

Overview

The Abaco Zero Waste Concept was developed by The Founding Members of *Hope Town Zero Waste*, *Resurrect Abaco*, and *Abaco Strong*. These philanthropic organizations in Abaco share a growing concern for the lack of waste management and the negative effects this has on our environment.

The goal of *Abaco Zero Waste* is to develop an *Integrated Waste Management Plan* for Treasure Cay, Abaco that can be used as a model for communities and islands in The Bahamas. The plan is based off a UNDP GEF SGP funded pilot project that has been implemented in Elbow Cay by *Hope Town Zero Waste*, which includes a recycling program of plastics, glass, and aluminum cans, and community awareness. AZW phase 1 was initiated in September of 2022, and with support of IDB, conducted community waste management assessments and pilot waste audits in 3 communities across Abaco to gain a better understanding of waste streams as well as opportunities and challenges existing on island. We are seeking a grant from *The Nature Conservancy* and *The Global Fund for Coral Reefs* in the amount of \$952,650 to execute Phase 2 of the Abaco Zero Waste Management Plan, which includes a collection and recycling program of plastic bottles, plastic packaging, and organic waste. The project aims to be financially sustainable, logistically feasible, and environmentally sound. The first recycling facility in Abaco will be developed to reduce the volume of waste produced in a systematic way that capitalizes on economies of scale to divert materials from the waste stream through new innovative microeconomic opportunities in plastics recycling and composting technologies.

Statement of Need

On September 1st, 2019, Hurricane Dorian made landfall in Abaco as the strongest category five hurricane in the country's recorded history. The impact was catastrophic, destroying 60% to 80% of the most densely populated communities. Hurricane Dorian generated large volumes of mixed debris. Due to the complexity of waste generated and the level of cross contamination of toxic materials and liquids, this debris can have far reaching environmental implications for terrestrial and marine environments and health implications for our communities. Debris is regularly burned at the waste sites to reduce the volume and collect copper. The burning of plastics releases toxic gases like dioxins, furans, mercury and polychlorinated biphenyls (better known as BCPs) into the atmosphere, and poses a threat to vegetation, and human and animal health. The island's primary dump site, "Snake Cay Landfill" is situated in close proximity to the East Abaco Creeks National Park (about .25 miles), an MPA that was designated in 2015 to protect valuable mangrove ecosystems encompassing marine blue holes and critical nursery habitat for many marine species. The Treasure Cay dump site is situated near The Abaco Marls National Park, which was recognized as an important mangrove ecosystem, home to key species including bonefish which support a thriving fly-fishing industry. These and other island dump sites are also near to blue holes and other mangroves systems. The burning of these materials is contributing to toxic contamination of the watershed and systems that feed into the ocean by introduction of persistent organic pollutants, heavy metals, and other chemicals. Due to the connectivity of our environments through the water cycle as well as the life cycles of species inhabiting nearshore environments this toxicity has the potential to harm vital ecosystems in The Bahamas, such as mangroves and coral reefs.

There is currently no national solid waste management plan in The Bahamas and no formal waste management system in Abaco. There is also a complete lack of recycling programs in Abaco, (the exception being Hope Town Zero Waste). Nearly 100% of waste materials end up in the dumps where it will either remain indefinitely or be burned. This continued practice is only exacerbating the existing problems and poses extreme health hazards to humans, wildlife, and the environment. The current waste management practices, or lack thereof, are creating environmental and social impact and health risks that extends to neighboring communities and settlements and to the entire North Abaco population.

According to the results of *The Abaco Zero Waste Characterization Assessment*, plastic bottles represent 49% of the waste in residential homes in Treasure Cay. Another 22% is characterized as plastic wrapping and packaging. This material creates highly toxic waste when burned at the waste facilities that is blown into our communities and into the ocean. Organic material represents the highest volume by weight and is estimated at over 300,000 lbs. per year that ends up at the Treasure Cay Dump site. Organic Waste contributes to global warming through the generation of methane gas into the atmosphere as it decomposes.

Proposed Solution

Abaco needs to develop sustainable waste management systems to address the generation of new waste as the region rebuilds so that we can reduce the amount of harmful materials that are being archived in dump sites. Abaco Zero Waste has developed a plan to divert hazardous waste that is currently being dumped and burned by implementing a recycling program in Abaco. *Phase 1* of the project was recently completed, which was *The Abaco Zero Waste Characterization Assessment* funded by the IDB. The data from this assessment will enable us to build and scale the program according to the needs and specifics of the area. Plastics and organic material, identified in the assessment as the major components of the existing waste stream, will be the focus of *Phase 2* of our Abaco Zero Waste Program.

Our plan is to develop and implement the first Zero Waste Recycling Facility on Abaco as a teaching institution and microeconomic business incubator for young adults and entrepreneurs to learn how to divert waste into new resources. The utilization of technology will enable the reduction of hazardous wastes and the creation of saleable products creating a circular economy, jobs, and new business opportunities.

