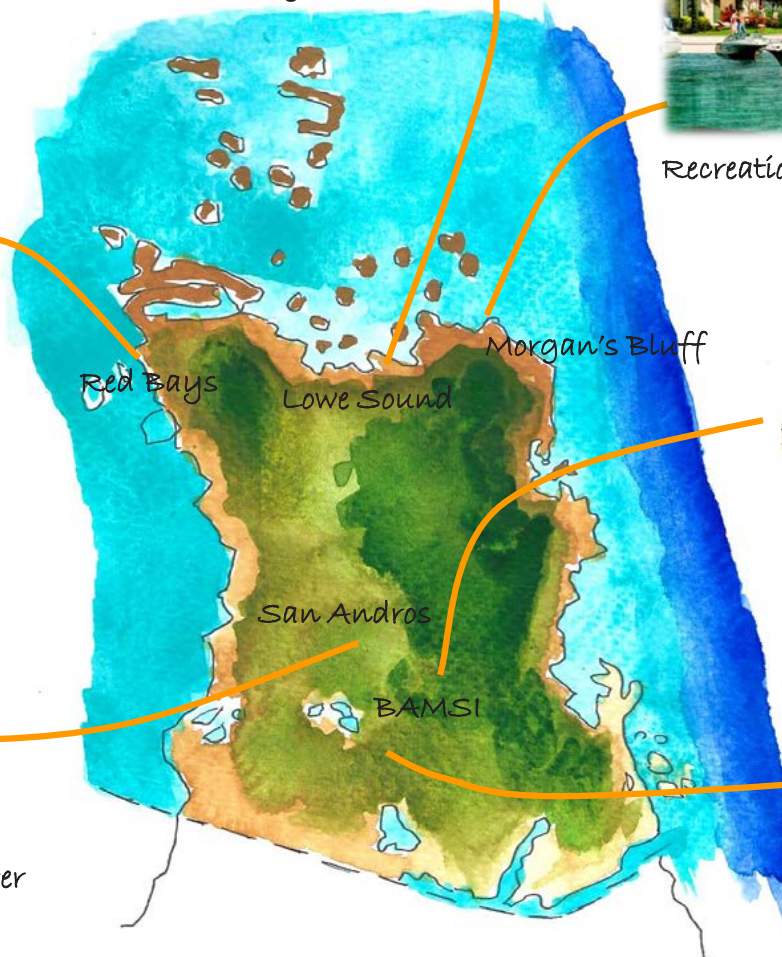
Culture Heritage Village  
Ecomuseum & Ecolodge



University of The Bahamas  
Agronomy and research center



Artisanal Fishing Center



Recreational marina & commercial harbour



Sustainable development  
of commercial  
agriculture



Development of small-  
sized sustainable forest  
utilization





Human activity sectors	Appendix	Action sheet	Recommendations / Actions	Timeliness		
				ST 2020	MT 2030	LT 2040
Infrastructure	A		Prioritize nature-based solutions to reduce coastal risks			
			Develop sustainable management of existing dump/landfill/sewage			
		0	Study conducted on London Creek to improve mangrove health			
		1	Improve and maintain roads and clinics			
		2	Improve and manage San Andros airport			
		3	Improve facilities in Red Bays, Lowe Sound and Morgan's Bluff harbors: docks/ramps repaired and basic services implemented (potable water, electric power, fuel and communication systems)			
		4	Develop Morgan's Bluff harbor into a recreational marina and commercial harbor			
Dredging & Mining	B		Implement policies to limit ad-hoc dredging and mining			
		0	Launch topo-bathymetric survey in Morgan's Bluff harbor			
		0	Determine sustainable locations for quarry and offshore mining			
Transportation by water	C		Move boat traffic to avoid travel on coral reef			
		6	Improve conditions for maritime access: implementation of lights and buoys in Red Bays, Lowe Sound and Morgan's Bluff			
Fishing	D		Renew enforcement of existing regulations			
			Implement new policy: catch and size limits, temporal closures, technique-based restrictions			
			Implement community education about sustainable fishing practices			
		8	Monitor and manage important commercial fish species stocks			
Agriculture	E		Establish relationship between local farmers and lodges			
			Launch feasibility study of canning/bottling			
			Raise healthy eating awareness			
			Restrict distance of farming to fresh water lenses and shorelines			
			Implement best management practices in commercial agriculture			
			Implement processing and packaging unit for BAMSI			
Forestry	F		Develop and implement Forestry areas management plans			
			Train Bahamians in sap and lumber production			
			Employ staff in the Forestry Department			
Nature-based tourism	G		Develop training programs for guides for nature-based activities			
			Develop activities that attract tourists outside of bonefishing season			
			Improve road signs, tourist maps and websites for tourist information			
			Re-vitalize festivals			
		10	Define marketing strategy for goods, services and tourism			
			Plan bonefishing in Joulter Cays to avoid key bird areas and habitat			
		11	Develop birding areas and bird-watching tours			
Protected areas	H		Finalize Joulter Cays National Park (multi-usage of the park under determined management strategies)			
			Develop and implement marine, terrestrial and forestry protected areas management plans			
			Formally acknowledge Conservation Forests (Department of Forestry)			
			Enforce National Park policies			

