Building Local Capacity for Water Quality Monitoring & Improved Sanitation

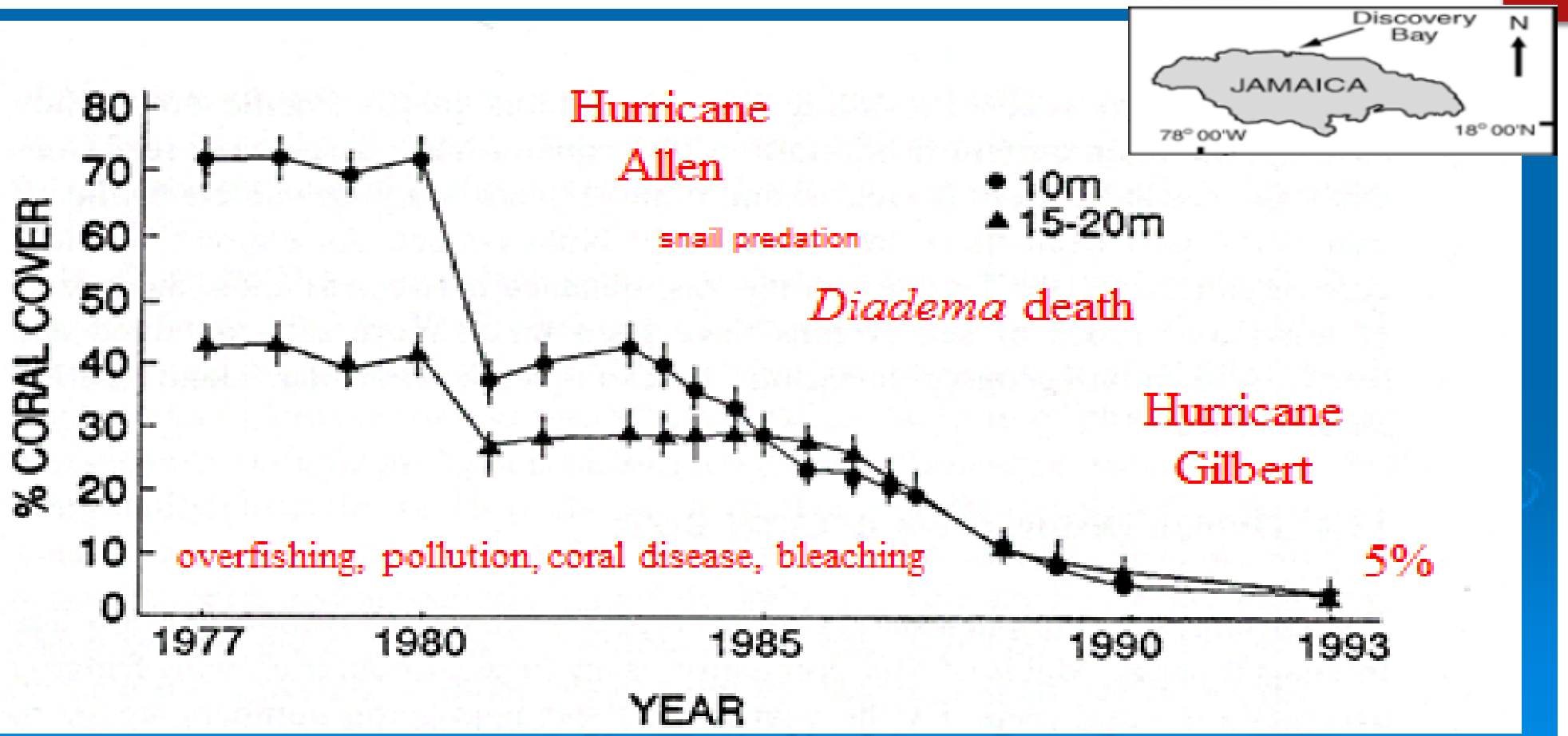
Presenter: Abigail Richards

Scientific + Local Ecological Knowledge in Coastal Monitoring

"The Importance of Connected Ocean Monitoring Knowledge Systems and Communities" by Kaiser and others (2019)

- An improvement in marine ecosystems = Knowledge and Experience from Locals (from onset) + Academic Approach
- Unique information can be obtained from locals
- Vs. a Top-Down Approach: Science First → Community After

Scientific Ecological Knowledge



These data were collected by Hughes at Pear Tree, Rio Bueno & Dbay-WFR and were published in Science 1994. The paper was very widely read and Jamaica became THE example of reef disaster.

Evaluating Discovery Bay Inshore Coastal Water Quality

- 2017: UWI-DBML + ALLOA Discovery Bay Fisher's Association

GEF Small Grants Programme

Community Surveys

Training of Fishermen

Training of Young Women

Results & Lessons Learned

- **Local Monitoring**= Sample Sites (dolphinarium, road drains, beaches)
- **Scientific & Local Monitoring:** High Coliform levels detected at Fisherman Beach
  → Replacement of a soak-away pit

- **Outcome:** 1).Improve relationship between the lab and community members
  2). Alternative Livelihood for Fishermen
  3). Alloa received a new boat engine for Patrolling
- **Lessons Learned:** Availability of volunteer varies

Replication & Scale-Up of Project

	Project Volunteer Information		
SFCAs	**Gender**	**Age @ 2022**	**Profession**
Orange Bay	Female	38	Practical Nurse
	Female	24	Student
Bogue Islands Lagoon	Male	17	Student
	Female	25	Business Officer/Student
Montego Bay Point	Female	31	Marine Biologist/ Educational Officer
	Male	21	Student
White River	Male	20	Fisherman
	Male	56	Environmental Activist/Pianist
Boscobel	Female	16	Student
	Male	47	Sanctuary Warden/Fishery Inspector
Oracabessa Bay	Male	39	Fisherman/ Fisheries Inspector
	Male	24	Life-Guard
East Portland	Male	27	Alligator Head Staff Rep.
	Female	21	Swimming Coach

water quality was assessed.