Project Description

Phase 1 – Waste Assessment, (Completed, April 2023)

The *Abaco Zero Waste Characterization Assessment* was funded by the Inter-American Development Bank for the purpose of better understanding the current make-up of the waste streams that are being generated in Abaco. This phase of the project included a waste assessment of homes and businesses through surveys and personal interviews, and a waste audit of residential homes to determine weight and volume of actual waste being generated. Treasure Cay has been selected for our pilot project as it represents a significant percentage of the total population in Abaco and a good cross section of Bahamian Residents, Second Homeowners, Tourists traveling on Vacation, and Businesses. For the purpose of our Pilot Project, we will focus on the data collected in Treasure Cay, Abaco:

- Year Round residents
 - population of 300
 - 27% participated in the assessment
- Part Time Residents
 - population of 1150
 - 25% of Part Time Residents participated in the assessment
- Critical Data on Waste in Treasure Cay Dump Site
 - Estimated 57,000 lbs. of plastics each year
 - Estimated 304,000 lbs. of organic waste material each year

It was determined through the waste audit in Phase 1 that recyclable plastics and organic material constitute the majority of the waste stream in Treasure Cay, and offer the biggest opportunity to make an impact through recycling. As a result, these two waste streams will be the focus in Phase 2 of the Abaco Zero Integrated Waste Management Program.

(More information and data from Waste Assessment/Audit available upon request)

Phase 2 – Pilot Recycling Project in Treasure Cay – (Grant Request is for Phase 2)

Resurrect Abaco Association (RAA) and Abaco Strong (AS) are jointly seeking a grant of \$952,650 to initiate a recycling program in Abaco through the establishment of a Plastics and Organic Waste Mobile Recycling Facility. This mobile unit will be transportable to the various communities in Abaco and the surrounding cays. The program is intended to be self-sustaining in terms of revenue and expenses. This will be accomplished through instituting membership/collection fees at the resort and vacation properties, and supplemented by the commercial sale of the items manufactured by the plastics machine. Revenues in excess of the operating expenses will remain with the non-profits and be dedicated to either expanding the program to more locations or assisting other related programs within the Resurrect Abaco and Abaco Strong portfolios.

Phase 3 – Expansion of Recycling Program to Other Areas in Abaco

Once the program is established in Treasure Cay, and has reached a stage of profitability, the membership and collections will be extended to other communities on Great Abaco Island and the surrounding cays.

Phase 4 – Expansion through Inclusion of Additional Waste Streams and Waste to Energy Component

Additional waste streams to be addressed include glass, aluminum cans, batteries, and used motor oil. Future investments in Waste to Energy Technology offer opportunities to further improve the handling of waste in Abaco and reduce negative impacts to the environment, while supporting sustainability of the AZW recycling facility operation.

Proposed Funding Needs

Proposed funding will be used for Phase 2 of the (AZW) Project to develop and implement a pilot project for recycling in the Treasure Cay Community in Northern Abaco. The funds will be allocated to the following major components of the project.

Equipment

Precious Plastics 3D Plastic Recycling Self Contained Plant - The Precious Plastics Machine will convert single-use, disposable plastic drinking containers and other plastic packaging into products that can be sold to commercial businesses and residential homeowners in the tourist driven Economy that exists in Abaco. For example being to using empty single-use water bottles to manufacture benches, adirondack chairs, school desks and chairs, decking material, etc.

Ecorich Commercial Composter/Digester - This system reduces the volume of food waste by 90% in 24 hours reducing the methane emissions produced and providing a source for nutrient rich compost to Backyard Farmers and The Commercial Farm Community.

Transport Vehicles – The Mobile Unit will be transportable by land or by sea. Further research will determine the best combination of vehicles and/or vessels for efficiency and cost effectiveness.

Training/Education

Abaco Zero Waste will partner with *Friends of The Environment*, a long standing NGO in Abaco to provide the educational component for Primary and Secondary Schools to teach the students why recycling is a valuable solution for reducing waste and helping to protect the environment, while sharing ways students can become involved in the project. Training for Machine Operators will be provided by Manufacturers of Equipment.

Personnel

Executive Director of Abaco Zero Waste - will have overall executive and operational control of the project and be responsible for reaching Key Performance Indicators set at the board level for the duration of the program.

Program Director – will be responsible for purchasing, supply chain management, and oversight of operations

Administrative Support– Will be responsible for membership contracts, communications, and billing

Collectors/Drivers and Machine Operators – will be responsible for day to day operation of collections and machine operation
Legal and Accounting - will be will be executed at RAA level.