Recommendations and actions for North Andros for the short term

Human activity sectors	Appendix	Action sheet	Recommendations / Actions	Timeliness	
				MT 2030	LT 2040
Infrastructure	A		Prioritize nature-based solutions to reduce coastal risks		
			Develop sustainable management of existing dump/landfill/sewage		
		2	Improve and manage San Andros airport		
		4	Develop Morgan's Bluff harbor into a recreational marina and commercial harbor		
			Sustainable urban development considering coastal vulnerability		
		5	Develop an artisanal fishing center on Darel Island - Lowe Sound		
			Construct a concrete plant to support the construction of needed public infrastructure		
			Develop a new satellite campus of the University of The Bahamas		
Dredging & Mining	B		Implement policies to limit ad-hoc dredging and mining		
Transportation by water	C		Move boat traffic to avoid travel on coral reef		
			Improve ferry service between Nassau and North Andros		
		6	Improve channel access at Morgan's Bluff harbor (dredging operations + wreck removal)		
Fishing	D		Renew enforcement of existing regulations		
			Implement new policy: catch and size limits, temporal closures, technique-based restrictions		
			Implement community education about sustainable fishing practices		
			Launch fisheries research programs in collaboration with foreign centers of excellence for the monitoring/management of natural resources		
		8	Monitor and manage important commercial fish species stocks		
Agriculture	E		Establish relationship between local farmers and lodges		
			Launch agriculture research programs in collaboration with foreign centers of excellence for the monitoring/management of natural resources		
			Raise healthy eating awareness		
			Restrict distance of farming to fresh water lenses and shorelines		
			Implement best management practices in agriculture		
			Implement future commercial agriculture in all zoned areas		
			Develop research capability at BAMSI & MOUs with Universities		
Forestry	F		Launch forestry research programs in collaboration with foreign centers of excellence for the monitoring/management of natural resources		
			Implement best management practices to avoid erosion and contamination of the freshwater lens		
			Develop small sized sustainable forest utilization industry including sap and lumber production		
Nature-based tourism	G	11	Develop birding areas and bird watching tours		
			Develop activities that attract tourists outside of bonefishing season		
			Develop infrastructure to allow access to Blue Holes and other areas		
			Improve road signs, tourist maps and websites for tourist information		
			Re-vitalize festivals		
			Plan bonefishing in Joulter Cays to avoid key bird areas and habitat		
		12	Develop a Culture Heritage Village in Red Bays		
Protected areas	H		Develop and implement marine, terrestrial and forestry protected areas management plans		
			Designate Andros Barrier Reef National Park (multi-usage of the park under determined management strategies)		
			Enforce National Park policies		

*Recommendations and actions for North Andros for the medium and long term*

## 5.2 Vision & actions for the future of Central Andros

*In the future, Central Andros will be dedicated to nature-based tourism through its natural parks, reserves and festivals.*

Eco-tourism will be expanded through the further development of **nature-based activities** such as snorkeling and diving on the coral reef, bird watching in the forest, discovering blue holes, kayaking in mangroves and exploring West Side National Park. These activities will be sustained by the implementation of the necessary infrastructure to access all the natural assets of the parks and reserves (composting toilets, solar lighting, boardwalks, pavilions and interpretive signage, etc.).

Central Andros will become the **island's nature-based activities hub**, gathering the major protected areas: West Side National Park, Blue Hole National Park, Andros Barrier Reef National Park, the Crab Replenishment Reserve and the largest conservation forest. The growth of the nature-based tourism industry will lead to a boom in entrepreneurial and employment opportunities.

Central Andros will be the site of an **ecotourism training center**. The internationally accredited program will host local and international students. The state of art facility will be modeled after work begun by the Bahamas National Trust and Local NGO's. It will be a model of sustainability using green technology in construction and alternative energy sources.

**New festivals and crafts markets**, promoting Androsian batik or Seminole baskets, will attract domestic and foreign tourists, leading to increased visitation and population. This demographic growth will be supported by improved transport and social infrastructure (such as roads, bridges, ports, clinics) facilitating accessibility, connectivity and services. Fresh Creek, Andros Town, Cargill Creek and Behring Point settlements will be expanded to accommodate the increased population. Fresh Creek will be developed into a commercial port and recreational marina, and the lighthouse site will be upgraded for an improved experience for tourists and boaters.

**A new ferry service** from Behring Point will connect North/Central Andros with Mangrove Cay and South Andros, facilitating the transport of economically important goods and services.

**Fishing activities** will be encouraged by the improvement of harbor facilities and infrastructure in Fresh Creek and Behring Point. New policies will govern the monitoring and sustainable management of important fish species stocks such as conch, lobster, sponge, snapper, in which the local communities will be largely involved. The local economy will also be sustained by the development of commercial agriculture, in line with the expansion of BAMSI in North Andros.

Through these strategic investments, the AMP reflects a future for Central Andros where policy enforcement for protected areas, best management actions and sustainable practices in agriculture and fisheries blend socio-economic development and nature conservation goals to achieve a **nature-based economy** that can be sustained over time. Through the structural and physical changes brought to Central Andros, this Master Plan will reshape the district creating **socio-economic benefits**.

From an economic point of view, the improvements in transportation infrastructure (roads, bridges) and connectivity (ferry service), as well as the maintenance of key ecosystem services for tourism and fisheries, will expand **economic development and growth**. The increasing demand for tourism-related services (transportation, accommodation, yachting, recreational fishing, access to protected areas and natural parks) will contribute to heightening the district's reputation and boosting the local economy, through increased incomes, employment rate and GDP. Unemployment is expected to decrease with the creation of many job opportunities related mainly to the **tourism sector**.

From a social point of view, the improvements in public infrastructure such as schools and clinics will develop social capital through **better education and health services**. The investments in educational programs related to the agriculture, fisheries and nature-based tourism sectors will enhance Central Androsian people's knowledge and skills, which will improve their access to job opportunities.



# Central Andros in 2040



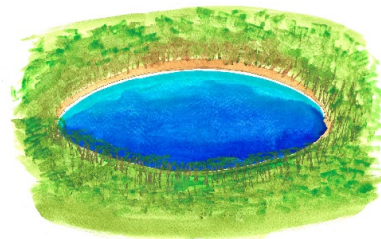
Bird watching tours



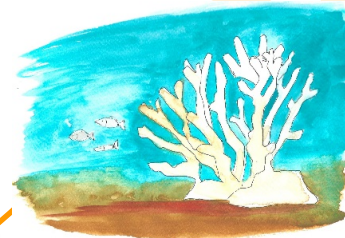
Exploring & camping



Sustainable  
management and  
monitoring of natural  
resources



Development of new  
nature-based activities



Andros Reef  
National Park

Blue Hole National Park

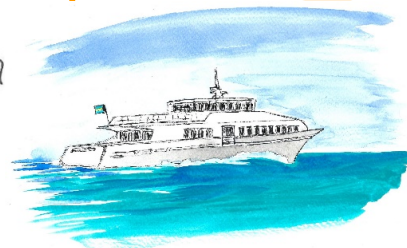
Fresh Creek

Crab Replenishment Reserve

Barring  
Point

West Side National Park

Recreational  
marina &  
commercial  
harbour



New ferry service between Central Andros /  
Mangrove Cay / South Andros



The drawing presented hereafter illustrates how Central Andros will look like in 2040.

