



**WINDWARD
ISLANDS**

RESEARCH

**& EDUCATION
FOUNDATION**



2024 Annual Report



30th Anniversary

Front cover photo:

Some members of the WINDREF 2024 team on the monument in front of the WINDREF Research Institute.



Mission Statement

WINDREF seeks to advance health and sustainable environmental development through multi-disciplinary research and education programs. WINDREF strives for program excellence by promoting collaborative relationships between internationally recognized scholars and regional scientists, and by adhering to the highest ethical and academic standards in the design and conduct of research.

Goals

- To provide a scientific resource centre capable of coordinating international collaborative research of the highest caliber in the areas of medicine, medical and veterinary public health, environmental health, anthropology, sociology, ecology, marine and terrestrial biology, and ethics.
- To provide a first rate academic opportunity to scientists from the Caribbean and around the world through unique research opportunities that enhances the knowledge and welfare of local and international communities.
- To conduct applied scientific research for the benefit of community and health development at the local, national and international levels.
- To share relevant scientific information with local and international communities in the pursuit of evidence-based policies.

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Director's Report on WINDREF Activities in 2024

2024 was Grenada's 50th Anniversary of Independence and to mark this historic occasion St. George's University and WINDREF participated in a number of celebration events including a concluding conference which was sponsored by the University of the West Indies and the Government of Grenada entitled "Grenada 50-50 Independence Commemorative Academic Conference". Dr. Macpherson presented the opening paper to the conference entitled "Quo vadis: WINDREF's 30 Years of Service" as 2024 also marked WINDREF's 30th anniversary. 2024 proved to be one of the most successful years in our research and education program history. Record funding received at the end of 2023 witnessed the development of four new programs which complemented the 11 existing programs, and during the year three of these programs were successfully completed. In 2024 WINDREF collaborated with over 20 institutions, employing over 100 individuals and contractors who conducted their research and education programs in more than a dozen countries in the region, from Suriname to Jamaica, and internationally from the USA, the UK and Kenya. WINDREF's programs continued to focus on ways to adapt or mitigate the impacts of climate change.

At the annual WINDREF board meeting held on December 30th Mr. Patrick Orr stepped down from the WINDREF (UK) Board of Trustees having served with great distinction as the UK's treasurer and helped with the organization of more than half a dozen WINDREF functions held at the House of Lords in London. Patrick joined the WINDREF board as a founding member when WINDREF

(UK) was established at a ceremony held at the Royal Society of Medicine in 1999. We take this opportunity to thank Patrick for all the tireless work he put into the foundation during his quarter of century of service. Patrick is succeeded by Mr. Peter Cunningham who we welcome as the WINDREF UK treasurer and member of the Board of Trustees. We also welcomed Mr. Marlon Glean, BSc, LLB (Hons), the current president of the Grenada Football Association as a new member to the WINDREF, Grenada and USA Board of Directors. Marlon brings a wealth of experience in the field of sports, which is one of WINDREF's longest continuously running programs, which was launched at the House of Lords in 2010. We take this opportunity to congratulate Dr. Kirani James, CBE, LLD (Hon) who was awarded an Honorary Doctor of Laws by the University of the West Indies in 2024. We also congratulate Kirani on his outstanding performance at the summer Olympics in Paris this year.



Mr. Marlon Glean, BSc, LLB (Hons)



Dr. Kirani James, CBE, LLD (Hon)



Dr Kirani James after the WINDREF board meeting held online and in the WINDREF research institute on December 30th, 2024 together with Dr's Trevor Noel, Maxine Macpherson and Calum Macpherson.

During the year five new projects were initiated VIZ: "Safeguarding Telescope's Coastline, using a Living Shoreline Approach" funded by The Caribbean Biodiversity Fund; "Sample-to-Answer, Rapid, Multiplexed and PCR-Free Diagnostics of Arboviral Diseases in Resource Limited Settings" we received a sub-grantee of an NIH grant provided to the University of California, Santa Cruz; "Assessing Excessive Heat Vulnerability in Caribbean Countries"

funded through the University Corporation for Atmospheric Research who received a grant from the National Oceanic and Atmospheric Administration; "Conscious Discipline Grenada" funded by The Becky Bailey Foundation; "Safety at Sea in St. Vincent" funded by the World Bank.

WINDREF's projects in 2024 generated a number of international conference presentations, peer reviewed publications, and virtual contributions to a number of international webinars on a range of topics. These outcomes are listed in this report.

The Keith B. Taylor Memorial Lecture for 2024 was presented by Professor Jacqueline McGlade, PhD. Professor McGlade is a lecturer at the Strathmore Institute for Public Policy and Governance (SIPPG) at Strathmore University Business School. Since 2000, Prof. McGlade has been a Professor in the Institute for Global Prosperity and Engineering at University College London, UK, and is the current Frank Jackson Gresham Professor of the Environment (2018). Between 2013-2017, she worked as the UN Environment's Chief Scientist, Director of Science and Chief Statistician, spearheading the 2030 Agenda on Sustainable Development Indicator Development. Her lecture which was presented at the SGU research day on November 2nd 2024 was entitled "Natural Prosperity: Understanding the true value of nature's contribution to people". Prof. McGlade was also the recipient of the 2023 Mike Fisher Memorial Award.

In 2024, Dr. Lindonne Telesford was appointed as a Research Fellow and Dominique Assing, Kiera McPherson, Kendon James and Carol Forbes were appointed as Research Scientists.



Dr. Lindonne Telesford
Research Fellow



Carol Forbes



Dominique Assing



Kiera McPherson



Kendon James

On behalf of the members of the Grenada, United Kingdom, and United States Boards of Trustees and Directors, I would like to thank our collaborators and donors for making 2023 a very successful year for WINDREF. We thank all of our donors for supporting the work of WINDREF over the past year, and look forward to another successful year in 2024, which will be WINDREF's 30th Anniversary.

A handwritten signature in black ink that reads "Calum N.L. Macpherson".

Calum N.L. Macpherson
Director, WINDREF

WINDREF Organization

Board of Directors

- Baroness Howells of St. David's, OBE (Emeritus President)
- Calum N. L. Macpherson, PhD, DIC, FRSPH (Vice President & Director)
- Trevor P. Noël, MPH, PhD, FRSPH (Deputy Director)
- Margaret Lambert, MA, (Secretary/Treasurer)
- Karen Lawson, PhD
- Ellen Ratner, MEd, LLD
- Joseph Feldman, MD
- Esperance Schaefer, MD, MPH
- Kirani James, BSc, CBE
- George McGuire, MSc

Board of Trustees (United Kingdom)

- Baroness Howells of St. David, OBE , Emeritus President
- Lord Stevens of Kirkwhelpington, KStJ, QPM, DL, FRSA,
- Lord Trees of The Ross, DVM, PhD
- Neil Poulter, MD
- Patrick Orr
- Margaret Lambert, MA (Ex Officio)
- Calum Macpherson, PhD, DIC, FRSPH (Ex Officio)

Scientific Advisory Board

- John R. David, MD
- Malcolm A. Ferguson-Smith, MBChB, FRCP, FRCPath
- Calum Macpherson, PhD, DIC
- Anselm Hennis, MBBS, PhD, FRCP, FACP
- Ian McConnell, BVMS, FRSE, F. Med. Sci.
- Hugh Montgomery, MD
- Baron Peter Piot, MD, PhD, CMG, FRCP
- Neil Poulter, MD, PhD
- Melinda S. Sothorn, PhD, CEP
- Richard Scribner, MD, MPH
- Lord Trees of The Ross, DVM, PhD

- Joy St. John, BSc, MBBS, MPH
- Thomas Meade, CBE, DM, FRCP, FRS
- Graham Serjeant, MD, FRCP, CMG
- John Ferguson, MBChB, FRCGP

Administration—Grenada

- Mr. Kareem Coomansingh, Grants Coordinator
- Ms. Isha English, Assistant Administrator
- Mrs. Nakita Francis, Grants and Finance Officer
- Mrs. Naomi Whyte, Executive Secretary
- Mrs. Yvette Simon, Secretary
- Mrs. Leslie-Ann Seon, Legal Support
- Ms. Carol Forbes, Project Manager, Innovative Nature-based Solutions to Enhance Community Resilience
- Mrs. Ramona Otway, Accountant
- Mr. Michael Cahill, Legal Support, USA
- Ms. Roberta Evans, Zika and Neurodevelopment Project Manager
- Mrs. Stephanie Holmes, Saving Brains Project Manager
- Mrs. Elsa Chitan, Co-Project Manager, Laboratory
- Ms. Markeda Fletcher, Co-Project Manager

Administration—United States

WINDREF (USA) was established as a 501(c)3 non-profit organization to facilitate coordination of the USA activities and to administer charitable donations from the United States and worldwide. Its goal is to enhance the development of WINDREF's research and educational programs. The office is located in New York and is administered by Ms. Margaret Lambert, Secretary/Treasurer of WINDREF. Mr. Michael Cahill provides legal support.

Administration—United Kingdom

WINDREF (UK) was set-up as a charitable trust in Winchester, England in 1999 to promote collaboration between WINDREF scientists and academic centers of research in the United Kingdom and the European community. A Board of Trustees was appointed in 1999 to oversee the activities of WINDREF (UK). The office is located in London. Mr. Patrick Orr serves as the WINDREF (UK) accountant, along with Mr. Stan Lee serves as the treasurer, provide oversight of the financial operation and charitable status of WINDREF (UK).