Thank you

The GEF-SGP Contribution to IWRM in Saint Lucia

small grants creating huge impact

Structure of the Presentation

- **Background/Context**
- **Overview of Saint Lucia's Water Sector**
  - Water Sector Dynamics
  - Policy and Institutional Landscape
- **Summary of Select GEF/SGP Interventions and Impacts**
- **Conclusions/Recommendations**

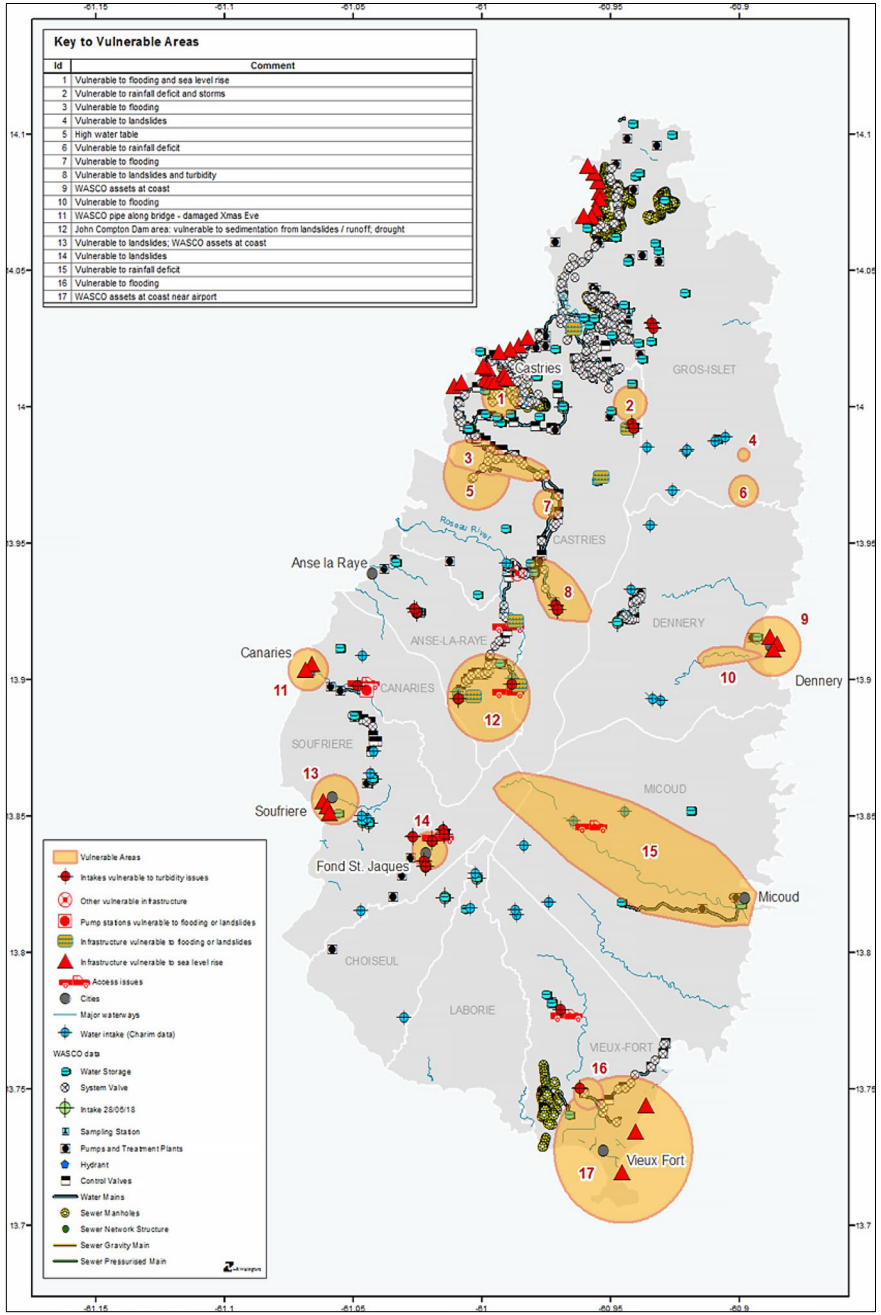
Country Setting

- **Country Location**: Eastern Caribbean.
- **Area**: 616 km2 (43km long and 22km wide).
- **Population**: 180,000 residing in area where major watersheds are located.
- **Economy**: Tourism and services based with construction, agriculture and manufacturing.
- **Spatial Characteristics**: of volcanic origin, with mountainous, rugged and steep landscape dominated by a central mountain ridge (which runs in a north-south direction) and fertile valleys. Mt. Gimie, at 959m, is the highest point.
- Watersheds encompass drainage and river systems that drain radially from the interior to the coast.
- **Climate**: classified as tropical maritime, with a wet season that typically lasts from May to November, and a dry season from December to April.
  - The average temperature is 27°C, and average rainfall is 1,295mm along the coast and 3,810mm in the interior.