The tables and maps presented hereafter summarize all recommendations and actions foreseen for the future of Central Andros for the short, medium and long term.



Human activity sectors	Appendix	Action Sheet	Recommendations / Actions	Timeliness		
				ST 2020	MT 2030	LT 2040
Infrastructure	A		Prioritize nature-based solutions to reduce coastal risks			
			Develop sustainable management of existing dump/landfill/sewage			
		0	Study conducted on Staniard Creek to improve mangrove health			
		1	Improve and maintain roads, clinics, schools, sport centers, bridges			
		2	Improve and manage Andros Town airport			
		3	Improve facilities in Fresh Creek and Behring Point harbors: docks/ramps repaired and basic services implemented (potable water, electric power, fuel and communication systems)			
Dredging & Mining	B		Implement policies to limit ad-hoc dredging and mining			
		0	Launch topo-bathymetric surveys in Fresh Creek/Behring Point harbors			
		0	Determine sustainable locations for quarry and offshore mining			
Transportation by water	C		Move boat traffic to avoid travel on coral reef			
		6	Improve conditions for maritime access: implementation of lights and buoys in Fresh Creek and Behring Point			
Fishing	D		Renew enforcement of existing regulations			
			Implement new policy: catch and size limits, temporal closures, technique-based restrictions			
			Implement community education about sustainable fishing practices			
		8	Monitor and manage important commercial fish species stocks			
Agriculture	E		Establish relationship between local farmers and lodges			
			Launch feasibility study of canning/bottling			
			Raise healthy eating awareness			
			Restrict distance of farming to fresh water lenses and shorelines			
			Implement best management practices in agriculture			
Nature-based tourism	G		Develop training programs for guides for nature-based activities			
			Develop activities that attract tourists outside of bonefishing season			
			Improve road signs, tourist maps and websites for tourist information			
			Re-vitalize festivals (Crab festival)			
		10	Define marketing strategy for goods, services and tourism			
			Create a new craft and farmer market in Fresh Creek			
		11	Develop birding areas and bird watching tours			
Protected areas	H		Develop and implement marine, terrestrial and forestry protected areas management plans			
			Manage the Crab Replenishment Reserve effectively			
			Enforce National Park policies			

*Recommendations and actions for Central Andros for the short term*

Human activity sectors	Appendix	Action Sheet	Recommendations / Actions	Timeliness	
				MT 2030	LT 2040
Infrastructure	A		Prioritize nature-based solutions to reduce coastal risks		
			Develop sustainable management of existing dump/landfill/sewage		
		0	Study conducted on Sandy, Stafford, Fresh and Cargill creeks to improve mangrove health		
		2	Improve and manage Andros Town Airport		
			Sustainable urban development considering coastal vulnerability		
			Develop Fresh Creek marina and lighthouse site		
			Improve air quality and reduce noise levels at the BEC station at Fresh Creek and conduct a study on the feasibility of relocation		
Dredging & Mining	B		Implement policies to limit ad-hoc dredging and mining		
Transportation by water	C	6	Improve channel access at Fresh Creek/Behring Point harbors (dredging operations + wreck removal)		
		7	Implement new ferry service between Central Andros - Mangrove Cay - South Andros		
			Move boat traffic to avoid travel on coral reef		
Fishing	D		Renew enforcement of existing regulations		
			Implement new policy: catch and size limits, temporal closures, technique-based restrictions		
			Implement community education about sustainable fishing practices		
			Launch fisheries research programs in collaboration with foreign centers of excellence for the monitoring/management of natural resources		
		8	Monitor and manage important commercial fish species stocks		
Agriculture	E		Establish relationship between local farmers and lodges		
			Launch agriculture research programs in collaboration with foreign centers of excellence for the monitoring/management of resources		
			Raise healthy eating awareness		
			Restrict distance of farming to fresh water lenses and shorelines		
			Implement best management practices in agriculture		
			Implement future commercial agriculture in all zoned areas		
Nature-based tourism	G		Develop activities that attract tourists outside of bonefishing season		
			Develop infrastructure to allow access to Blue Holes and other areas		
			Improve road signs, tourist maps and websites for tourist information		
			Re-vitalize festivals (Crab festival)		
		11	Develop birding areas and bird watching tours		
Protected areas	H		Develop and implement marine, terrestrial and forestry protected areas management plans		
			Designate Andros Barrier Reef National Park (multi-usage of the park under determined management strategies)		
			Manage the Crab Replenishment Reserve effectively		
			Enforce National Park policies		

*Recommendations and actions for Central Andros for the medium and long term*

## 5.3 Vision & actions for the future of Mangrove Cay

*In the future, Mangrove Cay will be dedicated to nature-based tourism and fishing activities such as sponging and stone crabbing.*

Whereas the peacefulness of this small fishing community will be maintained, the full value chain of the **sponge and stone crab industries** will be expanded, from sustainable harvest to packaging and export in New Providence and the USA.

**Fishing activities** will be encouraged by the improvement of harbor facilities and infrastructure in Little Harbor and Lisbon Creek. New policies will govern the monitoring and sustainable management of important fish species stocks such as conch, lobster, sponge, snapper, stone crab, in which the local communities will be largely involved.

Eco-tourism will be expanded through the further development of **nature-based activities** such as snorkeling and diving on the coral reef, bird watching in the forest, discovering blue holes, kayaking in mangroves, or exploring West Side National Park. These activities will be sustained by the implementation of the necessary infrastructure to access all the natural assets of the parks and reserves (composting toilets, solar lighting, boardwalks, pavilions and interpretive signage, etc.).

The local economy will also be sustained by the development of sustainable, **small-scale forest utilization activities**, including sap and lumber production.