Senior Research Fellows

- Hugh W. Ferguson, BVM&S, PhD, Dipl. ACVP, MRCVS, FRCP
- Paul Fields, PhD
- Paul Garner, MBBS, MD
- Mary Glenn, PhD
- Duane Gubler, ScD
- Stephen Morse, PhD
- Leslie Ramsammy, PhD, DSc (Hon)
- Douglas Slater, MD, MPH
- Stanley Weiss, MD
- Melinda Southern, PhD
- Richard Schribner, MD, PhD
- Cheryl Cox-Macpherson, PhD
- Marios Loukas, MD, PhD
- A. Desiree LaBeaud, MD, MSc
- Timothy Endy, MD, MPH
- Roger Radix, MD, MPH, MIB, FRSPH
- Jonathan Ashcroft, MD, MSc
- Anselm Hennis, MBBS, PhD, FRCP, FACP
- Neil Poulter, MD, PhD

Research Fellows

- John Adamski, MD, MSc, MPH
- Muge Akpinar-Elci, MD, MPH
- Glennis Andall, PhD
- Charles Avgeris, MD, MSc
- Satesh Bidaisee, DVM, MSPH, MSB, FRSPH, EdD

- Grant Burgess, PhD
- Reccia Charles, PhD
- Sonia Chehil, MD, FRCPC
- Andrea Easter-Pilcher, PhD
- Martin Forde, ScD
- Mark Gibson, MA
- Richard Kabuusu, DVM, MPH
- Victoria Kimotho, MPH
- Barbara Landon, PsyD
- Clare Morrall, PhD
- Shamdeo Persaud, MD, MPH
- Christine Richards, PhD, MPH
- Bonnie Rusk, MSc
- Karen Schioler, PhD
- Shanti Singh, MD, MPH
- Kamilah Thomas-Purcell, PhD, MPH
- Randall Waechter, BBA, PhD
- Trevor Noël, PhD, MPH
- Laura Colket, PhD
- Tracy Penny-Light, PhD
- Carlene Radix, MD, MPH
- Vishaka Vasuki, BVSC, MSc
- Michelle Fernandes, MRCPCH, DPhil
- Karen Blackmon, PhD
- Lindonne Telesford, PhD, MPH
- Allana Roach, PhD
- Maxine Macpherson, DVM, MSc, MRCVS
- Stephan Bandelow, DPhil
- Steve Nimrod, PhD
- Paul Pounder, PhD

Research Scientists

Sadiq Al-Tamini, Sumita Asthana, Yitzhack Asulin, Bishara Baddour, Jean-Pierre Barakat, Matthew Beeson, Matthew Boles, William Brown, Ella Cameron, Nicholas Caputo, Rae Connolly, Abraham El-gross, Sedfy, Daniel Firer, Kristy Fisher, Scott Forman, Brandon Francis, Vamsi Guntur, François Hallé, Anthony Junck, Megan Kaminskyj, Sebastian Kreitzschitz, Erik Lacy, Ede Tyrell, Richard Lehman, Jason Lowther, Setshidi Makwinja, Paul Mancuso, Baher Maximos, John McCormack,

David Melamed, Kirk Minkus, Jerry Mitchell, “Caribbean Health Research Needs”
Jessica Morlok, Kevin Neill, Bayela Nfila, 2001: Professor Adedokumbo Lucas, MD,
Yolanda Ng, Michael Nillas, Andre Panagos, DPH, DSc (Hon)- “International Collaboration
Barry Politi, Sandeep Pulim, Sean Ramsammy, for Health Research”
Justin Rebo, Laura Robinson, Corey Schwartz, 2002: Lord Walton of Detchant, MBBS, MD,
Sarah Scott, Christopher Skaff, Nadia Solo- DSc, MA (Oxon), FRCP- “A Doctor in the
mon, David Steinberg, Derrick Tlhoiwe, Sarah House”
Treter, Nghia Truong, James Tsai, Dan Twyan, 2003: Professor David Molyneux, MA, PhD,
Frank Van Natta, Ru-Amir Walker, Juliette Wil- DSc, FIBiol- “Success and Failure in Parasitic
liams, David Winokur, Colleen Wunderlich, Disease Control: Lessons Learnt?”
Elliot Yung, Regan Schwartz, Katherine Brig- 2004: Lord Soulsby of Swaffham of Prior,
man, Mmakgomo Coangae, Felicity MRCVS, DVSM, MA, C.Biol., F.I. Biol., DSc
Lillingston, Keith Bensen, Sadik Uddin, Rakesh (Hon)- “Zoonoses, Old and New. . . the Price
Patel, Mathew Browne, Jessica Clayton, John of Freedom is Eternal Vigilance”
Hollerman, Alan Rhoades, Nikita Cudjoe, Ka- 2005: Mary-Jeanne Kreek, MD- “Drug Abuse
ren Brennan, Stephanie Holmes, Roberta Ev- and Addictions: Some Scientific Approaches
ans, Victor Ashby, Jeffon Telesford, Karla to a Global Health Problem”
Farmer, Molly Ziegler, Christopher Gibson, 2006: Eric Ottesen, MD- “Understanding the
Shanice McKain, Elsa Chitan, Nandy Noel, Science, Attacking the Problem: Lymphatic
Bhumika Sharma, Vanessa Matthew-Belmar, Filariasis and Beyond”
David Bhilhar, Elizabeth Thomas. 2007: John Rouben David, MD-
“Leishmaniasis: A novel approach to control
visceral leishmaniasis and another to treat
cutaneous leishmaniasis”
2008: Professor Sir Andrew Haines, MBBS MD
FRCGP FFPHM FRCP FMedSci- “Climate
Change, Energy Use and Health in the 21st
Century”
2009: Yvette Sheline, MD- “Brain Imaging:
New Insights into Neuropsychiatric Disorders”
2010: Valentin Fuster, MD, PhD- “The world-
wide challenge of cardiovascular disease”
2012: Baron Peter Piot, MD- “Global health in
a changing world”
2013: Robert Gallo, MD- “Viruses and EpiEpi-
demics: Our attempts to control them with an
emphasis on HIV and AIDS”
2014: John Strasswimmer, MD, PhD- “Dr Al-
bert Schweitzer, his life, legacy and the fu-
ture: A celebration of his centenary”
2014: Desiree LaBeaud, MD, MS-
“Chikungunya and Dengue in Grenada and
the Americas: What are we in for?”

WINDREF Lectures

Research Lecture Series:

1994: Stephen Morse- “Emerging and Re-
emerging Viruses”
1995: Stanley Weiss- “The HIV Pandemic”
1996: Duane Gubler- “Dengue: A global prob-
lem of increasing importance”
1997: Graham Sergeant- “Sickle Cell Disease”
1997: David C Clyde- “Health and Disease in
Grenada: A historical perspective”
1998: Leslie Ramsammy- “Tackling our Agri-
cultural and Medical Problems through One
Health One Medicine Approach”
1998: Robert Redfield- “The Epidemiology of
HIV/Aids”
1999: MS Swaminathan- “The Green Revolu-
tion”

WINDREF Lecture Series:

2000: Sir Kenneth Stuart, MD, DSc (Hon)-

2015: Ruth Macklin, PhD- "Ethical Challenges in Confronting Disasters: Some Lessons Learned"

2016: Ian McConnell, BVMS, PhD, MA, FRSE- "One Health: Lessons from the Past, and Future Opportunities"

2017: Kenneth R. Bridges, MD- "Rise of Sickle Cell Disease and Novel Approaches to its Treatment"

2018: Timothy Endy, MD, MPH- "Understanding Dengue Pathogenesis and Essential Areas for Research"

2019: Timothy Endy, MD, MPH- "Overview of Dengue disease research at SUNY Upstate Medical University and prospective primary dengue study with St George's University/ WINDREF"

2022: Prof. Paul Garner, Scandals in Global Public Health

2023: Prof. Gareth Williams, Edward Jenner: a man who changed the face of the world

2023: Dr. Peter Hotez, Global Vaccines and Vaccinations: The Science vs The Antiscience

Mike Fisher Memorial Award Recipients

Mike Fisher graduated from King's College, London with a PhD in chemistry/ pharmacology. He joined Merck in 1957 and worked with them as vice president of research and headed a lab of 60 research scientists until 2004.

It was his scientific intellect and observational scholarship which led to perhaps his most profound discovery: that of the fungus, *Streptomyces avermillois* from which the drug ivermectin was derived. In the 1970's his lab was receiving thousands of soil and plant samples from all over the world which he was screening for their effects on a number of organisms. One sample sent to Mike Fisher from Dr. Satoshi Omura from a golf course bunker in Japan, contained *S. avermillois* which was lethal to Mike's lab mice and when others may

have discarded the compound Mike persevered and tested ever more minute doses of the substance. He thus discovered a new powerful drug which was discovered to be effective against roundworm parasites. Mike received the Thomas Edison award for creative discovery and the veterinary and medical world received a compound that revolutionized the treatment and cure of a myriad of infectious diseases. Today as a result of the discovery of ivermectin over 35 million people no longer live under the threat of inevitably going blind from onchocerciasis (river blindness), millions more have been spared the gross disfigurement from lymphatic filariasis (elephantiasis and hydrocoele) and dogs and cats (heartworm), pigs, cattle, sheep, goats and horses live a healthier life because of ivermectin. Mike passed away at his Bel Air plantation home in Grenada on 20th April 2005. So many people and animals have benefited from Mike's work. In 2015, the Nobel Prize for Physiology or Medicine was awarded jointly to Drs. William C. Campbell and Satoshi Omura for their role in the discovery of ivermectin.

The Mike Fisher Memorial Award Recipients

2006 – Lord Lawson Soulsby

2007 – Dr. Keith B. Taylor

2008 – Lord May of Oxford

2009 – Dr. John David

2010 – Lord John Walton

2011 – Prof Ade Lucas

2012 – Dr. Donald Hopkins

2013 – Prof R.C. Andrew Thompson

2014 – Prof Alan Fenwick

2016 – Sir Gordon Conway

2017 – Dr. Charles R. Modica

2018 – Prof Sarah Cleaveland

2019 – Prof Janet Hemingway

2020— Prof. Robin B. Gasser

2021—Prof Richard Horton
2022—Dr. Peter Hotez
2023—Prof. Jacqueline McGlade

Current Research Projects

New Beginnings for Telescope Community

In 2024, WINDREF entered into a new agreement with the Caribbean Biodiversity Fund (CBF), partnering with The Nature Conservancy (TNC) to launch an innovative project titled *Safeguarding Telescope’s Coastline Using a Living Shoreline Approach* (short name: *Telescope’s Living Shoreline – TLS*). This initiative aims to address urgent climate-related challenges that threaten the community of Telescope and its coastline.