Climate Vulnerability Hotspots (in yellow)

The IPCC (AR6) projects that small islands like Saint Lucia will experience:

- multiple interrelated risks at 1.5°C of global warming that will increase with warming of 2°C and higher levels (high confidence), plus
- Long-term risks of coastal flooding and impacts on populations, infrastructures, and assets (**high confidence**); freshwater stress (**medium confidence**); and risks across marine ecosystems (**high confidence**) and critical sectors (**medium confidence**) are projected to increase at 1.5°C compared to present-day levels and increase further at 2°C, limiting adaptation opportunities and increasing loss and damage (medium confidence).
- **Hence need for ridge-to reef approach to climate mitigation.**



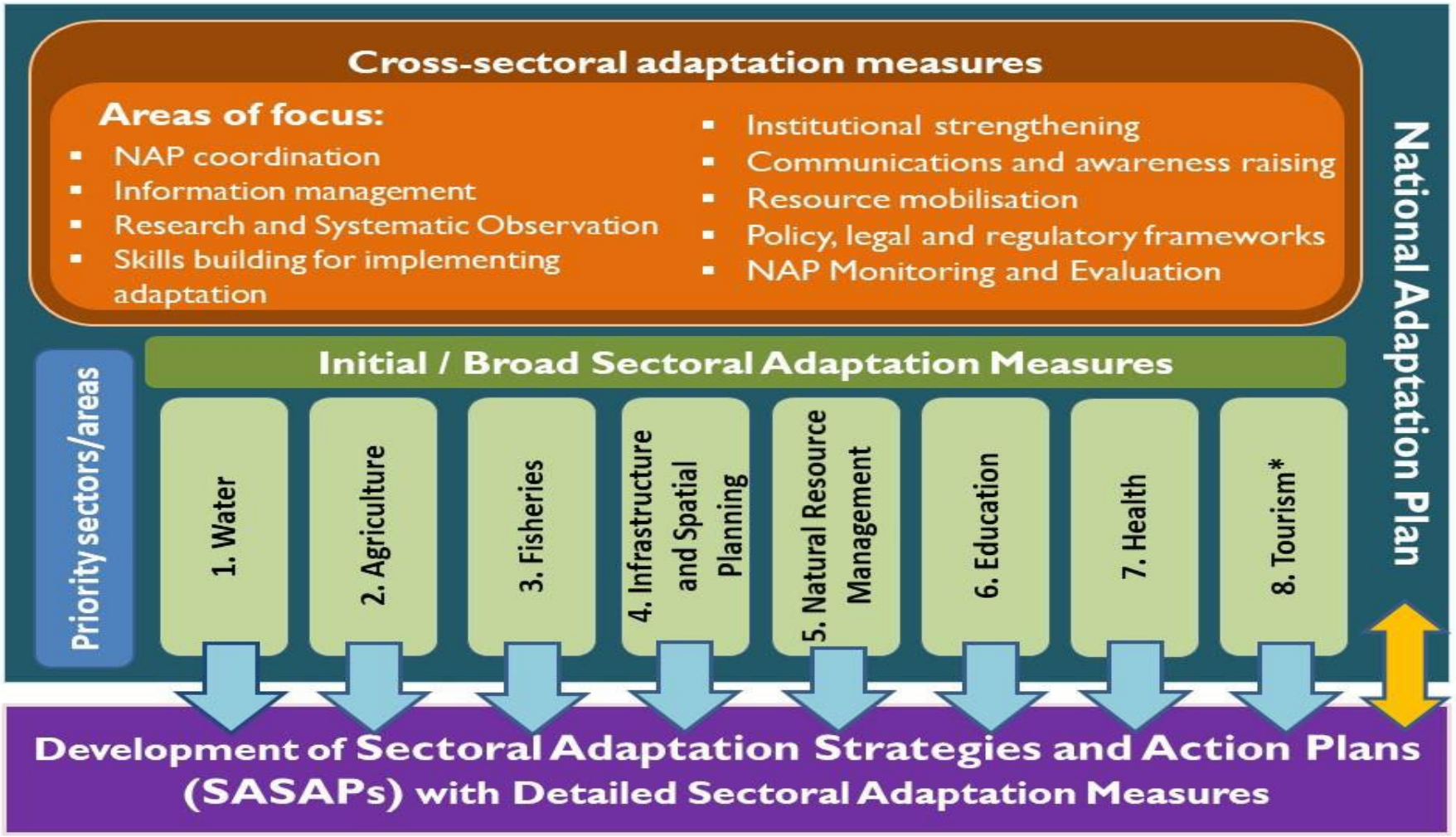
Water Sector Dynamics

- ✓ Average annual per capita availability of renewable water resources is expected to fall. With unequal distribution of water resources, marginal groups especially in the rural areas will experience water stress.
- ✓ The supply of water for health and sanitation especially in the rural areas, is inadequate.
- ✓ Indiscriminate use of forest resources and encroachment upon protected areas is severely threatening the sustainability of water resources.
- ✓ Despite recent increases in the price of water services, current prices are being heavily subsidized by Government, and thus do not reflect the true value of water, with unintended consequences such as wastage of water.
- ✓ Water users do not value water.
- ✓ Water conservation technologies are still rudimentary and incentives for innovation are weak.
- ✓ Poor land use planning and soil management, especially in and around watersheds is severely reducing freshwater capture capacity and is also affecting coastal water quality and aquatic biodiversity.
- ✓ Water resources management still mainly institutionally-based with inadequate community participation

Policy and Institutional Landscape

- ✓Medium Term Development Strategy (MTDS) 2021 – 2026 National Water Policy (2004, 2021).
- ✓Saint Lucia Climate Change Adaptation Policy (2015)
- ✓National Utilities Regulation Act (2016).
- ✓National Biodiversity Strategy and Action Plan (2000).
- ✓National Land Policy (2007).
- ✓Sectoral Adaptation Strategy and Action Plans (SASAPs) 2018 –2028
- ✓Regional Strategic Action Plan for Governance and Building Climate Resilience in the Water Sector in the Caribbean (RSAP, 2018).