**Small-scale farming** will be developed in the district through the designation of an agriculture officer, the creation of an agricultural cooperative, and the implementation of community education about sustainable agricultural practices. Cooperation between Mangrove Cay and South Andros agricultural cooperatives will reduce the duplication of products and allow for direct trade between the two districts. These initiatives will increase the self-sufficiency of the Mangrove Cay district.

The development of these activities will lead to increases in visitation and population that will be supported by improved transport and social infrastructure (such as roads, Little Harbor and Lisbon Creek ports, a clinic, a sport center) facilitating

accessibility, connectivity and services. Moxey Town and Lisbon Creek settlements will be expanded to accommodate the increased population. Lisbon Creek Regatta site will be upgraded for an improved experience for tourists and boaters.

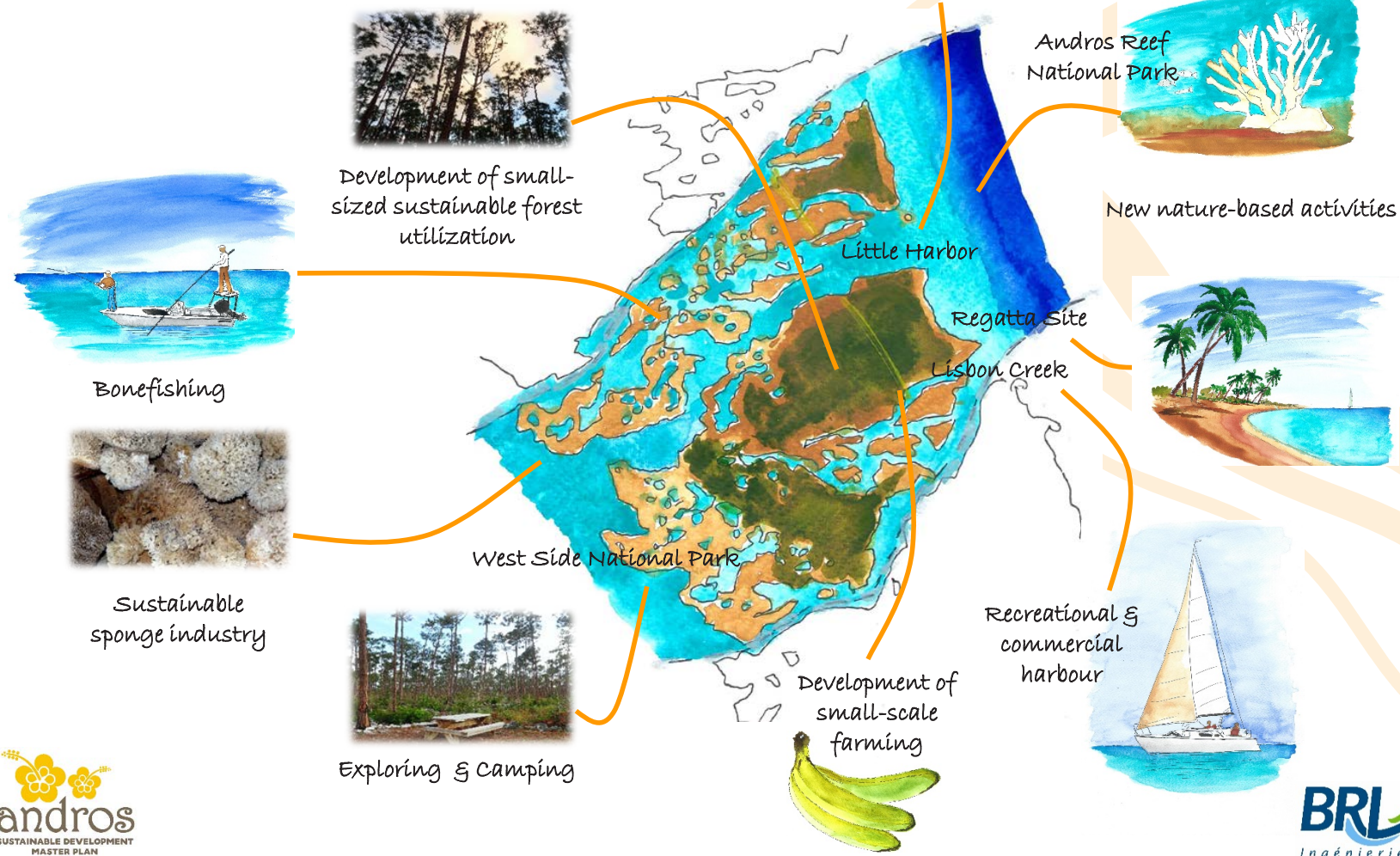
A **new ferry service** from Behring Point will connect North/Central Andros with Mangrove Cay and South Andros, facilitating the transport of economically important goods and services.

Through these strategic investments, the AMP reflects a future for Mangrove Cay where policy enforcement of protected areas, best management actions and sustainable practices in agriculture, forestry and fisheries blend socio-economic development and nature conservation goals to achieve a **nature-based economy** that can be sustained over time. Through the structural and physical changes brought to Mangrove Cay, this Master Plan will reshape the district creating **socio-economic benefits**.

From an economic point of view, the improvements in transportation infrastructure (new road from the seashore, improved harbors) and connectivity (ferry service), as well as the maintenance of key ecosystem services for tourism and fisheries, will expand **economic development and growth**. The increasing demand for tourist services will contribute to heightening the district's reputation and boosting the local economy, through increased incomes, employment rate and GDP. Unemployment is expected to decrease with the creation of many job opportunities related mainly to the **fisheries and tourism sectors**.

From a social point of view, the creation of the new sport center and the redesign of the clinic will develop social capital through **better education and health services**. The investments in educational programs related to the agriculture, forestry, fisheries and nature-based tourism sectors will enhance Mangrove Cay people's knowledge and skills, which will improve their access to job opportunities.

# Mangrove Cay in 2040



The drawing presented hereafter illustrates how Mangrove Cay will look like in 2040.