Background and Need for the Project

The need for the TLS project arose from observing the shared vulnerabilities between Telescope and the neighboring Soubise community, two areas within the Grenville Bay Area (GBA), with Soubise having had solutions implemented and addressed under the previous ING project.

The Telescope area is situated along Grenville Bay, making it highly susceptible to climate impacts such as erosion and flooding. Alarmingly, it was determined that without intervention, an estimated 65 centimeters of shoreline could erode annually, leaving residents and businesses along the coastline severely exposed and economically compromised.

This project, which began in January 2024, leverages WINDREF’s established partnership with TNC, reflecting the enduring collaboration between these organizations.

Achievements in the First Year

Since its inception, the TLS project has accom-

plished approximately 80% of its first-year initiation activities. Key achievements include:

- Onboarding a team of highly skilled staff and consultants.
- Completion of foundational baseline studies, essential for guiding project progress.

These milestones lay a solid foundation for the comprehensive implementation of the project’s strategies.

Innovative Solutions

The TLS project focuses on implementing solutions such as:

1. **Groynes:** Structures designed to reduce coastal erosion by intercepting and trapping sediment.
2. **Sedimentation Traps:** Systems to capture and manage sediment deposition along the coast.
3. **Crib Walls:** Engineered structures that use natural and synthetic materials to stabilize shorelines.

These interventions are integrated into the broader *Living Shoreline Approach*, which emphasizes natural and nature-based solutions for coastal resilience.

Key Activities

The TLS project aims to deliver the following through its activities:

1. **Stabilizing the Shoreline** using living shoreline principles.
2. **Engaging and Educating the Community** to foster knowledge-sharing and active involvement.

Expected Outcomes

By the end of the project’s lifespan, the following benefits are anticipated:

1. A stabilized coastline, significantly reducing erosion.
2. Reinforcement of the shoreline through vegetation and other nature-based solutions.

3. Creation of employment opportunities for community members.
 4. Greater awareness and knowledge-sharing within the Telescope community.
 5. Amplification of the project's methods for replication in similar vulnerable areas.
- Seafood Saturdays,**" held on the last Saturday of each month. This event has encouraged participation from locals and visitors across Grenada, fostering vibrant social interactions with food, music, and mingling.

Community Involvement and Outlook

The project has garnered significant community interest and support. Many residents, inspired by the successes of the ING project in Soubise, are eager to participate in TLS activities and replicate similar positive outcomes in their own community.

With its strategic interventions and a committed team, the TLS project is on track to achieve its goals, safeguarding the Telescope coastline and ensuring a more resilient future for its community.

Submitted by Kendon James and Carol Forbes

Binging Life & Light to a Community by Enhancing its Resilience to Climate Change Impacts

For some of WINDREF's environmental initiatives, 2024 started with significant milestones. One standout project is the **Innovative Nature-Based Solutions to Enhance Community Resilience in Grenada (ING)** project. This initiative kicked off the year with its last major activity, setting the stage for the project's close in April 2025.

Achievements in Shoreline Stabilization

The ING project successfully achieved its objective of implementing a hybrid Green-Grey solution for shoreline stabilization. Using gabion baskets, residents of Soubise now benefit from a safe, secure recreational space. This area has already become a hub for community activities, including the popular "**Soubise**

The completed shoreline stabilization structure was designed and engineered to withstand current and projected climatic impacts, providing essential protection to the community against natural disasters and mitigating the estimated 65cm of erosion that would have occurred without intervention. Its efficacy was evident during Hurricane Beryl, where it protected residents from the storm's impacts, unlike other vulnerable areas.

Coral Reef Restoration Success

Another highlight of the ING project is the successful coral reef restoration in Soubise Bay. Over 3,500 corals were nurtured during the project through established in-situ coral nurseries. Today, the coral reefs are thriving as they grow, fuse, and expand, fulfilling the project's ecological goals.

Building Community Capacity

The ING project also prioritized community involvement and capacity building. By the project's closeout at the end of April **2024**, a total of 1457 community members were trained in areas such as coral and vegetation propagation, seamoss farming, and shoreline stabilization techniques. These activities have not only equipped residents with valuable skills but also laid the groundwork for continued community engagement and resilience.

The project funders have expressed satisfaction with the outcomes, marking it as a significant success in addressing climate change and enhancing the community's environmental sustainability. Preliminary findings from a post

-project outcome survey conducted with community members highlight widespread appreciation for the work carried out. Respondents also provided valuable recommendations, emphasizing the need for additional amenities such as bins and washroom facilities in the area.

Transitioning to the ERG Project

Building on the achievements of the ING project, the **ERG Project** has taken up the mantle of coral reef restoration. Collaborating with the same community members while engaging new participants, the ERG project has introduced training in **AGRRA**, coral micro-fragmentation, water quality monitoring, beach profiling, and reef and nursery maintenance.

Coral bleaching is a phenomenon in which corals lose their symbiotic algae, known as zooxanthellae, due to environmental stressors such as elevated water temperatures and pollution. This results in the corals exposing their white skeletons, a condition that leaves them vulnerable and at risk. While severe coral bleaching has been observed throughout tropical and subtropical regions, including devastating impacts on the neighboring island of Tobago, Grenada has been relatively spared from such widespread damage. Remarkably, some of the outplanted corals from this and previous projects have demonstrated extraordinary resilience, offering a glimmer of hope amidst this global crisis.

Despite challenges, the dedicated staff and workers continue to adapt and recover, ensuring these activities achieve their intended goals. The ongoing efforts aim to extend the benefits to the Soubise community, further enhancing its resilience and environmental stewardship.

Conclusion

The ING project's milestones underscore WINDREF's commitment to innovative, nature-based solutions. Through projects like ING and ERG, the organization addresses pressing environmental challenges and fosters community involvement, building a sustainable future for Soubise and Grenada.

Submitted by Kendon James and Carol Forbes

Capacity Building in Seafood Processing and Handling, Safety at Sea, Onboard Fish Handling and Dropline FAD Techniques for St Vincent and the Grenadines (RFP No: SSVGUBEC-CERC-CS-DIR-1)

This World Bank consultancy was awarded on 6th September 2024 through the Government of St. Vincent and the Grenadines to WINDREF as the successful implementing agency (Figure 1). This Unleashing the Blue Economy of the Caribbean (UBEC) Project, under its Contingent Emergency Response Component (CERC), consultancy award involved WINDREF, SVG Fisheries division and the Ministry of Finance, Economic Planning and Information technology, St. Vincent and the Grenadines – (SVG).



Figure 1: Lt -Rt Ernie Bracken – Senior Fisheries Assistant, Kris Isaac- Fisheries Officer, Mrs. Jennifer Cruickshank-Howard- Chief Fisheries officer (Fisheries Division, Ministry of Agriculture, SVG), presenting the signed World Bank contract to Dr. Trevor Noël- Executive Deputy Director and member of the Board of Directors (WINDREF), Mr. Roland Baldeo- UBEC/CERC Project Coordinator (WINDREF).

This collaborative project involved WINDREF and Fisheries Division. (Ministry of Agriculture, Forestry and Fisheries, SVG) which we will refer to in this report simply as “The Team.” The official launch of the project by the team took place at the Fisheries Services conference room in Kingstown, St. Vincent on September 23rd, 2024. The Honorable Ceasar Saboto, MP (Minister of Agriculture, Forestry and Fisheries) was the keynote speaker (Figure 2) at the official launch of the UBEC/CERC project with other SVG Government Officials and WINDREF representatives and fisher participants present (Figure 3).



(Figure 2 & 3): Honorable Ceasar Saboto, MP (Minister of Agriculture, Forestry and Fisheries) was the keynote speaker at the official launch of the UBEC/CERC project with other SVG Government Officials and WINDREF representatives and the first group of fisher participants.

There were four (4) separate activities that were implemented through this grant for the training of fisher participants.

Activity (1): Safety at Sea:

The training of the participants in the area of operation and maintenance was carried out as required by SVG Fisheries Regulations. This included the items which would be part of the “safety grab bag” (provided as part of the project) as well as engine safety.

The team conducted a series of seven (7) Safety at Sea training seminars within the main fishing districts of SVG. These 5 day training seminars catered to a maximum capacity of twenty (20) fishers. The first group began their training on the 23rd September 2024 (Figure 4). The team trained and facilitated 140 small-scale fishers in safety at sea. This training was facilitated by qualified safety at sea instructors (Figure 5). The safety at sea training seminars were taught in the following parts of SVG: Kingstown (3), North Leeward (1), Calliaqua (2) and Bequia (1). The eleven (11) modules that were taught during the seminar were ‘rules of the road’, use and maintenance of ‘Grab Bag’ safety items, distress procedures, seamanship, boat handling, search and rescue, VHF marine radio communication (Figure 6), Global Positioning System (Figure 7), local safety at sea regulations, first aid (Figure 8, Figure 9), vessel stability and outboard engine – care maintenance and troubleshooting.

In addition, further awareness was posted on social media (e.g., WhatsApp, Facebook, Instagram, etc.) The posters were printed and placed on notice boards and utility poles at strategic locations within the fishing communities across all fishing districts.

A pre and post training assessment was given to all fisher participants. The team facilitated three (3) closing ceremonies at Union Island, Bequia, and St. Vincent (mainland). The closing ceremony included officials from the Ministry

of Agriculture, Forestry and Fisheries Division as well as WINDREF and Project Staff. A certificate of participation was presented to each participant who successfully completed the seminar.



Figure 4: Lt -Rt (front row) Brenda Baldeo - Project Administrative Manager (WINDREF), Commander Brenton Cain (former Commander Coast Guard SVG), Dr. Trevor Noël- Deputy Director (WINDREF) and Team Lead, Roland Baldeo- Project Coordinator (WINDREF), Commander Osmond Griffith - (former Commander Coast Guard) Grenada Kristy Shorte - Administrative Assistant (WINDREF) and (back row) fisher trainees in the background.