NAP Sectoral Adaptation Plan (2018)



Select GEF/SGP Interventions

- The Establishment of the Fond St. Jacques Protected Landscape and Agro-Tourism Park.
- Design of a Mobile Desalination Facility
- Creating and converting a community sea moss enterprise to a sustainable community and national enterprise

Fond St Jacques Agro-Tourism Park

- **Project Grantee**: The Fond St. Jacques Development Committee (FSJDC), which has been in existence for over 28 years.
- **Thematic Focal Area**: Land Degradation and Sustainable Forest Management
- **Project Category**: Demonstration Project
- **Project Budget**: $411,417.00
- **Project site**: “Soufriere Landscape Complex” so defined because of proximity, spatial connections, high incidence of biodiversity, and the existence of a marine coastal park and a World Heritage Site. Area 38 Km2 falls within the Soufriere Watershed which is one of 37 main watersheds in Saint Lucia. Has benefitted from sustained GEF/SGP investment since 2012, through 14 projects.
- **Project Goal**: “The establishment of a fully functioning management area (protected landscape/agrotourism park) to serve as a buffer zone to protect the Central Forest Reserve and managed using co-management principles while creating sustainable livelihoods for the communities,”
- **Project Objectives**: (i) to establish and implement a capacity assessment system to inform capacity enhancements for FSJDC and participating agencies and stakeholders (ii) establish all infrastructure required to meet the sustainable objectives of the park; (iii) develop and implement a marketing and promotions plan, to sustain effective demand for the use of the site.

Fond St Jacques Agro-Tourism Park

The concept of an Agro Tourism Park is gaining currency as a product development and integrated resource management strategy that marries environmental preservation and conservation with the sustainable economic use of the resources of the watershed for eco and adventure tourism, agriculture and other related economic activities." This conceptualization does not fit the common international definition of an agro-tourism park, but it allows for the integration of the historic, cultural, present and future use of the landscape, under an attractive brand name. (Soomer, 2018)

Fond St Jacques Agro-Tourism Park

For sustainable impact in the SLC, the following four design concepts were incorporated:

1. Work in the entire watershed from ridge to reef.
2. Focus on changing the active land use from crops which causes significant erosion to a more benign land use such as nature/heritage tourism and where not possible introduce GAP and more organic based methods, with secure markets.
3. Develop the capacity of the community to manage the site and ensure that visitor expenditure stays in the community and become transformational.
4. Create a learning community by ensuring that monitoring and evaluation systems are well established and working.

Fond St Jacques Agro-Tourism Park

Project Outcomes:

- Studies were completed on Standards, monitoring and evaluation and a financial and cost benefit analysis.
- The break-even point for a fully upscaled project was known;
- The potential of using the natural and cultural assets as part of a sustainable livelihood project was proven;
- Standards required to maintain environmental quality and visitor experience were known; and
- The capacity strengths and weaknesses of the grantee were known, and therefore could be planned for, and addressed.
- 40 farmers trained in organic farming principles, customer service, tour guiding; security, and management of Bed & B accommodation; nature trails completed;
- 5 persons were employed earning approximately US$13,000;

Fond St Jacques Agro-Tourism Park

Cabinet Conclusion No. 118 of 2023 dated February 20, 2023, authorized the signing of an MOU between the Fond St. Jacques Development Committee and the Government of Saint Lucia (Forestry Division) giving the NGO the planning and management authority for the development and management of the first Agro-Tourism Park in Saint Lucia.

Trail Management activity

Provision of a Mobile Desalination Facility

- Project Grantee: Laborie Development Committee
- Thematic Focal Area:
- Project Category: Research and Innovation Project
- Project Budget: $46,727.00 (FG)
- Project site: Laborie, Saint Lucia
- Project Goal: To provide a ready, reliable and potable source of water for the target community in times of crisis
- Project Objectives: to explore the feasibility of establishing the first mobile desalination plant in Saint Lucia for the community of Laborie,

Provision of a Mobile Desalination Facility

Project Results:

First mobile, solar-powered desalination plant, with zero brine effluent, and a daily production capacity of approximately 1514 litres per day created.

PLANT EXPORTED TO NAURU (PIC)

Water output confirmed by Caribbean Regional Public Health Agency as safe for drinking.

4 persons were employed in accounting and construction;

Three men trained in proposal writing and fabrication of a mobile, solar driven desalination plant.

Increased earnings for members of the community.

Enhanced resilience of community to climate change confirmed through VRA

Option for upscaling with Japanese funding to increase production to 3,785 litres per day.

Creating and converting a community sea moss enterprise to a sustainable national enterprise

- Project Grantee: Praslin Sea moss Farmers
- Thematic Focal Area:
- Project Category: Demonstration Project
- Project Budget: $174,871 (FG)
- Project site: Praslin Bay, Saint Lucia
- Project Goal: Build the capacity of seamoss farmers to sustainably manage the coastal zone while sustaining their livelihoods.
- Project Outcomes: (i) Reduced carbon footprint through the establishment of a solarized sea moss processing plant; (ii) Improved informal management of the Praslin Bay and its zoning for sea moss cultivators.
- **SGP investment was transformational resulting in "Seamoss replacing Bananas as "green gold,' the President of the Praslin Seamoss Farmers Association has calculated an increase of over 500% in income and economic activities since SGP invested in the Community**.