The tables and maps presented hereafter summarize all recommendations and actions foreseen for the future of Mangrove Cay for the short, medium and long term.



Human activity sectors	Appendix	Action Sheet	Recommendations / Actions	Timeliness		
				ST 2020	MT 2030	LT 2040
Infrastructure	A		Prioritize nature-based solutions to reduce coastal risks			
			Develop sustainable management of existing dump/landfill/sewage			
		1	Improve and maintain roads, the clinic, and build the new sport center			
		2	Improve and manage Mangrove Cay Airport			
		3	Improve facilities in Little and Lisbon Creek harbors: docks/ramps repaired and basic services implemented (potable water, electric power, fuel and communication systems)			
			Re-vamp Lisbon Creek Regatta Site			
Dredging & Mining	B		Implement policies to limit ad-hoc dredging and mining			
		0	Launch topo-bathymetric survey in Lisbon Creek			
		0	Determine sustainable locations for quarry and offshore mining			
Transportation by water	C		Move boat traffic to avoid travel on coral reef			
		6	Improve conditions for maritime access: implementation of lights and buoys in Fresh Creek and Behring Point			
Fishing	D		Renew enforcement of existing regulations			
			Implement new policy: catch and size limits, temporal closures, technique-based restrictions			
			Implement community education about sustainable fishing practices			
		8	Monitor and manage important commercial fish species stocks			
Agriculture	E		Establish relationship between local farmers and lodges			
			Designate Agriculture Officer			
			Create Mangrove Cay agricultural cooperative			
			Implement community education about sustainable agricultural practices			
			Launch feasibility study of canning/bottling			
			Raise healthy eating awareness			
Forestry	F		Develop and implement Forestry areas management plans			
			Train Bahamians in sap and lumber production			
			Employ staff in the Forestry Department			
Nature-based tourism	G		Develop training programs for guides for nature-based activities			
			Develop activities that attract tourists outside of bonefishing season			
			Improve road signs, tourist maps and websites for tourist information			
			Re-vitalize festivals			
		10	Define marketing strategy for goods, services and tourism			
		11	Develop birding areas and bird watching tours			
Protected areas	H		Develop and implement marine, terrestrial and forestry protected areas management plans			
			Formally acknowledge Conservation Forests (Department of Forestry)			
			Enforce National Park policies			

*Recommendations and actions for Mangrove Cay for the short term*

Human activity sectors	Appendix	Action Sheet	Recommendations / Actions	Timeliness	
				MT 2030	LT 2040
Infrastructure	A		Prioritize nature-based solutions to reduce coastal risks		
			Develop sustainable management of existing dump/landfill/sewage		
		2	<b>Improve and manage Mangrove Cay Airport</b>		
			Sustainable urban development considering coastal vulnerability		
			Replace water mains		
			Create new road out of the seashore connecting hurricane shelters		
Dredging & Mining	B		Implement policies to limit ad-hoc dredging and mining		
Transportation by water	C	6	<b>Improve channel access at Lisbon Creek and Little harbor (dredging operations + wreck removal)</b>		
		7	<b>Implement new ferry service between Central Andros - Mangrove Cay - South Andros</b>		
			Move boat traffic to avoid travel on coral reef		
Fishing	D		Renew enforcement of existing regulations		
			Implement new policy: catch and size limits, temporal closures, technique-based restrictions		
			Implement community education about sustainable fishing practices		
			Launch fisheries research programs in collaboration with foreign centers of excellence for the monitoring/management of resources		
		8	<b>Monitor and manage important commercial fish species stocks</b>		
Agriculture	E		Establish relationship between local farmers and lodges		
			Launch agriculture research programs in collaboration with foreign centers of excellence for the monitoring/management of natural resources		
			Raise healthy eating awareness		
			Restrict distance of farming to fresh water lenses and shorelines		
			Implement best management practices in agriculture		
		9	<b>Develop small-scale farming in Mangrove Cay</b>		
Forestry	F		Launch forestry research programs in collaboration with foreign centers of excellence for the monitoring/management of natural resources		
			Implement best management practices to avoid erosion and contamination of the freshwater lens		
			Develop small sized sustainable forest utilization industry, including sap and lumber production		
Nature-based activities	G		Develop activities that attract tourists outside of bonefishing season		
			Develop infrastructure to allow access to Blue Holes and other areas		
			Improve road signs, tourist maps and websites for tourist information		
			Re-vitalize festivals		
		11	<b>Develop birding areas and bird watching tours</b>		
Protected areas	H		Develop and implement marine, terrestrial and forestry protected areas management plans		
			Designate Andros Barrier Reef National Park (multi-usage of the park under determined management strategies)		
			Enforce National Park policies		

*Recommendations and actions for Mangrove Cay for the medium and long term*

## 5.4 Vision & actions for the future of South Andros

*In the future, South Andros will be dedicated to nature-based tourism and small-scale farming and agribusiness activities.*

The local economy will be sustained by the development of **agribusiness opportunities** such as canning and bottling of goods, and joint ventures for the production, processing and export of fruit, vegetables, flowers and other labor-intensive crops. **Land crab and coconut products** will be largely highlighted as the specialty of the district, to be exported to other districts in Andros and New Providence.

**Small-scale farming** will be developed in the district through the designation of an agriculture officer and the implementation of community education about sustainable agricultural practices. Duncombe Coppice land will be developed for farming activities led by the community. These areas will be developed using alternative energy sources and green technology. These initiatives will increase the self-sufficiency of the South Androsians. Sustainable and **small-scale forest utilization**, including sap and lumber production, will also be developed.

The **craft and agricultural market of Long Bays Park** will be improved as an outdoor market to be more permanent and attractive for tourists.

Fishing activities will be encouraged by the improvement of harbor facilities and infrastructure in Driggs Hill, Little Creek and Mars Bay. New policies will govern the monitoring and **sustainable management of important fish species** stocks such as conch, lobster, sponge, snapper and land crab, in which the local communities will be largely involved. Community education programs will be developed on the importance and protection of the natural environment.