Outputs

From Phase 2 of Abaco Zero Waste Recycling Program

- Creation of Jobs for Bahamian Residents
 - Executive Director - 1
 - Program Manager - 1
 - Driver Collectors - 2
 - Machine Operators - 2
 - Administrative Assistant – 1 part time
- Education for the next generation on the impact of recycling and responsible waste management
- 50 % Reduction of plastics being dumped and burned
- 50% Reduction of Organic Waste –
- estimated 1.6 million lbs. of organic waste diverted over three years
- estimated 102,000 lbs. of plastics diverted over three years

Impact

From Phase 2 of Abaco Zero Waste Recycling Program

- The reduction of toxic gases like dioxins, furans, mercury and polychlorinated biphenyls (better known as BCPs) into the atmosphere and water, and that pose a threat to coral reef systems and other land and sea ecosystems in Abaco
- Boost to local economy and assistance toward recovery from effects of Hurricane Dorian
- A new generation of Abaconians that will attain a better understanding of the positive impact of responsible waste management and obtain knowledge and tools to better choices
- Reduction of methane gas produced by decaying matter in landfill. Slows the effect of greenhouse gases that contribute to global warming

Budget

Personnel Costs	Pilot Year 1	Year 2	Year 3
Exec director	\$65,000	\$65,000	\$65,000
Program Director	\$50,000	\$50,000	\$50,000
Collectors/Drivers	\$100,000	\$100,000	\$100,000
Administrative Support	\$8,000	\$8,000	\$8,000
Machine Operators	\$50,000	\$50,000	\$50,000
TOTAL Personnel Expense	\$273,000	\$273,000	\$273,000

Non Personnel Costs	Pilot Year 1	Year 2	Year 2
Community Engagement			
School Programs	\$4,000	\$4,000	\$0
Training for drivers/operators	\$1,500	\$1,500	\$0
Marketing and Communications	\$3,500	\$3,500	\$1,000
Website and Email	\$3,000	\$3,000	\$3,000
Program Equipment			
Precious Plastics	\$120,000	\$0	\$0
Ecorich Digester/Composter	\$180,000	\$0	\$0
Transport Vehicles	\$200,000	\$0	\$0
Safety Equipment	\$1,000	\$500	\$500
Recycling Bins - 1000 bins @\$25.00ea	\$25,000	\$0	\$0
Shipping Cost	\$10,000	\$1,000	\$1,000
Power Supply install	\$5,000	0	0
Operating Costs			
Fuel @ \$250/wk	\$13,000	\$15,000	\$17,000
Maintenance	\$2,000	\$3,500	\$5,000
Insurance	\$5,000	\$6,000	\$7,000
Electric/Utilities	6000	6000	6000
Other	3000	3000	3000
Administrative			
Accounting and Legal	\$4,500	\$4,500	\$4,500
Busines/ Homeowners Contracts Administration	\$3,500	\$3,500	\$3,500

Supplies and Materials	\$2,000	\$2,000	\$2,000
Printing	\$500	\$250	\$250
rent/lease	\$8,500	\$8,500	\$8,500
Utilities	\$3,000	\$3,000	\$3,000
TOTAL Non-Personnel Expense	\$604,000	\$68,750	\$65,250
TOTAL EXPENSE	\$877,000	\$341,750	\$338,250

Income	Pilot Year 1	Year 2	Year 2
Membership Dues Residential 200 Homes at \$30/mth	\$72,000	\$126,000	\$270,000 *
Membership Dues Commercial 10 Businesses at \$100/mth	\$12,000	\$24,000	\$48,000 **
Sale of Recycled Plastic Products 100 @ \$100	\$10,000	\$20,000	\$30,000
Sale of Compost - 100 bags @\$7.00	\$700	\$1,400	\$2,800
TOTAL INCOME	\$94,700	\$171,400	\$350,800
GRANT REQUEST BY YEAR	\$782,300	\$170,350	\$0
TOTAL GRANT REQUEST	\$952,650		

*350 Homes included in year 2, and 750 Homes included in Year 3

**20 Businesses included in Year 2, and 40 Businesses included in Year 3

Timeline

Phase 1 – completed April 2023

Phase 2 – January 2024 – January 2027

Phase 3 – January 2027

Phase 4 – January 2028

Potential Risks

The primary risk with this proposed project is a future storm wreaking more havoc and destruction on Abaco putting us even further behind in our efforts to mitigate the current and ongoing consequences of Hurricane Dorian. A secondary minor risk is that we fail to secure support from Government for this program. Previous discussions with Government have confirmed support for the concept of The Abaco Zero Waste Program, with the understanding that funding from the Government will not be forthcoming. Government will support the program as long as we are able to secure funding from other resources.