Figure 5: Safety at Sea trainees in classroom session



Figure 6: Trainees learning to use the VHF Handheld Radio



Figure 7 Trainees learning to use the GPS



Figure 8: Trainees learning to administer first aid



Figure 9: Trainees learning to administer first aid

Activity 2: Seafood Handling and Processing (i.e. Quality Assurance and Control)

Seventy five (75) persons within the fisheries sector were trained in seafood handling and processing which included quality assurance and control. The training seminar was tailored for individuals who wanted to specialize in the post-harvest operations of the seafood industry. In-depth knowledge and practical skills were provided to the participants to ensure that they were equipped to handle, process and distribute seafood products (Figure 10) in a manner that maintains the quality and the highest food safety standards. The team facilitated the implementation of a series of five (5) 5-day training seminars for 75 persons. Each training session accommodated a maximum of 15 trainees.

The training seminar covered the following standardized curriculum areas:

1. Introduction to Seafood Post Harvest: An overview of the significance of post-harvest operations in the seafood industry and its impact on product quality.
2. Handling and Storage: Techniques and best practices for handling various seafood products, to ensure freshness, and to prevent spoilage.
3. HACCP Principles and Application: Benefits of the Hazards and Critical Control Point (HACCP) approach and practical implementation for seafood handling & processing.
4. Processing Techniques: Detailed insights into various seafood processing methods, including killing, bleeding, filleting, salting, smoking, and freezing of seafood.
5. Quality Control: Methods for assessing seafood quality, understanding grading systems, and ensuring products meet industry standards.

6. Safety and Hygiene: Personal hygiene practices for seafood workers. Maintaining hygienic conditions in the processing facilities and ensuring food safety.
7. Packaging and Labeling: Basics of effective packaging techniques, understanding labeling requirements, and ensuring product information accuracy.
8. Market Access Requirements: Local, regional and international trends within the seafood industry (i.e., innovation, technology, regulations)
9. Distribution and Logistics: Best practices for storing and transporting seafood products to ensure they reach consumers in an optimal condition.
10. Sustainability and Traceability: Introduction to sustainable post-harvest practices and the importance of traceability in the seafood supply chain.

WINDREF implemented a series of five (5) 5-day Fish Processing and Handling training seminars (Figure 11) and the practical application of the art of filleting (Figure 12) over a period of five weeks. Each seminar accommodated a total of 15 participants.





Figure 10 / 11: A cohort of fisher participant trainees (Group 5) who attended one of the seafood processing and handling training seminar with Lt-Rt seated: James Ince (WINDREF sub-contractor), Jennifer Cruickshank – Howard Chief Fisheries Officer, Fisheries officer (SVG) and other SVG and WINDREF technical personnel.

Activity 3 and 4: Dropline (FAD) - Fish Aggregation Devices -Fishing Techniques (3) and On-board Fish Handling and Preservation of Large Pelagics (4).

One hundred (100) fishermen were trained in practical methods for successfully fishing around Fish Aggregating Devices (FADs). This activity provided hands on training by taking participants out at sea on board the vessel Sapphire (Figure 13) to practice and experience the various techniques and methodologies for fishing around FADs. These training voyages successfully trained the fishers with the practical skills which enhanced their capacity to effectively harvest fish by FADs.



Figure 12: Seafood processing participants practical application of the art of tuna filleting.



Figure 13: Vessel Sapphire used for the practical FAD skills training on the open water.

WINDREF facilitated the technical approach by the implementation of series of six (6) 3-day FAD fishing training seminars for 100 fishers. Each training seminar included one theoretical day that was conducted on-land, (Figure 14) and a two (2) 1-day sea-going training trips.



Figure 14: Theoretical Training Seminar of fisher participants by the team.

The first day of the team training included presentations on FAD fishing and the fabrication of FAD fishing gear. (Figure 15 a and b)



Figure 15a and 15b: The first day of the team training included presentations on FAD fishing and the fabrication of FAD fishing gear by all participants

Each at sea training trip accommodated 10 trainees on an adequately equipped fishing vessel, Sapphire. The participants who attended this training were the same group of participants who attended the On-board Fish

Handling and Preservation of Large Pelagics, and so, the practical aspect of the onboard fish handling training was conducted during the FAD fishing training. This FAD and on-board fish handling and preservation of large pelagics (3). activity covered the following areas:

- The appropriate onboard safety at sea protocols for fishers on training vessels.
- The design and fabrication of FAD droplines.
- The art of storing live Selar crumenophthalmus (Jacks) bait for FAD fishing
- The art of fishing with live bait around a FAD
- The setting of droplines and other gear designs around a FAD
- The art of killing, bleeding and preservation of large pelagic fish onboard fishing vessels.

In addition, the on-board handling training component were separated into the following areas; the main factors affecting the quality of fish onboard (Figure 16), hygiene in fish handling, (Figure 17) the essential tools, transfer of catch from gear to vessel, handling of large fish e.g. Yellowfin Tunas (YFT) on board, how to gut and bleed YFT, methods of icing fish onboard, offloading the catch and cleaning and disinfection of your vessel. . The team conducted a six (6) 3-day Dropline FAD fishing training seminars .



Figure 16: Fisher participants learning to ice demersal fish.



Figure 17: Fisher participants washing one of the fishing vessels.

WINDREF conducted two (2) 1-day training voyages per training seminar in an effort to have all participants with equal opportunity in acquiring hands-on experience in the various FAD fishing methods and technologies. During the voyages, the participants was taught how to catch and use live bait, as well as proper methods for deploying, monitoring and retrieving dropline for large pelagics (i.e., Tunas). The art of killing, bleeding and preservation of large tunas was also taught to participants. See (Figure 18)



Figure18: Catch of yellow fin tuna during training

The entire team and fisher participants will like to extend gratitude to UBEC/CERC, the Ministry of Finance, Economic Planning and Information Technology SVG, Ministry of Agriculture Forestry and Fisheries SVG on a suc-

cessful implementation of the project. See (Figure 19a and 19b).



Figure19a: FAD dropline fisher participants departing SVG on training vessel, Sapphire.



Figure 19b: Successful FAD dropline fisher graduates returning to SVG on Sapphire.

Submitted by: Dr. Trevor Noël – Deputy Director (WINDREF) and Team Lead UBEC/CERC/WINDREF, Mr. Roland Baldeo – Project Coordinator UBEC/CERC/WINDREF.

Sample-to-Answer Rapid, Multiplexed and PCR-Free Detection of Arboviral Fever Diseases in Resource Limited Settings

Background:

Arthropod-borne viruses (arboviruses) comprise many of the most important ‘emerging pathogens’ due to their geographic spread

and their increasing impact on vulnerable human populations. Arboviral diseases are poised to become more common with globalization. In the Caribbean region in particular, recent explosive Dengue virus (DENV), Zika virus (ZIKV), and chikungunya virus (CHIKV) have highlighted how rapidly these agents can spread within new regions. All 4 DENV serotypes have been reported in Grenada, and dengue continues to remain a significant cause of acute febrile illness (AFI). However, despite their importance and prevalence, diagnostics for arboviral infections remain limited in resource limited settings due to their cost.

Diagnostics are lacking at health care centers making accurate diagnosis of these infections impossible, and clinical diagnosis of arboviral infections is not reliable due to their non-specific presentations. Reverse transcriptase polymerase chain reaction (RT-PCR) remains the gold standard for diagnosis but is expensive and only available at reference labs. Rapid antigen and antibody assays may be deployed as point of care testing but have poor sensitivity resulting in false negatives. Without accurate diagnostics, arbovirus outbreaks are detected late, and sporadic cases go undetected, leading to delayed response to outbreaks, ineffective effort to prevent further disease spread, and substantial introduction risk to naïve countries. There is urgent need for easy-to-operate and rapidly deployable clinical diagnostics tools that can provide sample-to-answer manner.

This research program aims to develop and evaluate field deployable rapid assays for detection of emerging viral pathogens, with DENV being used for initial testing. The integrated diagnostic platform will utilize a novel surrogate approach, and open-source ro-

botics technology. The system will be designed to initiate diagnosis from serum/plasma/blood and provide a sample-to-answer diagnostic within less than 35 minutes. This collaborative interdisciplinary program will build upon ongoing field surveillance of arboviral infections in Grenada. Collaborative work for this NIH/NIAID R01 project involves integration of biosensor engineering (Yanik Group), molecular virology (Pinsky Group), and infectious diseases epidemiology (LaBeaud Group) to build and field-test our novel point-of-care viral diagnostic platform with Windward Islands Research and Education Foundation (WINDREF) and St. George's University teams. Our proposed work is innovative, as it is using a novel approach to solve a long-standing problem, rapid and accurate arboviral diagnosis in health care settings. Once this project is successfully completed, our collaborations will ensure that project findings are realized in policy and prevention efforts at all levels and will translate into effective intervention platforms.

Study Design:

This project is roughly divided into two major components: a field epidemiologic study to recruit patients with AFI for arboviral testing with current gold standard RT-PCR assays, and the development and modification of the novel biosensor assay followed by field testing using the collected samples.

To this end, WINDREF and the LaBeaud lab are currently engaged in recruiting participants for this study, testing for arboviral infections using RT-PCR, and collecting participant surveys to perform an epidemiologic study of arboviral infection risk factors in Grenada. We are recruiting patients >1 year of age presenting to healthcare facilities with fever and simultaneously performing com-

munity outreach and recruitment with home visits to recruit more participants with mild febrile illness who otherwise would not have presented for healthcare. We are then collecting serum and administering a survey to determine risk factors for arboviral infection.

Once samples are collected, they are tested at WINDREF using a multiplex RT-PCR which detects DENV, ZIKV, and CHIKV. Additionally, when available, samples are tested with rapid DENV IgM/IgG assays to provide timely feedback to participants. The Yanik lab is currently finalizing protocols for the novel antigen detection assay. Briefly, serum will be added to DENV specific antibodies, magnetic beads that will bind the antibodies, and dielectric beads that contain fluorescent dyes. If the participant sample contains DENV antigens, a complex will form between the magnetic and dielectric beads (ie the surrogate). The next step involves detection of fluorescent signal given off by the dielectric beads that are part of the viral antigen complex using a membrane with small channels that enriches the dielectric beads, with the fluorescence from the beads then measured using an optical detection.