Eco-tourism will be expanded through the further development of **nature-based activities** such as snorkeling and diving on the coral reef, bird watching in the forest, discovering the blue holes connected by underwater caves, kayaking in mangroves, or exploring West Side National Park. These activities will be sustained by the implementation of the necessary infrastructure to access all natural assets of the parks and reserves (composting toilets, solar lighting, boardwalks, pavilions and interpretive signage, etc.). **Small eco-lodges** owned by South Androsians will be further developed.

**Linkages between the farming and nature-based tourism sectors** will be strengthened to achieve self-sufficiency. Small-scale farms will supply local lodges, restaurants and schools with their produce. The farm-to-table concept will be attractive for health-conscious visitors. The production of local goods such as coconut flour to supply bakers that in turn supply lodges, restaurants and homes will reduce the community's dependency on products imported from New Providence. These types of scenarios will create smaller businesses and financial stability.

The expansion of these activities will lead to increases in visitation and population that will be supported by improved transport and social infrastructure facilitating accessibility, connectivity and services. Driggs Hill harbor will be improved to provide better shelter and to offer better facilities and experiences for tourists and boaters. The settlements will be expanded to accommodate the increased population.

**A new ferry service** from Driggs Hill will connect North/Central Andros with Mangrove Cay and South Andros, facilitating the transport of economically important goods and services.

Through these strategic investments, the AMP reflects a future for South Andros where policy enforcement of protected areas, best management actions and sustainable practices in agriculture, forestry and fisheries blend socio-economic development and nature conservation goals to achieve a **nature-based economy** that can be sustained over time. Through the structural and physical changes brought to South Andros, this Master Plan will reshape the district creating **socio-economic benefits**.

From an economic point of view, the improvements in transportation infrastructure (improved harbors) and connectivity (ferry service), as well as the maintenance of key ecosystem services for tourism and fisheries, will expand **economic development and growth**. The increasing demand for tourist services will contribute to heightening the district's reputation and boosting the local economy, through increased incomes, employment rate and GDP. Unemployment is expected to decrease with the creation of many job opportunities related mainly to the **agribusiness and ecotourism sectors**.

# South Andros in 2040

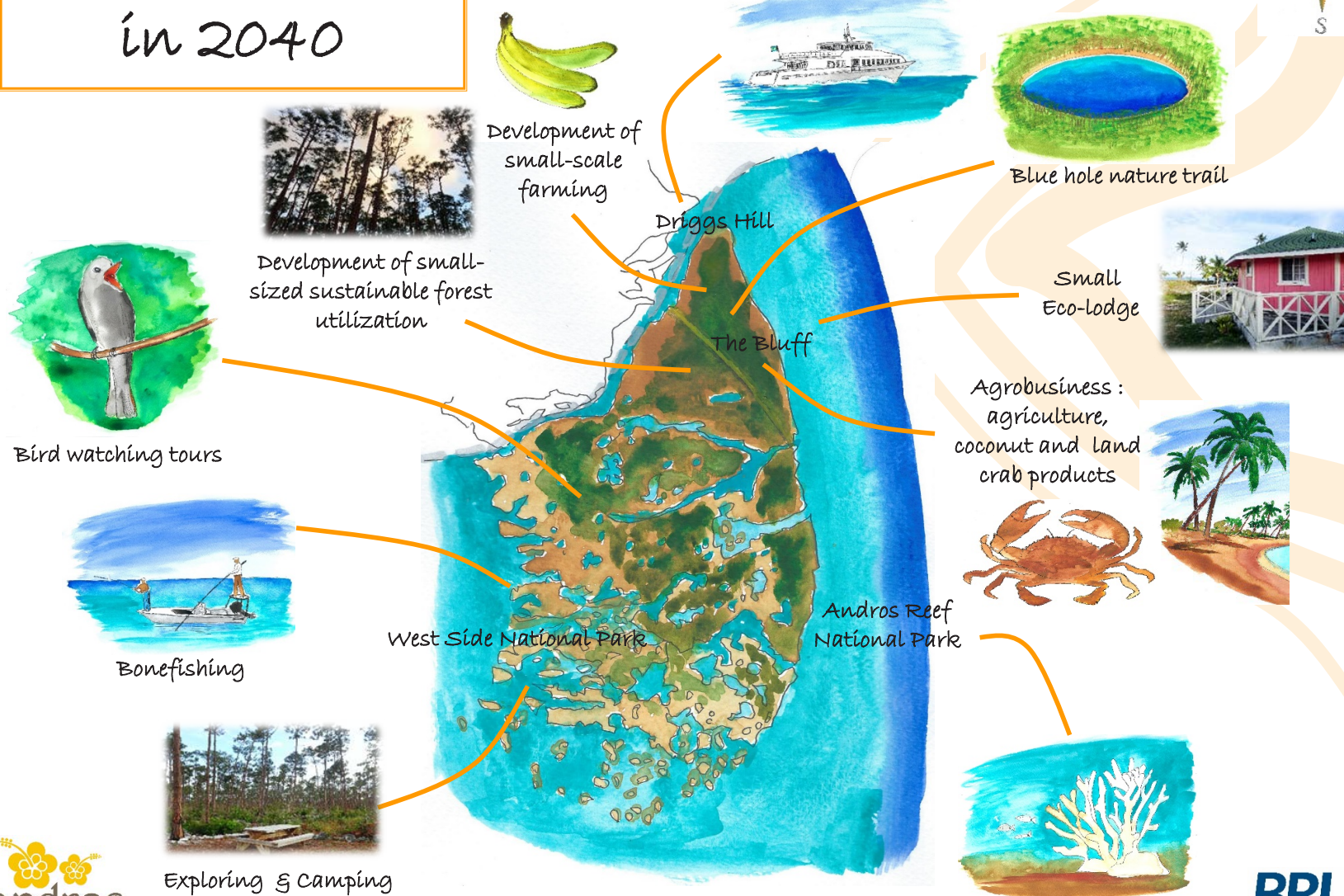
New ferry service between Central Andros /  
Mangrove Cay / South Andros



From a social point of view, the investments in educational programs related to the agriculture, forestry, fisheries and nature-based tourism sectors will enhance the South Androsians' knowledge and skills, which will improve their access to job opportunities.