Relevant Experience

The team leading this initiative has extensive experience and knowledge of the local economy, business environment, disaster response and waste management spaces. Team members are well known to Government and have held significant leadership positions in the private, public and NGO sector positions. All team members have been very active in the Abaco community since Hurricane Dorian, leading disaster response, recovery, and mitigation efforts on behalf of their respective sectors. It is very encouraging that such a diverse, experienced, and dedicated group has coalesced to join forces on this initiative without thought for honors, recognition or publicity; just the desire to do what is right for our island and community.

Hope Town Zero Waste - <http://www.hopetownzerowaste.org/>

Our Executive Director, Juliette Deal, The Founder of Hope Town Zero Waste (HTZW) has implemented the first and only recycling program in Abaco. (HTZW) has not only reduced the amount of waste produced on Elbow Cay through recycling of plastics, aluminum cans, and glass, but they are utilizing technology through 3D Precious Plastics Machine to upcycle and produce useable and salable products creating a circular economy. Through partnerships and educational resources, they are teaching all generations to be mindful of the amount of trash they generate and think about where that goes. The (AZW) Program is using the lessons learned to leverage the success of (HTZW) in making an impact towards improved waste management and a cleaner environment. Our aim is to expand these methods and concepts to Greater Abaco.

Abaco Strong - <https://abacostrong.org>

Abaco Strong was founded and is directed by Martha Fleury, responsible for (AZW) Oversight of Implementation of Pilot Program. Under her direction, Abaco Strong has implemented multiple programs as part of the rebuilding process following Hurricane Dorian:

- Bed distribution of over 300 mattresses, bed frames, sheets, pillows and blankets throughout Abaco
- Home Repair Program in Treasure Cay Township
- Backyard Farms Support through distribution of seeds, pots, fertilizer, topsoil
- Instituted a small scale composting program with compost units in four neighborhoods
- Instituted and sponsored a Monthly Farmers Market for local farm produce, seafood, and art.
- Implemented a breakfast program at Coopers Town Primary School
- Rebuild of Rest Room Facility at Murphy Town Community Baseball/Softball Fields and financial and administrative support for Abaco Youth Baseball

Executive Team

Juliette Deale – *Strategic Executive Director, Abaco Zero Waste*

- Mitigation and Resource Diversion Specialist with a Master's in Environmental Studies specializing in Integrated Solid Waste Management in Small Island Developing Nations
- Juliette has worked in the field of Resource Diversion and Waste Mitigation for 14 years in the Bahamas, The US, and The Caribbean, working with businesses and teaching communities about waste reduction.
- Co-Founder and Director of Hope Town Zero Waste
- Juliette was the United Nations Development Program Debris and Waste Management Specialist for Hurricane Dorian's response in Abaco working with NGO's and Government agencies to coordinate debris removal.

Ken Hutton – Executive Director, Resurrect Abaco

- Ken has extensive experience in Business Management and has held C-Level position in multiple companies.
- Acquisition/Merger/Turnaround of 17 companies in last 25 years.
- President of Grand Bahama Chamber of Commerce
- President of Abaco Chamber of Commerce
- Director of Bahamas Chamber of Commerce
- Co-Founder /Executive Director of Abaco Resurrect/ One Abaco Foundation.
- Program Oversight and Strategic direction. Fiscal accountability and transparency.

Martha Fleury – Executive Director, Abaco Strong

- Extensive experience in the business and non-profit sector in Systems Analysis and Project Management
- Founder, Executive Director and President of Abaco Strong
- Communications Director of Multiple Non-profit organizations
- Fifteen Years as Systems Analyst and Color Specialist at Xerox Corp.
- Abaco Zero Waste Oversight of Implementation of Assessment, Pilot Program, and Education Campaign for Abaco Zero Waste

Tegwen Hunt Hasted - *President of Abaco Strong Fundraising initiatives for Abaco Zero Waste Project*

- Extensive experience in international institutional finance and philanthropy
- Director level positions in Securities divisions of international banks, private hedge funds and various board positions for 501 C3's, working extensively with foundations, charitable trusts and family offices.

Partners

Olivia Patterson Maura - *Deputy Director, Friends of the Environment Program Management, Administration, Partner, and Messaging Coordination*

- Masters in Zoology with focus on Community Conservation and Environmental Education
- BSc in Marine Biology.
- Olivia has worked in conservation and informal education for 16 years, focusing on sustainability and biodiversity conservation, targeting resources that are critical to livelihoods, culture and environmental health in Abaco, Bahamas.

Summary

The Abaco Zero Waste Program has been initiated by a group of experienced and competent leaders in Abaco to address the mounting environmental crisis resulting from the lack of a responsible waste management practices in The Bahamas. Due to the connectivity of our environments through the water cycle as well as the life cycles of species inhabiting nearshore environments this toxicity has the potential to harm vital ecosystems in The Bahamas, such as mangroves and coral reefs. This four phase plan will help to mitigate some of the damage caused by current waste management practices.

Contact Information and Websites

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