

BAGS, BANS AND EVERYTHING IN BETWEEN

Policy Brief Integrating Geographic Information Systems in Eleuthera, Bahamas

Challenges of Sustainability in low-lying countries

Low lying countries such as The Bahamas, Indonesia and Thailand are at risk of being wiped off the map due to rising sea levels and climate change. The need to protect these countries' unique natural resources and environment is a main priority. To make an impact on the sustainability of The Bahamas, action needs to be taken today, and the voice of the Bahamians needs to be heard. The Bahamas Plastic Movement has spoken for their community and the sea life by pledging to stop the use of single use plastic by 2020 by initiating the Plastic Bag Ban.

Geographic Information Systems (GIS), a form of maps-making technology, are capable of showing changes in land, detecting patterns, trends, and uncovering unique topographical images using satellites. GIS is capable of producing rich data useful for organizational decision-making regarding sustainable practices. Data generated from GIS applications can lead to more precise descriptive information of sustainability opportunities and challenges in the Bahamas. This enhanced information can be used to modify current programs or development programs aimed at achieving the ultimate goal of maintaining the beautiful Bahamas.



Bahamian government can be taken a step further to protect the Bahamas.

My research project, "Integrating Geographic Information Systems (GIS) with Sustainability Planning in Eleuthera, Bahamas purpose was to foster the idea of using geo-visual representation to preserve the beauty of the island.

I collected qualitative data from NGOs, formal and informal community groups, government officials, business owners, and residents to develop a conceptual framework for describing needs, actions, and desires towards achieving environmental sustainability goals. This project aligns with 16 of 17 UN Sustainable

Development Goals and its threescore element: -economic growth, social inclusion and environmental protection. Specifically, the project has introduced GIS as a tool for measurement and analysis of environmental issues to organizations engaged in sustainable projects in Eleuthera, Bahamas. A consent form, a GIS PowerPoint presentation, and satisfaction survey were developed for this study. The questionnaire consisted of 11 questions addressing GIS as a tool for achieving environmental sustainability and preserving the beauty of Eleuthera, Bahamas. It also explored participant attitudes towards use of Geographic Information System (GIS) as a tool for measurement and analysis for environmental issues (e.g. access to freshwater resources, waste management and plastic beach trash, tourism). The survey consisted of four ordinal questions to develop a conceptual framework for describing needs, actions, and desires towards achieving organizational goals to promote environmental sustainability in Eleuthera, Bahamas. It was also used to measure satisfaction with the GIS PowerPoint presentation.

Current Research Efforts

- ◆ There is limited research conducted in Eleuthera, Bahamas.
- ◆ This is the one of the first studies to link GIS and quantitative methods with sustainability issues in the Bahamas.
- ◆ This study contributes to the knowledge base of

environmental sustainability issues on the island.

Results

The study was an important step for the Bahamian government to take into including GIS technology in policy making decisions. The participants highlighted the need to turn the trash into possible economic development opportunities. Participants also suggested several areas where they viewed GIS application was necessary, such as studying the impact of tourism, knowing where to target resources during hurricane clean-up efforts, and where to locate potholes around the island. The results of this study will be presented to both One Eleuthera Foundation and the Bahamas Plastic Movement. There will be two versions, the first will be tailored to the adults and the second will be tailored for the youth with language that both parties can understand.

Limitations

This study was affected by the time constraints of a 6-8-week time frame. Conducting research when key informants are off-island is a major limitation, therefore the use of a local resident expert was used to continue the collection of data.

Recommendations

The national government, specifically the Ministry of Environment and Housing, needs to improve the tourism industry to become environmentally friendly to invest in eco-tourism practices. Costa Rica is a great example to turn to in terms of ecotourism. In Costa Rica sustainability is part of the economy, culture and the environment, and the country highlights the natural resources on the island such as the nature reserves. On Eleuthera, there is the Leon Levy Native Plant Preserve.

This area can be the start of eco-tourism in the Bahamas.

The second recommendation is to establish a trash collection system; currently the trash in the Bahamas is burned or thrown out of the car windows. By having a proper garbage disposal system this can cut down on the accumulating trash.

The third recommendation is for the Bahamas National Geographic Information Systems (BNGIS) sector, to implement a GIS Program at the University of the Bahamas. This can create incentives for the larger public to learn GIS. To gain the attention of the youth, GIS can be introduced through summer camps with local organizations such as the Bahamas Plastic Movement.

The Bahamas Plastic Movement can hire a consultant or establish connections with other organizations who do have GIS experience who can teach a workshop to the youth. The idea of refusing or reducing the use of plastic needs to be instilled in the youth throughout the school year and not just in the summer.

The importance of GIS in the Bahamas is needed to ensure the future by visually showcasing unsustainable practices. My research to integrate GIS into the sustainability planning efforts in the Bahamas was important to hear the rarely heard voices of the local community. The disadvantages of cruise ships releasing trash into international waters creates a silver lining in the current standard, as it allows for a new step to be taken with the Disney Cruise lines. Disney Cruises can become more sustainable by curbing the use of single

use plastics on their ships. Through the use of Geographic Information Systems (GIS) its capable of showing changes in land use, detecting patterns, trends and uncovering unique topographic structures using satellites.

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