The drawing presented hereafter illustrates how South Andros will look like in 2040.

The tables and maps presented hereafter summarize all recommendations and actions foreseen for the future of South Andros for the short, medium and long term.





Human activity sectors	Appendix	Action Sheet	Recommendations / Actions	Timeliness		
				ST 2020	MT 2030	LT 2040
Infrastructure	A		Prioritize nature-based solutions to reduce coastal risks			
			Develop sustainable management of existing dump/landfill/sewage			
		0	Launch study for enhancing Driggs Hill harbor protection during Northeast surges			
		1	Improve and maintain roads and clinics			
		2	Improve and manage Congo Town airport			
		3	Improve facilities in Driggs Hill, Little Creek and Mars Bay harbors: docks/ramps repaired and basic services implemented (potable water, electric power, fuel and communication systems)			
			Add infrastructure for running water from the Bluff to Mars Bay			
Dredging & Mining	B		Implement policies to limit ad-hoc dredging and mining			
		0	Launch topo-bathymetric survey in Driggs Hill			
		0	Determine sustainable locations for quarry and offshore mining			
Transportation by water	C		Move boat traffic to avoid travel on coral reef			
		6	Improve conditions for maritime access: implementation of lights and buoys in Driggs Hill and Mars Bay harbors			
Fishing	D		Renew enforcement of existing regulations			
			Implement new policy: catch and size limits, temporal closures, technique-based restrictions			
			Implement community education about sustainable fishing practices			
		8	Monitor and manage important commercial fish species stocks			
Agriculture	E		Establish relationship between local farmers and lodges			
			Designate Agriculture Officer			
			Create South Andros agricultural cooperative			
			Implement community education about sustainable agricultural practices			
			Launch feasibility study of canning/bottling of coconut, crab etc.			
			Raise healthy eating awareness			
Forestry	F		Develop and implement Forestry areas management plans			
			Training program for Bahamians in sap and lumber production			
			Employ staff in the Forestry Department			
Nature-based tourism	G		Develop training programs for guides for nature-based activities			
			Develop activities that attract tourists outside of bonefishing season			
			Improve road signs, tourist maps and websites for tourist information			
			Re-vitalize festivals			
		10	Define marketing strategy for goods, services and tourism			
		11	Develop birding areas and bird watching tours			
			Improve the craft and farmer market at Long Bays Park (permanent wooden structures)			
Protected areas	H		Develop and implement marine, terrestrial and forestry protected areas management plans			
			Formally acknowledge Conservation Forests (Department of Forestry)			
			Enforce National Park policies			

*Recommendations and actions for South Andros for the short term*

Human activity sectors	Appendix	Action Sheet	Recommendations / Actions	Timeliness	
				MT 2030	LT 2040
Infrastructure	A		Prioritize nature-based solutions to reduce coastal risks		
			Develop sustainable management of existing dump/landfill/sewage		
			Sustainable urban development considering coastal vulnerability		
		2	<b>Improve and manage Congo Town airport</b>		
Dredging & Mining	B		Implement policies to limit ad-hoc dredging and mining		
Transportation by water	C	6	<b>Improve channel access at Driggs Hill (dredging operations + wreck removal)</b>		
		7	<b>Implement new ferry service between Central Andros - Mangrove Cay - South Andros, and between Nassau and South Andros</b>		
			Move boat traffic to avoid travel on coral reef		
Fishing	D		Renew enforcement of existing regulations		
			Implement new policy: catch and size limits, temporal closures, technique-based restrictions		
			Implement community education about sustainable fishing practices		
			Launch fisheries research programs in collaboration with foreign centers of excellence for the monitoring/management of resources		
		8	<b>Monitor and manage important commercial fish species stocks</b>		
Agriculture	E		Establish relationship between local farmers and lodges		
			Launch agriculture research programs in collaboration with foreign centers of excellence for the monitoring/management of natural resources		
			Raise healthy eating awareness		
			Restrict distance of farming to fresh water lenses and shorelines		
			Implement best management practices in agriculture		
		9	<b>Develop small-scale farming in South Andros</b>		
			Create processing plant for products from agriculture/crabs/coconut		
			Develop farm land of Duncombe Coppice		
Forestry	F		Launch forestry research programs in collaboration with foreign centers of excellence for the monitoring/management of natural resources		
			Implement best management practices to avoid erosion and contamination of the freshwater lens		
			Develop small sized sustainable forest utilization industry, including sap and lumber production		
Nature-based tourism	G	11	<b>Develop birding areas and bird watching tours</b>		
			Develop activities that attract tourists outside of bonefishing season		
			Develop infrastructure to allow access to Blue Holes and other areas		
			Improve road signs, tourist maps and websites for tourist information		
			Re-vitalize festivals		
Protected areas	H		Develop and implement marine, terrestrial and forestry protected areas management plans		
			Designate Andros Barrier Reef National Park (multi-usage of the park under determined management strategies)		
			Enforce National Park policies		

*Recommendations and actions for South Andros for the medium and long term*



# 6. ANDROS MASTER PLAN BENEFITS & IMPACTS

*Through changes brought to Andros in each human activity sector, this Master Plan will reshape the island from an environmental and socioeconomic point of view, addressing the eight key pillars raised by the Androsians.*

**Under the Sustainable Prosperity scenario, the Master Plan will result in:**

## **BOTH POSITIVE AND NEGATIVE ENVIRONMENTAL IMPACTS:**

- Enforced food and water security,
- Preservation of the main natural capital of Andros: the AMP will reduce the cumulative risk of human activities for some habitats and species (e.g., mangrove and coral) while increasing the risk for others (e.g. seagrass, water resource, crabs) compared to the Business as Usual scenario. However, risk under the Sustainable Prosperity scenario remains minimal compared to risk under a future characterized by intensive development. Moreover, this habitat degradation risk could be attenuated through sustainable and best management practices in each human activity sector, as foreseen in the plan.