Conclusions and Recommendations

- GEF/SGP is the ideal vehicle for promoting collaborative and integrated water resources management in SIDS.
- A Ridge-to-Reef approach should be fully endorsed by the GEF as best suited to the size and spatial characteristics of SIDS.
- Enhancing and sustaining the livelihoods of communities is integral to promoting collaborative management of water resources.
- GEF/SGP policy and operational guidelines must recognize the inherent challenges of working with low capacity, high-interest communities.
- A specific focus on the land, water, energy nexus in IWRM is needed in the context of SIDS
- Indigenous research and innovation should be encouraged.

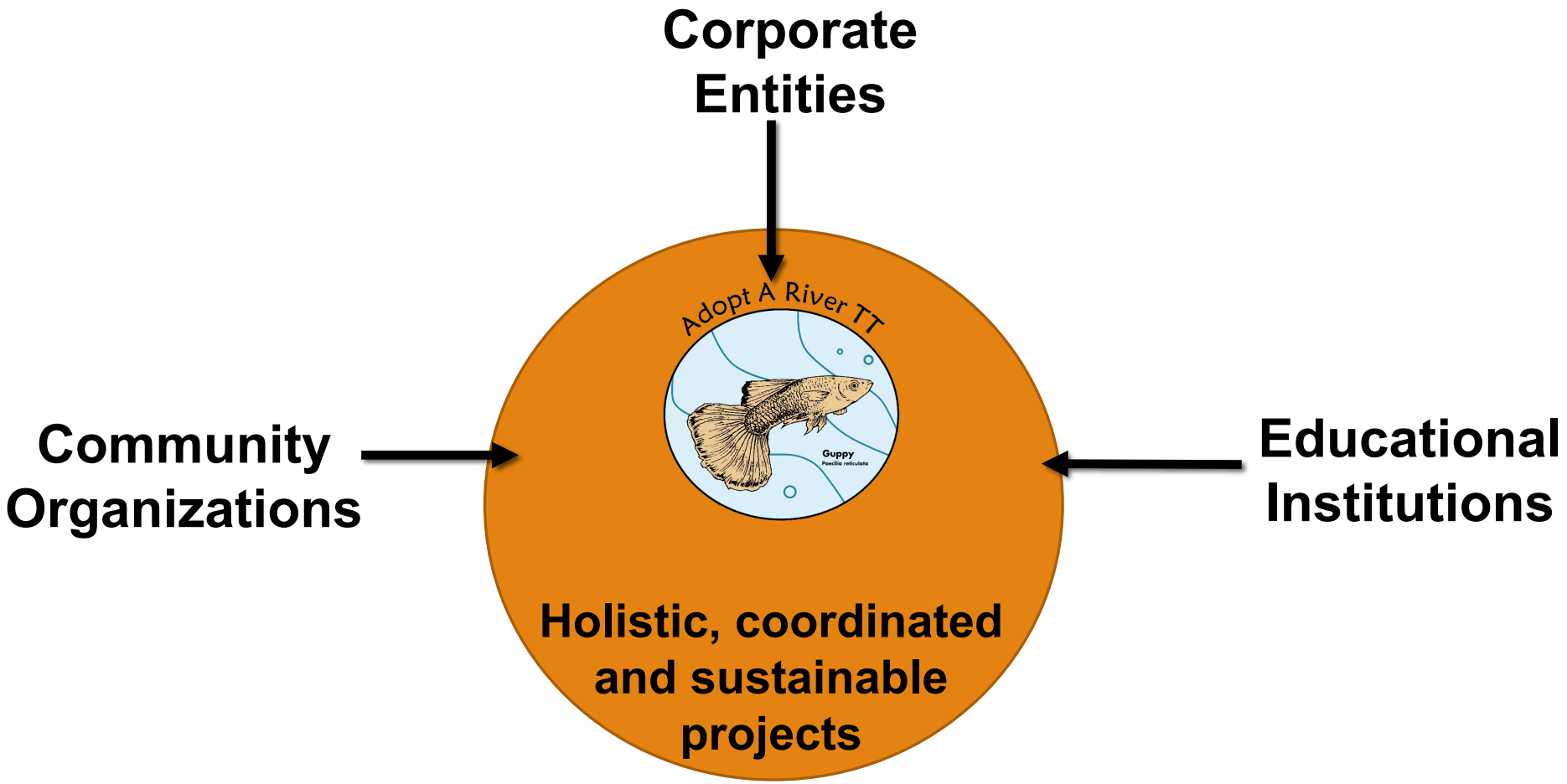
Thank you!

GEF SGP

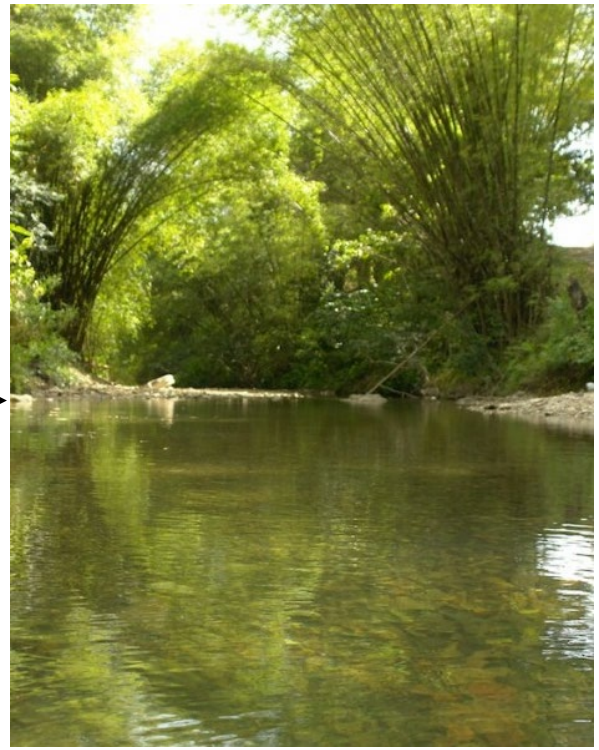
SUPPORTING LOCAL ACTION IN WATER MANAGEMENT IN TRINIDAD AND TOBAGO

SHARDA MAHABIR AND KHADIJA MCKAY

What is the Adopt A River Programme?