Results to date:

Currently, we are continuing to recruit participants to our study, with 668 samples collected, with the aim of collecting 1,200 samples by December 2025. 46% of participants have been recruited from St. George Parish, 23% from St Andrew, and 14% from St. Patrick, with the remaining participants evenly distributed between the other parishes. 42% of participants are male, 57% female, and 83% are Afro-Caribbean. The majority of febrile illness samples and dengue cases have been detected between the months of June and October, corresponding with the rainy season, which is expected of arboviral infections (Figure 1).

We noted an abrupt increase in cases during August-September 2024, which corresponds to reported DENV-2 transmission detected by the Grenada Ministry of Health during this time period. Of samples tested by RT-PCR, approximately 18% have been DENV positive (Figure 2). We have detected one CHIKV case in April 2024, and 0 cases of ZIKV infection. 82% of AFI cases remain undiagnosed via this testing protocol. In comparing RT-PCR testing with rapid IgM/IgG testing, we have observed, as expected, poor sensitivity. Of PCR positive DENV cases, only 10% were positive by IgM rapid testing, and 16% of cases were positive by rapid testing but negative by PCR (likely samples collected later in the disease course), resulting in an overall sensitivity of only 26% (Figure 3).

Ongoing and Future Studies:

We are continuing to collect serum and survey data from patients presenting with febrile illness over the next year, aiming to recruit and additional 600 participants. Over the next year we will continue community-based sampling and attempt more recruitment from Petite Martinique and Carriacou. We will continue testing samples via RT-PCR and perform a formal statistical analysis of survey data to determine risk factors of DENV infection in Grenada. Additionally, we plan on expanding testing to include Oropouche virus testing given multiple detected epidemics in South America and Caribbean. The Yanik lab intends to deploy testing using the novel antigen test in early 2025, and results will be compared to the current gold standard RT-PCR results. Efforts by the Yanik lab are ongoing to optimize this test to be deployable as a point of care diagnostic.

Figures and Photos:



Photo 1: Community site visit

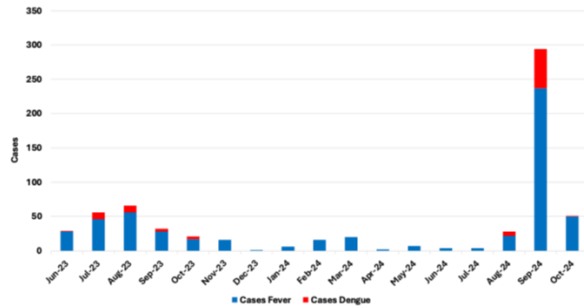


Figure 1: Febrile illness and dengue cases by month

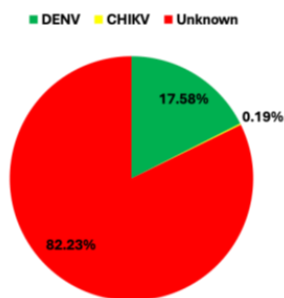


Figure 2: Results of RT-PCR testing of AFI serum samples

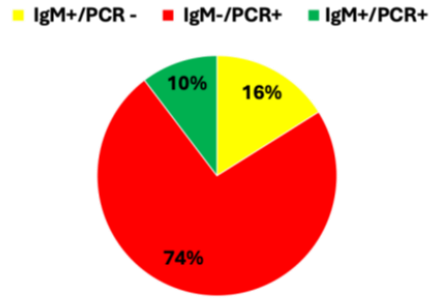


Figure 3: Comparison of DENV RT-PCR vs IgM rapid lateral flow assay.

Submitted by: Dr. Brian Dawes (Stanford University), Elsa Chitan (WINDREF), Dr. Melanie Kiener (Stanford University and Baylor College of Medicine), Sara Telesford (WINDREF), Janelle Hinds (WINDREF), Vanessa Belmar (WINDREF, SGU), Markeda Fletcher (WINDREF), Dr. Benjamin Pinsk (Stanford University, Co-Principal Investigator), Dr. Ali Yanik (University of California Santa Cruz, Principal Investigator), Dr. Desiree LaBeaud (Stanford University, Co-Principal Investigator), Dr. Trevor Noel (WINDREF, Co-Principal Investigator), Dr. Calum Macpherson (WINDREF, Co-Principal Investigator)

Funding and Acknowledgement:

- NIH R01-AI155959-04 , “Sample-to-Answer, Rapid, Multiplexed and PCR-Free Diagnostics of Arboviral Diseases in Resource Limited Settings”, PI-Ali Yanik
- Small Research Grant Initiative from the Office of Research
- Collaboration with Grenada Ministry of Health

A One Health Pilot Study to Estimate Hanta-virus Disease Burden and Ecology Grenada

Emerging zoonotic viral infections continue to be an underappreciated source of undifferentiated febrile illness around the world, and

the emergence of novel viruses or the spread of previously geographically restricted viruses to new locations pose the threats of epidemics and pandemics. “One Health” holds that human, animal, and environmental health are inextricably linked, and should be simultaneously studied and addressed to comprehensively improve human, veterinary, and planetary health. Given that most emerging viral diseases are zoonotic in nature, they are highly amenable to One Health approaches.

Hantaviruses represent a very diverse family of viruses including several known human pathogens which are the etiologic causes of hemorrhagic fever with renal syndrome (HFRS) in Europe and Asia, and hantavirus cardio-pulmonary syndrome (HCPS) in the Americas. Human hantavirus infections are typically due to exposure to the excreta of infected rodent reservoirs, but recent emergence suggest shrews and bats may also be important reservoirs of hantaviruses. Despite the worldwide distribution of hantaviruses, very little information is available on their presence or contributions to human disease in the Caribbean. A limited number of studies have suggested high human and rodent seroprevalence in Barbados. Additionally, limited evidence suggests that rats in Grenada are seropositive for hantavirus infection, but no direct detection of virus has been performed. Therefore, we do not know which species of hantaviruses may be infecting humans or animals in Grenada.

We hypothesize that hantaviruses may represent a significant but unidentified source of mild-moderate febrile illness. There is also concern for possible long-term sequelae given clear epidemiologic correlation between hantavirus exposure and chronic kidney disease in several studied populations. We are initi-

ating a pilot study using One Health approaches to evaluate human and animal exposures to hantaviruses. We are currently engaged in the collection of human acute febrile illness serum samples described elsewhere in this report for arboviral diagnostic development. We will add testing for anti-hantavirus antibodies to 200 patient samples collected for this study to attempt to estimate the seroprevalence of human hantavirus infections in Grenada. We will then test 200 samples which were negative for arbovirus infections using a pan-hantavirus RT-PCR to survey for active hantavirus infections. Any positive samples will be sequenced for species identification. To date, we have collected 668 human serum samples from febrile patients, and 82% of these samples are negative for arboviral infections. We are currently validating ELISAs and RT-PCR assays and aim to test the collected human samples in early 2025.

In parallel, we will perform wild animal trapping and testing for hantavirus infections. In collaboration with Dr. Cheetham at St. George’s University, we are actively engaged in the trapping of wild rodents (rats and mice) and bats. To date we have collected specimens from 22 bats, 10 rats, and 1 mouse after approximately 1 month of trapping. We are aiming to collect 100 bat specimens and 100 rodent specimens for testing. We will test collected serum for anti-hantavirus antibodies and viral RNA using ELISA and RT-PCR similar to human samples. We are currently continuing animal trapping and are modifying ELISAs to detect bat and rodent antibodies, with the aim of initiating testing of samples in early 2025.



Photo 1: Bat Trapping – Dr. Brian Dawes, Dr. Sonia Cheetham, Quincy Augustine, Melissa Hosten



Photo 2: A captured *Artibeus lituratus* fruit bat

Submitted by: Dr. Brian Dawes (Stanford University), Elsa Chitan (WINDREF), Janelle Hinds (WINDREF), Sara Telesford (WINDREF), Vanessa Belmar (WINDREF, SGU), Markeda Fletcher (WINDREF), Dr. Trevor Noel (WINDREF, Co-Principal Investigator), Dr. Calum Macpherson (WINDREF, Co-Principal Investigator), Dr. Sonia Cheetham (SGU, WINDREF, Co-Principal Investigator), Dr. Desiree

LaBeaud (Stanford University, Co-Principal Investigator)

Funding and Acknowledgement:

-NIH R01-AI155959-04 , “Sample-to-Answer, Rapid, Multiplexed and PCR-Free Diagnostics of Arboviral Diseases in Resource Limited Settings”, PI-Ali Yanik

-Stanford Center for Innovation in Global Health Seed Grant, PIs- Dr. Brian Dawes and Dr. Desiree LaBeaud

- Collaboration with Grenada Ministry of Health

The Baroness Howells Sports for Health Program

2024 marks a critical year in the evolution of the Sports for Health program, with significant developments in policy implementation, grassroots participation, and health outcomes. Throughout the year, the program has continued to expand its reach and deepen its impact on Grenadian society, particularly by focusing on rural areas and youth populations. Program highlights in 2024 included:

1. Expansion of Youth Sports Programs: In 2024, the Sports for Health program expanded its outreach to younger populations by partnering with local schools to integrate sports into the daily routines of students. The program now incorporates regular physical education sessions, intramural sports competitions, and after-school activities. Basketball, soccer, athletics, and netball have been particularly popular among the youth, with organized competitions held at the parish level. Additionally, "Active Schools," an initiative launched under the program, encourages students to engage in at least 60 minutes of moderate-to-vigorous physical activity

per day. This initiative is supplemented with educational workshops on nutrition, healthy lifestyle choices, and the importance of mental health.