## **BOTH POSITIVE AND NEGATIVE IMPACTS REGARDING COASTAL RISKS AND RESILIENCE:**

- Enhanced coastal protection through preserved natural buffers,
- Maintained climate and coastal resilience,
- Due to the increase in numbers of people living on Andros in the future, a slight increase in population and activities exposed to coastal hazards (which is minimal compared to the Intensive Development scenario that would more than triple the

numbers of people living in the highest hazard areas along the coast). Nevertheless, this increase could be attenuated by means of “green and grey” approaches to strengthen coastal resilience, as foreseen in the plan.

## **LARGE POSITIVE SOCIO-ECONOMIC IMPACTS:**

- Expansion of economic capital and growth,
- Improved connectivity and accessibility,
- Increased incomes, employment rate and GDP,
- Increased tourism expenditure,
- Increased lobster revenue,
- Improved education and capacity building,
- Increased number of staff and guides employed in eco-tourism related activities,
- Improved livelihoods and income equality,
- Expansion of social capital,
- Improved health and well-being,
- AMP based on collaborative research works and bottom-up consultations, involving a cross-section of local and national stakeholders.

The following table synthesizes the AMP's general impacts on each of the key pillars:

Andros Master Plan under the Sustainable Prosperity scenario		
<b>Food and water security</b>	Improved transportation infrastructure – Sustainable practices in agriculture, forestry, fishing activities – Limited dredging and mining activities – Increased access to freshwater and food supplies – Enforcement of protected area regulations	
<b>Connectivity and accessibility</b>	Improved transportation infrastructure and facilities (roads, bridges, ports, airports) – Airport and port of entry in each district – New intra-district ferry service	
<b>Education and capacity building</b>	Improved social infrastructure – Training on sustainable practices in agriculture, forestry and fishing activities – Implementation of a new satellite of the University of the Bahamas	
<b>Climate change and coastal resilience</b>	Enforcement of protected area regulations – Increased natural buffer protecting coastline	Slight increase in population exposed to coastal hazards
<b>Livelihoods and income equality</b>	Economic development of fishing, agricultural, forestry and nature-based activities – Increased visitation and total expenditure	
<b>Land tenure security, land use planning and enforcement</b>	Definition of authorized development areas	
<b>Health and wellbeing</b>	Improved health infrastructure and facilities – Better connectivity with Nassau – Sustainable practices in agriculture and fishing activities	
<b>Strengthening local government</b>	Development of local activities governed by enforced or new regulations	

<b>Impacts</b>	Major positive impact	
	Contribution (positive impact)	
	No effect	
	Potential negative impact	



The following table sums up the benefits and impacts of the AMP under the Sustainable Prosperity scenario.

IMPACTS		DIFFERENCE BETWEEN THE TWO SCENARIOS (SUSTAINABLE PROSPERITY VERSUS BUSINESS AS USUAL)
Consultation and cooperation during master planning process	Androsians – Local and national stakeholders	<ul style="list-style-type: none"> <li>Choice of the Sustainable Prosperity scenario of development by the Androsians during bottom-up consultations</li> <li>Involvement of all local stakeholders in the master planning process</li> <li>Raised awareness of the importance of sustainable development</li> <li>Development of cooperation on sustainable projects</li> </ul>
Environmental	General	<ul style="list-style-type: none"> <li>Preservation of natural capital of Andros</li> </ul>
	Coral	<ul style="list-style-type: none"> <li>- 10% of area at high risk</li> </ul>
	Mangrove	<ul style="list-style-type: none"> <li>- 60% of area at high risk</li> </ul>
	Seagrass	<ul style="list-style-type: none"> <li>+ 20% of area at high risk</li> </ul>
	Land crab	<ul style="list-style-type: none"> <li>+ 15% of area at high risk</li> </ul>
	Water security	<ul style="list-style-type: none"> <li>+ 50% of freshwater area at risk (less than 1% of total area)</li> </ul>
Coastal risks and resilience	General	<ul style="list-style-type: none"> <li>Improvement of the habitat buffer protecting the coast from erosion and flooding</li> <li>Maintenance of climate and coastal resilience</li> <li>+ 7 % of population exposed to coastal hazards</li> </ul>
Socioeconomic	General	<ul style="list-style-type: none"> <li>Sustainable expansion of the social and economic capital of Andros</li> </ul>
	Lobster fisheries	<ul style="list-style-type: none"> <li>Sustainable spiny lobster catch and revenue</li> <li>+ 40% of the revenue (USD 6 Million)</li> </ul>
	Tourism	<p>Tourism expenditure:</p> <ul style="list-style-type: none"> <li>Central Andros: + 19% (USD 68 Million)</li> <li>North Andros: + 37% (USD 61 Million)</li> <li>South Andros: + 10%</li> <li>Mangrove Cay: + 35%</li> </ul> <p>Tourism employment: + 125 staff</p>

Source: BRLi / NatCap - 2016

**In orange:** negative impacts, **in green:** positive impacts

*Impacts of the AMP under the Sustainable Prosperity scenario versus the Business as Usual scenario*

# 7. CONCLUSION

The Andros Master Plan has been informed by **extensive public consultations** and designed to ensure a **stakeholder-led process**. In it, the Androsians have shared their vision for the future of Andros.

The Master Plan has been designed according to an **ecosystem-services approach** that addresses the crucial link between **climate change risks, biodiversity conservation** and the **sustainable management of natural resources** providing multiple benefits.

It provides an actionable management plan to guide the **sustainable development of the island** for both its people and its environment, founded on the eight key pillars identified by the Androsians as the most important issues to be addressed.

Through **three strategic stages** (up to 2020, up to 2030, and up to 2040) and the implementation of multiple recommendations and actions regarding the different human activity sectors, this Master Plan reshapes Andros into a future nature-based economy, balancing the **conservation of natural capital and the sustainable development of social and economic capital**.

Despite some both negative and positive environmental and coastal impacts, it brings substantial socio-economic benefits to Andros, improving growth, incomes, employment, education, health and livelihoods.



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By 2040, Andros will sustainably harness its wealth of natural assets, without sacrificing the very ecosystems that underlie its economy and sustain the well-being of its citizens.