Why is it important?



Our watersheds…our responsibility…our future

Why is it important?

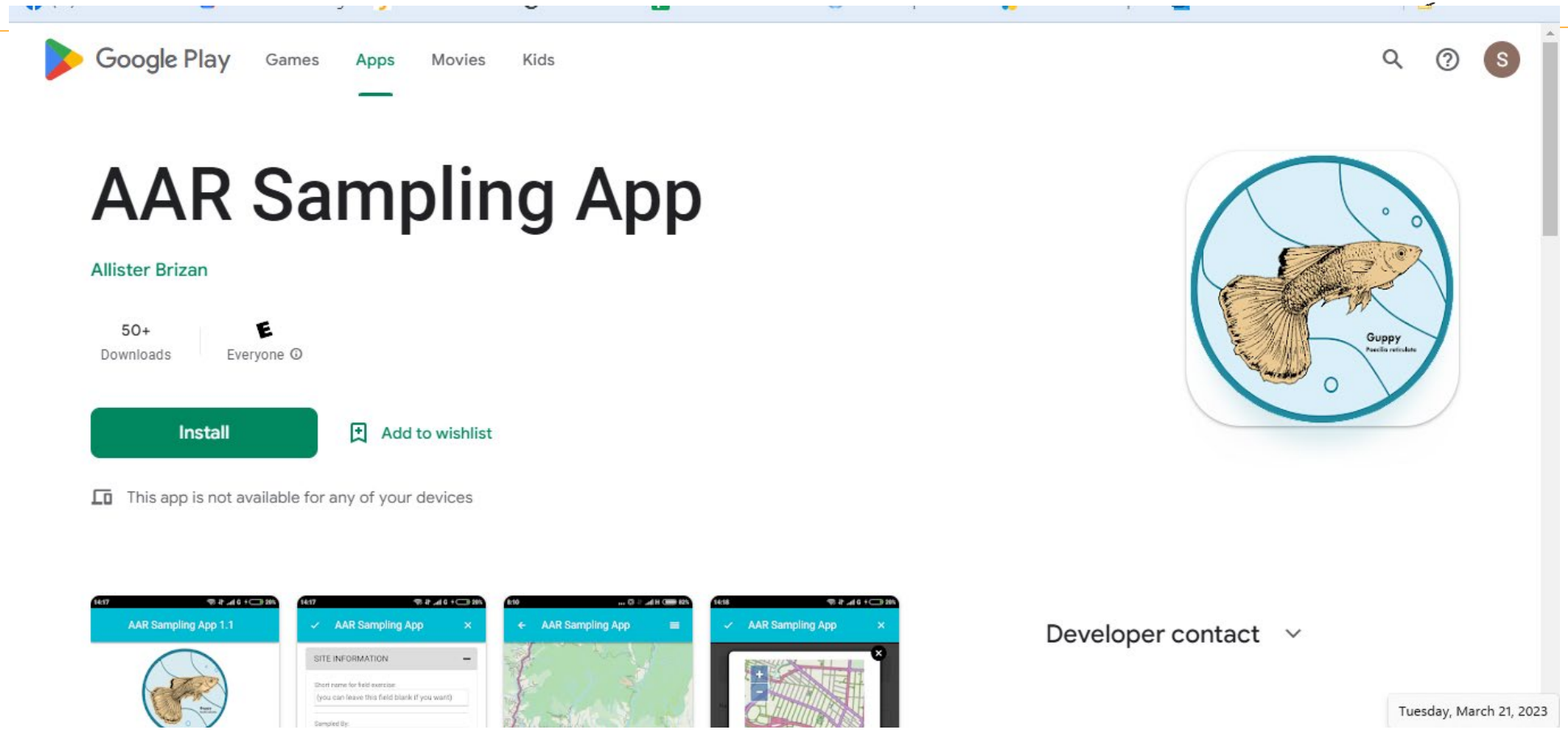
60% of water supply comes from rivers

63% of rivers are polluted

1. Water Quality Monitoring & Training
2. Public Education and Awareness
3. Integrated Water Resources Management

Water quality monitoring and training

Citizen Science



Public Education & Awareness

Integrated water resources management

Past GEF SGP AARP projects

- From the period 2016-2022, GEF SGP supported 5 community organization
- GEF SGP supported the AARP in the following ways:
  - Facilitated partnerships between grantees and the AARP;
  - Provided guidance on project development;
  - Co-financing to increase the community reach of the AARP's citizen science programme and its app.

LEARN AND FLOW:
THE ARIMA AND COURLAND WATER STORY

Water Warriors School Caravan

TUESDAY 25TH OCTOBER, 2016
9am - 11am - Arima Hindu Primary School
1pm - 3pm - Arima Girls' Government Primary School

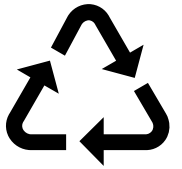
Contact cyen.tt.chapter@gmail.com for info.