2. **Women in Sports Initiative:** Recognizing the gender disparities in sports participation, the Sports for Health program introduced a Women in Sports initiative in 2024. This initiative focuses on empowering women to take part in physical activities that are traditionally male-dominated. Through community workshops, coaching clinics, and organized leagues, the program aims to break down barriers to female participation in sports. The Women in Sports initiative also ties into broader gender equity goals, promoting women's leadership in sports administration and coaching. Several female athletes from Grenada, who serve as role models for younger girls, were invited to lead workshops and share their personal stories of overcoming challenges in their athletic careers.
3. **Community Sports Days:** In 2024, one of the most significant achievements of the Sports for Health program was the organization of community sports days across Grenada's parishes. These events served as an opportunity for families to come together and participate in various activities, including running races, football tournaments, and fitness challenges. Each event also featured health screenings for diabetes, hypertension, and body mass index (BMI), allowing participants to receive immediate feedback on their health status. Community sports days were designed to be inclusive, catering to all age groups and physical abilities. Senior citizens were encouraged to participate in walking races and light exercise routines, while children engaged in obstacle courses

and relay races. The inclusive nature of these events helped foster a sense of belonging and unity within Grenadian communities.

Some of the notable impacts for 2024 included:

1. **Reduction in Sedentary Lifestyles:** One of the most tangible outcomes of the Sports for Health program has been a noticeable decline in sedentary behavior, particularly among children and adolescents. Surveys conducted by the Ministry of Health in 2024 indicate that approximately 65% of Grenadian children aged 8-16 are now engaging in regular physical activity, a significant increase from previous years. This shift is attributed to the integration of sports into the school curriculum and the increased availability of sports programs in communities.
2. **Improvement in Cardiovascular Health:** The health screenings conducted during community sports days revealed early signs of improvement in cardiovascular health among participants. Data from 2024 show a modest but meaningful reduction in the average BMI and blood pressure levels of adult participants compared to 2023. While the long-term effects on public health will take time to fully manifest, these initial indicators suggest that regular participation in sports is beginning to have a positive impact on the prevention of NCDs.
3. **Mental Health Benefits:** The program has also made strides in addressing mental health concerns. Sports have been shown to reduce symptoms of anxiety and depression, and Grenada's Sports for Health program has incorporated mental health workshops alongside physical activities. In 2024, the program collaborated with local

mental health professionals to offer counseling services at select events. Surveys from these events show an increase in self-reported mental well-being among participants.

4. **Increased Social Cohesion:** The Sports for Health program has successfully brought together individuals from diverse backgrounds, promoting a sense of community and shared purpose. By organizing events that engage different age groups, genders, and socioeconomic levels, the program has fostered greater social inclusion and unity. Participants have reported a sense of pride and camaraderie in representing their communities during sports events, contributing to the overall social fabric of Grenada.

WINDREF also made several donations to schools and community sports initiatives in the form of funding for the purchase of athletic wear and sporting supplies. Students received shoes and training uniforms to support their sporting pursuits and community groups received exercise equipment and supplies to support their activities on their various sports days. See photos of donations made to school students and community groups.



WINDREF workshop to secondary school students on benefits of sports to health



WINDREF donates athletic shoes and wear to student athletes



WINDREF donates exercise supplies to community groups

Submitted by Dr. Satesh Bidaisee

Reach Within

Reach Within, a registered charity in Grenada, Caribbean, is the principal program of the Windward Islands Research and Education Foundation's (WINDREF) Caribbean Centre for Health Equity (CCHE). Specializing in acute and chronic childhood trauma, Reach Within supports the holistic development and well-being of children and youth through low cost, high-impact programs.

Scores of research studies have shown that if left untreated, symptoms of trauma from poverty, abuse, violence or even natural disasters can affect the brain and nervous system; amplifying into low education levels, low workforce entry, poor relationships, continued cycles of poverty among other unfortunate consequences, collectively impacting the economic and overall well-being of a community. Children and youth suffering from chronic trauma such as the long-term effects of child abuse or neglect, and also those with acute trauma symptoms in the wake of Hurricane Beryl (July 2024) have benefitted from WINDREF/ Reach Within programs in 2024.



Figure 1: The WINDREF/Reach Within Emergency Relief Team heading to Carriacou and Petite Martinique after Hurricane Beryl.

Reach Within’s signature and science-backed curriculum, empowers young people to heal from trauma by learning how to regulate their nervous system. Repetitive rhythmic activity and trauma-informed exercises help to move a person out of default trauma-response patterns of fight, flight, freeze or fawn states (that can lead to maladaptive behaviours) and into a more regulated state. Once children and youth have a sense of internal safety, it is easier to access other areas of the brain re-

sponsible for reasoning, processing emotions and learning. Reach Within programs measure resilience factors in children and youth—the ability to withstand or to recover from difficulties.

There were four major activities implemented in 2024 to build mental health equity among children and youth in Grenada.

Activity (1): Return of Children’s Happiness - Trauma Relief Camps

On July 1, 2024, Hurricane Beryl made landfall in Grenada, devastating the islands of Petite Martinique (pop. 900) and Carriacou (pop. 9600). Though loss of life was minimal, the trauma of losing homes and livelihoods was widespread as the category four hurricane caused damage to 98% of structures and land. Within days, a team of experts from WINDREF and Reach Within (Figure 1) were on the ground to provide psychological first-aid to children, youth and families in the immediate aftermath.





Figure 2: Assessing damage from Hurricane Beryl on July 3, 2024

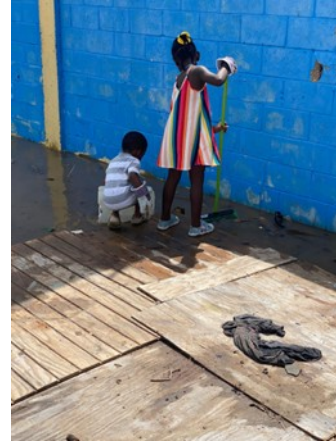


Figure 3: Children and youth in Petite Martinique helping to clear space for their Return of Children's Happiness Camp

Acute trauma work during an emergency response first involves the creation of safe conditions for a community to heal. (Figure 2) In the wake of Hurricane Beryl, this meant clearing debris and rubble from playground areas to launch the Return of Children's Happiness Camps. Family members, neighbours, the WINDREF/Reach Within team, and young children under adult supervision collectively rolled up their sleeves to create the space for programming, and the transmission of vital youth counselling skills to local community leaders. (Figure 3)

The WINDREF/Reach Within team launched four Return of Children's Happiness Camps in emergency shelters and community sites for 64 children and 23 community adults. The Return of Children's Happiness Camps used a series of trauma informed rhythm, movement and expressive art activities to mitigate symptoms of post-traumatic stress and support resiliency factors. (Figures 4 & 5)





Figure 4: Return of Children’s Happiness Camps in Petite Martinique.



Figure 5: Return of Children’s Happiness Camps support self-regulation and provide therapeutic activities to help children find a sense of safety and connection.

Activity (2): Successful Collaboration with the Child Protection Authority

In collaboration with the Child Protection Authority of Grenada, Reach Within provides year-round trauma healing and wellness programs to 249 children and youth considered highly at-risk due to a history of abuse, neglect and/or violence. Our traditional handmade drums and rhythmic therapeutic curriculum are a staple in all five care homes (orphanages) across the island including Father Mallaghan’s Home for Boys, SMILES Home for Adolescent Girls, The Belair Home, Queen Elizabeth Home for Children and Dorothy Hopkin Home for the Disabled. (Figure 6) Aside from drumming, Reach Within rhythmic programs include dancing, swimming, martial arts and a standardized curriculum that addresses the following topics:

1. The Nervous System and Rhythmicity
 - a. Learning about the nervous system
 - b. Learning about the power of rhythmicity
2. Safety and Trust
 - a. How to create a safe space
 - b. How to create healthy boundaries
3. Understanding Emotions
 - a. Naming emotions through color, sensation or feeling
 - b. Mindfulness and how to notice your emotions
4. Getting to Know Yourself
 - a. Getting to know the different parts of yourself
 - b. Making friends with the different parts
5. Getting Along with Others
 - a. Empathy and communication
 - b. Kindness and being in a community

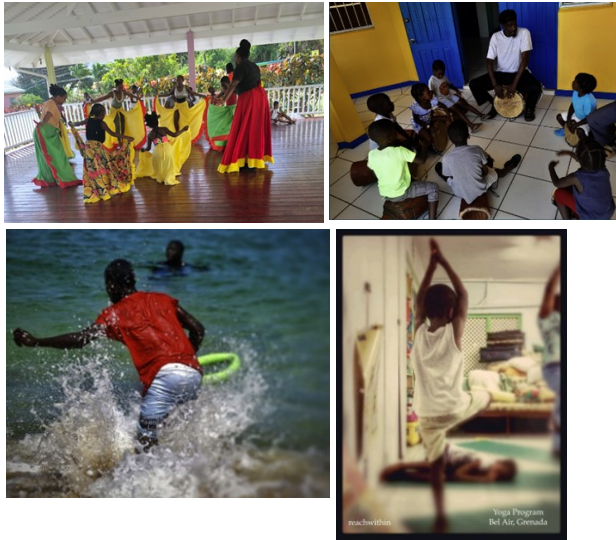


Figure 6: Top L to R: Dance Session at Queen Elizabeth; Drumming Session at the Bel Air Home. Bottom L to R: Swimming session with residents at Father Mallaghan’s Home; Yoga session at the Belair Home.

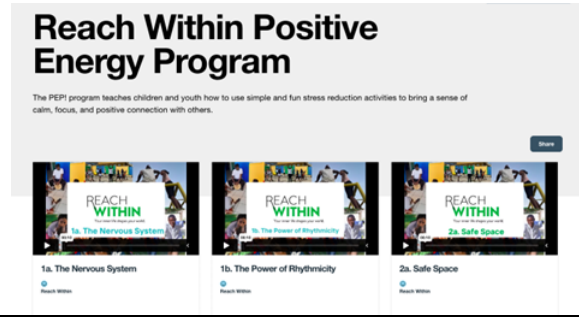


Figure 7: Video production of Reach Within’s Signature Self-Regulation Curriculum and the Positive Energy Program.

Program data from standardized tools has demonstrated significant reduction of aggression, significant increase in ability to express emotions and significant increase in confidence among program participants. At the end of 2024, Reach Within received grant funding from the Grenlec Community Partnership Initiative to digitize the curriculum into (12) 10-minute video sessions that promote health and wellness to the broader community. (Figure 7) In January 2025, Reach Within will be poised to launch the Positive Energy Program (PEP!) in schools across the nation impacting up to 13,000 primary students with professional development courses on resiliency for teachers and educational professionals.



Activity 3: Community Adult Training in Trauma Informed Care

To sustain healthy community spaces for children and youth, Reach Within trains adults in trauma informed care practices; giving them the tools to lead simple trauma healing programs with ongoing mentoring and supervision. This year, Reach Within held ten full-day trainings for community adults. Through a grant from Sandals Foundation, community adult training also included a module on sustainable agriculture whereby professional caregivers helped children/youth to create food gardens in their care homes (orphanages). Food gardens in low-resource settings support the nutritional needs of young people, develop their self-sufficiency skills and foster youth agency around climate solutions.

- Inaugural food gardens were launched in two residential care homes and food gardens were expanded/revived in three other residential care homes.
- 71 professional caregivers and care home staff received agricultural mentoring in the food gardens. (Figure 8)
- 36 caregivers received formal training to support youth in the gardens.
- 50 children and youth living in residential care homes received agricultural mentoring from professional caregivers.

- The growing period from June-December 2024 yielded over 280 pounds of produce from ten different varieties with anticipated harvests from another four varieties in early 2025. (Figure 9)



Figure 8: Top L to R: Reach Within Agricultural Trainer Melvaughn Coutain mentoring a professional caregiver in the food garden at Dorothy Hopkin Home for the Disabled; Group agricultural training for professional caregivers from all five residential care homes. Bottom L to R: Preparing the food garden in Father Mallghan's Home for Boys; Professional Caregivers mentoring youth in the food garden of SMILES Home for Girls.

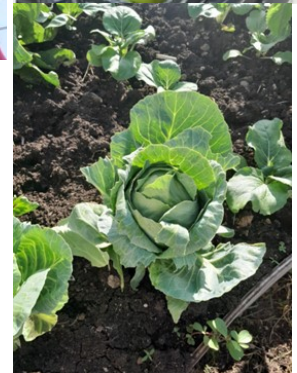


Figure 9: Produce from the food gardens in residential care homes.

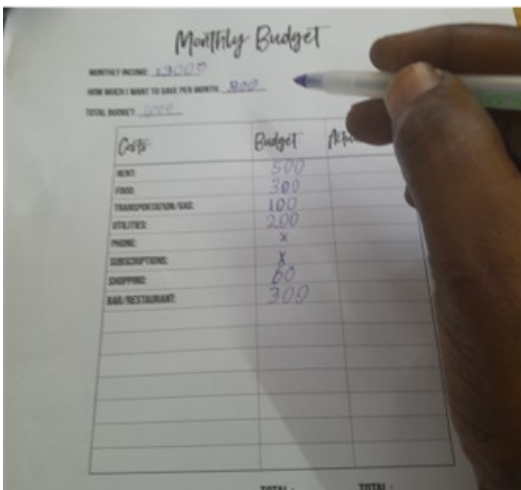
Activity 4: Transitional Support for At-Risk Youth

Reach Within provides continuity of care as children grow into older adolescence and young adulthood through a drop-in centre in St. George’s. This community hub provides services for youth 16-29 years and includes counselling, mentoring, job/life skills training, and an emergency food/supply pantry; with outreach services in YMCA centres, prisons and online support.

This year, Reach Within continued a partnership with Caribbean Policy Development Centre through the Strengthening the Voices of Vulnerable Youth Initiative that supported a cohort of 11 youth aging out of, or who had recently aged out of the child protection system. The intensive program included weekly mentoring, financial literacy and a job/life skills training. With a 100% retention rate, 11 youth graduated from the program with certificates of completion. 83% were employed at program completion with the remaining 13% either pursuing education and/or continuing to participate in other Reach Within programs.



Figure 10: Top L to R: Financial Literacy Workshop; Weekly meetings in the Reach Within Drop-in Centre. Bottom L to R: Youth leading a mindful breathing activity; Participant’s former care home managers were invited to the graduation to present certificates.



Reach Within also received funding from USAID to address the existing gaps in the delivery of mental health and psychosocial support (MHPSS) for youth at-risk in Grenada by providing MHPSS and coaching to youth participating in a workforce preparedness programming. The grant provided support and therapeutic interventions to the 68 youth participating in the Learning Business by Doing Business (LBDB) grant implemented by Techworld in Grenada. This complementary support to the LBDB program, which provided soft skills, entrepreneurial, as well as technical and vocational training for youth in the child protection system as well as those who’ve been in contact with the law, aimed to improve program retention rates, learning

outcomes, and the overall emotional well-being of the participants. By specifically addressing the distinctive psychosocial challenges faced by at-risk youth, Reach Within case managers, counselors, and group facilitators contributed to positive outcomes, paving the way for improved mental and emotional well-being, growth, and resilience. The following topics were addressed:

1. Trust and Boundaries
2. Self Regulation part 1
3. Self Regulation part 2
4. Goal Setting
5. Decision-Making
6. Self-Acceptance
7. Non-Violent Communication
8. Self-Care
9. Positive Mindset
10. Conflict Resolution
11. Mindfulness
12. Check-in after Hurricane Beryl & discussion on thoughts/experiences
13. Coping/Moving Forward
14. Commitments
15. Life Transitions
16. Reflection on Program

- 68 participants accessed group psychosocial sessions with a 55% retention rate by the end of the program.
- 21 youth accessed counseling services for the first time.
- 68 participants received case management services and referrals.

Participants demonstrated

- Improved social/communication skills
- Reported improved familial relations
- Expressed decreased levels of stress, especially with the knowledge that an outlet is available through counselling for support once a week

- Reports of decreased harmful coping mechanisms and integration of healthier alternatives as outlined in behavioural modification plan in counselling
- Increased job attendance post counselling sessions



Figure 11: Youth graduates of the Learning Business by Doing Business Program with their MHPSS Coordinator, Ms. N'Diera Viechweg

This year, WINDREF/Reach Within has also successfully collaborated and cooperated with the Government of Grenada to address the current housing crisis for at-risk youth. Housing insecurity is a reality for young people 18+ years in Grenada - particularly if they grow up in one of the child protection system's residential care homes (orphanages) due to trauma from abuse or neglect and with

no typical biological family support. These youth are forced to exit the system at 18 years with few transitional housing options available. Despite receiving mental health, mentoring and job/life skills services -without safe housing - even the most determined youth risks falling into poverty, violence, prison, unplanned pregnancy and repeated cycles of trauma. Research suggests that a lack of transitional housing for youth becomes a barrier to higher education, workforce entry, community inclusion and economic success. Reach Within will sign an MOU with the Ministry of Housing and Development to ensure the housing rights of youth leaving a residential care home at 18 years. Land has been secured, cleared, surveyed and an architecture team secured to develop the first transitional living home for youth in Grenada by December 2025. These climate resilient plans not only meet UNICEF international standards for the aftercare of youth but will also serve as cost efficient blueprints to promote climate resilient building practices nationwide.



Figure 13: Draft Architecture Plans

The entire Reach Within team would like to thank the Ministry of Social & Community Development, Housing and Gender Affairs, Ministry of Education, Youth Sports and Culture, Sandals Foundation, USAID - YRIE Program, Caribbean Policy Development Centre, Grenlec Community Partnership and Hurricane Beryl Relief Aid Efforts that have allowed us to successfully implement mental health activities in low resource settings.



Figure 12: Lto R July 2024, Youth Housing Meeting with the Hon. Gloria Thomas, (Ministry of Housing) Dr. Karen Lawson, Founder & Director (Reach Within), Mr. Mason Kirby (Lead Architect) and Dr. Trevor Noël, Deputy Director (WINDREF).



Submitted by: Dr. Trevor Noël – Deputy Director (WINDREF) and Dr. Karen Lawson, Founder & Director (Reach Within), Ms. Donnet Williams – Project Manager (Reach Within).

Saving Brains Grenada – Conscious Discipline Coaching

2024 was a year of growth, innovation, and resilience for The Saving Brains Grenada - Conscious Discipline Coaching program. With expanded coaching efforts, new initiatives, and professional development opportunities, the program has deepened its impact while adapting to unforeseen challenges. This is a summary report that highlights our achievements, activities, and plans for 2025.

School Coaching – Grenada

Between January and July 2024, seven (7) Conscious Discipline (CD) coaches continued to work with twenty-seven (27) teachers and four hundred and seventeen (417) children in twenty-seven (27) primary and pre-primary schools in Grenada. Coaches made weekly visits to each school and worked in one classroom directly with the class teacher.

The coaching approach has moved towards focusing on the specific goals of each teacher, allowing teachers and coaches to collaboratively identify the CD skills or powers that will best support their needs or challenges in the classroom. This marks a shift away from direct coach-student interactions with more emphasis placed on empowering each teacher to bring about change for themselves and the students in their care. The role of the coach has been to model CD skills, coach the teacher in the moment, giving them the words to use in challenging situations and discussing CD principles in one-to-one meetings to help teachers see things from a different perspective and in collaboration with the coach, set weekly goals, aiming to integrate CD skills or powers into their regular teaching. For example, a teacher who feels that children are unresponsive may be guided by the

coach to work on the Power of Attention and giving assertive commands, another who is challenged by children fighting amongst themselves may choose to focus on the Power of Unity and building the school family. This teacher-centred approach aims to empower each teacher and build foundational skills that teachers can carry forward to use with subsequent classes.

Along with their individual goals, all teachers continue to work on the skill of Composure practicing the STAR breath at regular intervals when they are calm so that they can access this skill in stressful situations. Self-regulation helps teachers respond consistently and predictably, which is vital for building safety in the classroom. Composure is the foundational skill that enables teachers to access and apply all other skills effectively.

With continued funding from the Becky Bailey Foundation, twenty-eight (28) schools were recruited in May 2024 for the academic year 2024-2025. Nine (9) schools from the previous cohort requested continued coaching, which was accommodated, but a new teacher within each school was selected for coaching, in order to expand the program's influence. In addition, fifteen (15) new schools joined the program, highlighting the growing interest in CD among schools and teachers in Grenada. For the first time we are implementing CD in a full school at St. Joseph's RC school, working with all six teachers. This approach allows us to observe the impact of a unified, school-wide adoption of CD compared to the traditional single-teacher model. We are also coaching for the first time in a daycare center, exploring how CD strategies apply to caregivers working with the youngest children, offering insights

into the adaptability of the model in early childhood settings.