Past GEF SGP AARP projects

Overall, the partnership of GEF SGP AARP resulted in:

8,561 persons benefitted from public education and awareness

3,454 persons trained in water quality testing and recycling

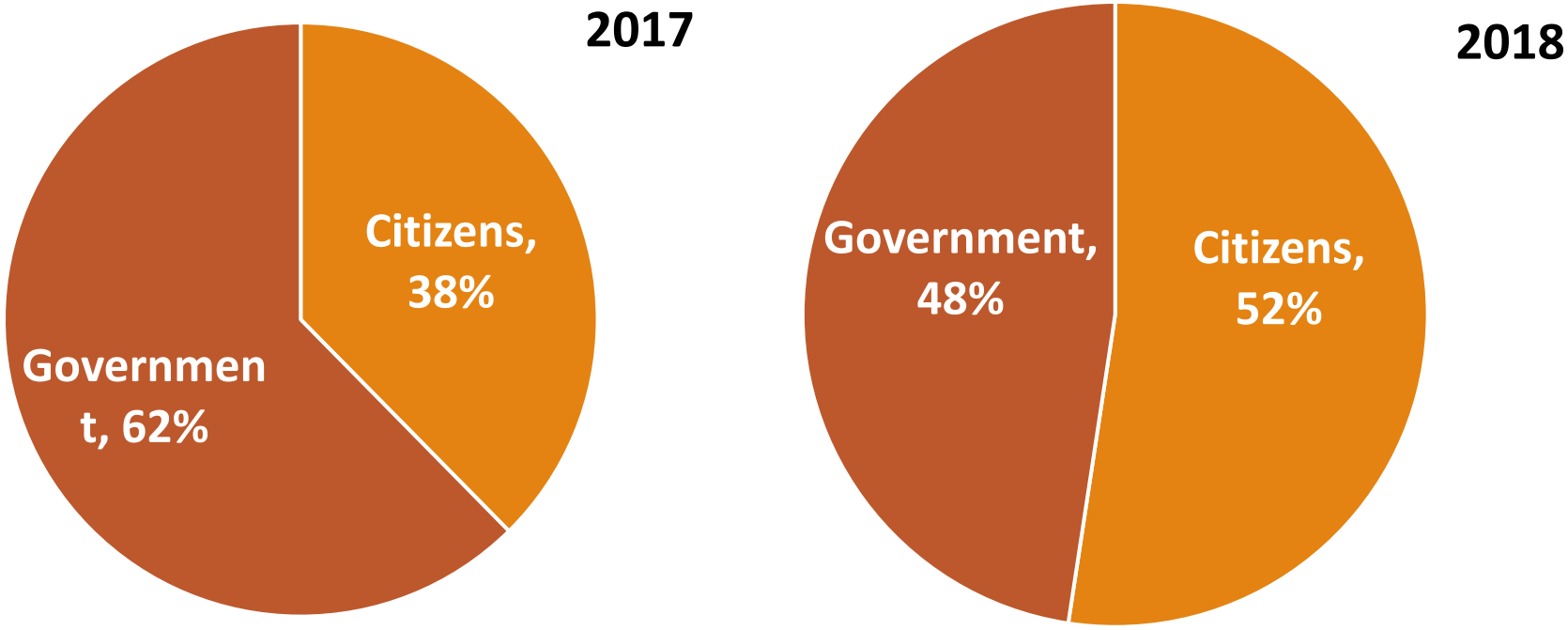


53.3 tonnes of plastics and organics diverted from landfills and rivers

Distribution of eco-friendly alternatives such as reusable bottles and bags

Substitution of over **50,000** plastic bags and bottles

Who is responsible for rivers?



Continued partnerships

The partnerships between NGOs-GEF SGP-AARP-Private Sector is extremely important as well for the realization of SDGs, especially:

Future GEF SGP AARP projects

Going forward, GEF SGP and AARP will be supporting:

1. Collection of Plastics in Rivers

2. Installation of Rainwater Harvesters

Thank you!


Learn
'n
Flow
BE A
WATER
WARRIOR
Caribbean Youth Environment Network
Trinidad and Tobago Chapter
CYEN-TT

WEST INDIES SAIL HERITAGE FOUNDATION

Ocean Love NO Plastic NO Waste Program

14 September 2023

SGP The GEF Small Grants Programme

UN - March 2023 v01

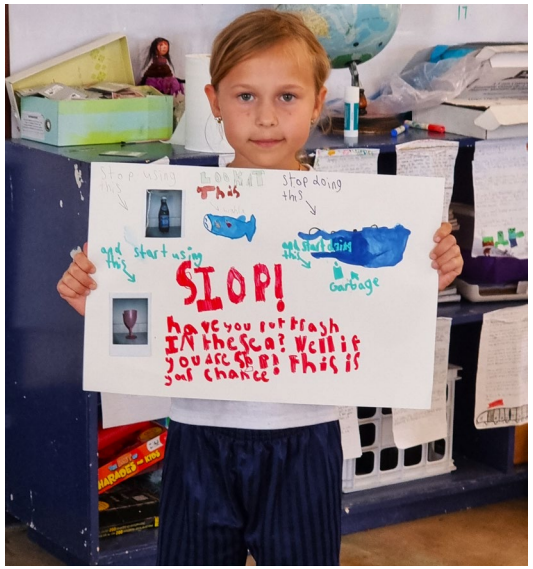
1. Who is the West Indies Sail Heritage Foundation Inc?

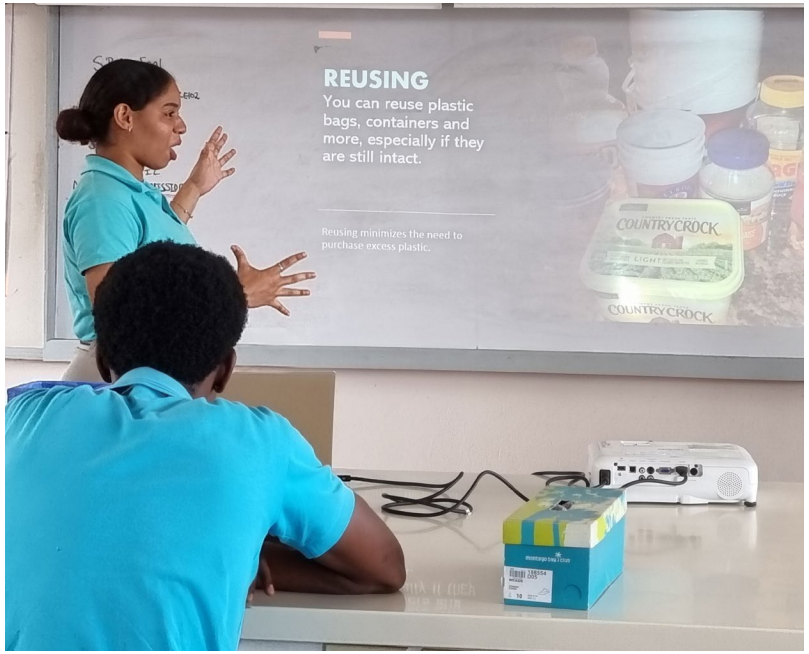
- The WISH Foundation, a registered non-profit in Antigua and was incorporated in April 2019.
- The founders are Billy Gernertt and Charlotte Hooijdonk.
- We provide sail training and encourage Antiguan youth on a path to maritime careers.
- We are instilling lifelong respect for the environment and a sense of stewardship for the ocean.
- With the support of the SGP GEF Small Grants Programme and in partnership with Antigua Barbuda Waste Recycling Corporation (ABWREC) we started the

  Ocean Love NO Plastic NO Waste program.

2. Ocean Love NO Plastic NO Waste program

1. **Guest lecture**: learn about plastic and how to protect the ocean from plastic pollution. Students give presentations about the 4 R's. Collection of bottlecaps starts.
2. **Ocean Love Beach Clean:** collect plastic from the beach and discuss how we can solve this.
3. **No Plastic NO Waste workshop**: Students join the plastic up-cycling workshop and make new valuable products from plastic waste.
4. **Ocean Lovers Pledge**: Students take the Ocean Lovers Pledge and promise to REFUSE, REDUCE, REUSE and RECYCLE plastic.
5. **Ocean Love Sailing Days:** we offer a sailing day, do sea water sampling, and discover what lives in the ocean.





WEST INDIES SAIL HERITAGE FOUNDATION

3. NO Plastic NO Waste workshop

- Reuse plastic waste and create new products. Design and produce products from recycled plastic.
- Students learn how to make new products from plastic waste. All the machines are small scale, safe and certified for students.
- At the end of the workshop, students take home their own plastic upcycled products.

4. Ocean Love Sailing Day

- Ocean Love Sailing Days aboard the Carriacou Sloop New Moon.
- Experience the thrill of sailing,
- Sea water sampling for microplastics
- Learn about the effect of plastic pollution in the ocean.

WEST INDIES SAIL HERITAGE FOUNDATION

5. The Plastic upcycle machines with support of SGP GEF Small Grants Programme

Plastic Preneur developed and produced the plastic upcycle machines. The machines are produced in Austria, fulfil international safety and machinery standards and are CE-certified. They can be set up and operated without extensive training and used without any expanded infrastructure. We just need 220V. Machines are designed for educational purposes.

The Motor Powered **Granulator** is able to shred about 25 to 30 kg plastic waste per hour into fine granules. The knives can be adjusted to different types of plastics.

The shredded granules are then put into the **Injection Machine** and are heated. With the right temperature and time they are then injected into the moulds. Production is 80 small flowerpots per day.

The granules can also be heated in the **Extruder**. The Extruder can be used for production of larger products such as big flowerpots and beams. Production is 8 big flowerpots per day.

West Indies Sail Heritage Foundation upcycle workshop space In Falmouth Harbour, Antigua and Barbuda.

6. Turning plastic waste into valuable *products*

- We sell up-cycled products to help fund the West Indies Sail Heritage Foundation's sail training program and environmental awareness campaigns.
- All products are made from waste bottle caps.
- In 2023 we will start with the development of outdoor furniture made from plastic waste.

www.caribwish.com

- **We** have chosen to concentrate on the young generation, these are the leaders, voters and environmentalists of the future.
- **We** educate young Antiguans and build environmental awareness in the community.
- **We** believe in action by doing.

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www.facebook.com/caribwishfoundation
www.instagram.com/caribwishfoundation

Thank you!

Billy Gernertt

Founder

Billy Gernertt is the Founder and Vice-President of West Indies Sail Heritage Foundation in Antigua and Barbuda. Billy is a former Automotive Technician and has almost 20 years' experience as a professional mariner and is a lifelong environmentalist. He has worked with at risk youth in Boy Scouts, Tall Ships, and on traditional sailing vessels. He understands that the change of tomorrow begins with the youth of today. Billy studied Transportation Technologies in Albuquerque and holds AEC as well as several advanced marine engineering certifications from the UKSA on the Isle of Wight in the UK.