In February 2024, we welcomed Ms. Shashera Davis, a resident of Carriacou, to our coaching team. Ms. Davis underwent intensive CD training and shadowed experienced coaches to prepare for her role as a CD coach in four (4) schools in Carriacou. Unfortunately, Hurricane Beryl caused significant damage in Carriacou, delaying the start of on-site coaching. Despite these challenges, Ms. Davis has been providing emotional support to the teachers in Carriacou through regular phone calls and in-person visits and remains ready to begin in-person coaching as soon as conditions allow.

Community Classes – Grenada

Five Hundred and thirty-four (534) parents with five hundred and eighty-four (584) children in selected Grenada communities received CD instruction as part of the Grencase Roving Caregiver weekly home visit program. In addition, the Roving Caregivers offered a series of community classes in St. George, St. Patrick, St. Andrew and St. David. Parents within each parish were invited to attend 3 group classes with the goal of building community, meeting like-minded parents, and practicing CD skills along with their child. One hundred and eighty (180) families and one hundred and eighty-eight (188) children attended in total.

Training

In 2024, significant growth was made in advancing CD principles beyond Grenada, with impactful training sessions conducted for Grenada, the Caribbean and Kenya.

Grenada and the Caribbean

Two (2) 10-session online CD Foundation training courses were delivered in Spring and

Fall 2024. The Spring course attracted 110 participants and the Fall course had 130 participants from Grenada, the Caribbean and other countries. These courses provided essential CD skills and strategies for teachers, caregivers, and community leaders to build emotionally supportive environments.

In April 2024, Dr. Becky Bailey, founder of CD and her team visited Grenada to deliver specialized training programs, including:

- A one-day training session for Roving Caregivers, equipping participants with practical strategies to support early childhood development with parents and caregivers in home settings.
- A two-day Anger and Rage workshop, which was fully booked with 300 participants. This workshop addressed learning to differentiate between anger and rage and how to respond to each with composure.
- Offering support within the classroom to CD coaches on their regular school coaching sessions.

During the school summer break, the CD coaches conducted four one-day workshops (one per region) for 82 Grencase Roving Caregivers. These practical, hands-on sessions focused on enhancing the caregivers' skills and their ability to coach parents in fostering connection and attunement with their children. Conscious Discipline skills were also taught and practiced with students attending the Grenada Community Library summer camp, providing them with valuable tools for emotional regulation and relationship-building.

Annual Conscious Discipline Conference in Fort Lauderdale, Florida

In July 2024, six out of seven CD coaches attended the annual CD conference in Fort

Lauderdale, Florida. This week-long educator event is beneficial for personal growth and professional development.

- Two new coaches participated in the conference, gaining valuable insights and hands-on experience.
- Four experienced coaches were selected as table leaders, assisting participants while deepening their understanding of the methodologies.

The conference provided opportunities for networking, collaboration, and professional development, benefiting all attendees, whether participants or helpers.

In conclusion 2024 has been a very successful year for the CD Coaching Program. We have begun to expanded our influence, introduced a new coaching model, and strengthened the capacity of our team through professional development. As we look towards 2025, we are committed to building on this foundation by improving the quality of instruction in the Roving Caregiver Program through the appointment of five (5) dedicated Roving Caregiver Coaches. We also look forward to beginning coaching in Carriacou and continuing to monitor and learn from the implementation of CD in a full-school setting and daycare environment.



Resolving conflicts in school with the Time Machine.



Starting the school day with an individual choice of greeting.



Parent and child connection - Community Class Grenada.

Submitted by CCCN team

Saving Brains Grenada – Conscious Discipline Coaching Measurement and Evaluation CCCN Annual Report 2024

The Assessment Team of the Caribbean Center for Child Neurodevelopment continues to bolster the Measurement and Evaluation Pillar by collecting crucial data on the students,

teachers, and classrooms enrolled in the Conscious Discipline (CD) School Intervention Coaching

To close out the 2023-2024 Academic School Year, data were collected from 27 schools post-intervention and 10 waitlist control schools. Pre-intervention data has been collected on the 24 schools currently enrolled in the program for 2024-2025.

Child Neurodevelopmental Assessments

From January to July, 229 children between the ages of 3-14 (11+ in Special Education Schools) were assessed post-intervention using a neuropsychological assessment (NEPSY-II), an in-house Social Emotional Awareness and Experience measure, a sentence repetition task, and the Grenada Learning and Memory Scale (GLAMS). This assessment battery comprehensively assessed children's development levels in various domains: cognition, motor, language, socio-emotional, learning, and memory. In the waitlist control group, 189 children from Carriacou and Grenada, aged 3-10, were assessed on the same neurodevelopmental measures used at the pre- and post-intervention time points. This group's inclusion aimed to strengthen the post-intervention findings and served as a pre-intervention dataset for the waitlist schools before beginning their intervention in September 2024.

Classroom Environment Assessments

In the 2023-2024 intervention and waitlist control schools, the classroom environment was observed to determine key differences in the positive and negative climate, teacher sensitivity, and behaviour management. A researcher covertly joined the classroom and quietly observed the atmosphere in each class for two to four 20-minute intervals us-

ing the Classroom Assessment Scoring System (CLASS). In our current intervention schools, the researchers witness the classrooms on two separate occasions per term: once with the CD Coach present, and once without a Coach present. This data will be used as an additional element to visualize the impact of the CD Intervention in the classroom setting.

Teacher Assessments

Data was collected from 19 teachers post-intervention and 13 teachers in the waitlist control schools (2023-2024). Teachers currently enrolled in the program have also provided pre-intervention data. Our CD Coaching Model has shifted from working directly with students and their teachers to focusing solely on the goals and needs of the teachers and by extension their classrooms. This change aims to impart relevant and necessary CD skills to empower teachers to achieve personal and professional success per their desired outcomes. As a result, the assessment team has adapted their assessment approach to focus on data collection from the teachers and the classroom environment. The teacher assessment focuses on perceptions of psychological safety, demographics, personality, general mental health, depression screening, and fidelity to the Conscious Discipline Model. These measures were specifically chosen to help us better understand what underlying factors drive the uptake of and impact the implementation of Conscious Discipline.

In the literature, some of these factors (e.g. personality, psychological safety, mental health) have not been explored in the interventionists themselves; therefore, our findings will fill a critical research gap and inform the replication and scaling of the project nationally, regionally, and globally. Additionally,

data from these measures will allow us to build a predictive model for the success and effective dissemination of the CD Model.

Teacher and classroom assessments will continue in the intervention schools for the remainder of the 2024-2025 Academic Year. Data collected between 2023 and 2024 will be cleaned and analyzed in 2025.

Submitted by CCCN team

Saving Brains Kenya – Conscious Discipline Coaching EACCN

In January 2024, the Windward Islands Research and Education Foundation (WINDREF) received a grant from the Becky Bailey Foundation to support the research and planning for the expansion and implementation of the Saving Brains Conscious Discipline intervention in Kenya. The expansion is to be modeled after the current program in Grenada and includes the creation of a new NGO to oversee this work. The project team is happy to report significant progress in achieving these goals. The East African Center for Child Neurodevelopment (EACCN) has been registered as a non-profit Company Limited by Guarantee in Kenya as of 11 July 2024. This is a significant milestone toward achieving the project aims and objectives.

Each member of the leadership team, Dr. Barbara Landon, Dr. Randall Waechter, Dr. Susannah Otieno-Leppänen, Ms. Stephanie Holmes, Ms. Roberta Evans, has made a visit to Kenya to lay the foundation for the planned intervention and assessment work in the country. EACCN plans to initiate intervention work in the Kisumu and Kisumu West sub counties, where we will partner with county health offices, who have existing com-

munity health promotion (CHP) programs in place. Currently, those CHPs are visiting homes of pregnant women and young children to assess the health and well-being of the children and provide support to mothers regarding their optimal care and nutrition. As was done in Grenada with the Roving Caregiver program, the EACCN coaching intervention team will work closely with the CHP workers and provide coaching in Conscious Discipline. These already-existing CHP workers will thus be trained to provide skills training and coaching to parents in the community. Before this can be done, the CHPs must receive training in Conscious Discipline and demonstrate fidelity to the program.

A 10-session online Conscious Discipline training course was conducted for 35 Kisumu West CHPs in November 2024, providing them with foundational knowledge of Conscious Discipline. In early 2025, their training will continue with in-person practical training sessions focused on facilitating community group classes in Conscious Discipline. This hands-on experience will help them build confidence and skills to effectively teach the intervention.



Community Health Promoter (CHP) training – Kisumu West Kenya

Outcomes Assessment

Assessment, one of the four key pillars of the EACCN, is an important aspect of early child

development work. Assessments allow the EACCN and its partner organizations to determine whether Conscious Discipline knowledge and skills are being taken up by coaches and adult caregivers. This, in turn, provides feedback to the coaching team to assess the effectiveness of the coaching techniques, revise them, and quickly implement revisions. Further along the EACCN Theory of Change, child assessments allow the EACCN and its partners to determine whether training adult caregivers has a positive impact on neurodevelopment among young children in their care. The EACCN will utilize existing CD fidelity assessment tools and culturally appropriate child neurodevelopment tools to determine the effectiveness of the CD training of adults in Kenya and its impact on early child neurodevelopment. The EACCN will partner with academic institutions in Kenya to establish the assessment protocol for the outcomes assessment. This will likely involve a waitlist control community or communities in which “business as usual” ECD community visitation is compared to an intervention community or communities in which CD training is implemented. In the short term (i.e., 1-2 years), the final and target outcome assessment will be child neurodevelopmental outcomes.

Marketing and Communications

During this reporting period, an EACCN website was established to formalize the presence of the organization in Kenya (www.eaccnd.org). The website is modelled after the website for the Caribbean Center for Child Neurodevelopment (www.cccnd.org). Additionally, a 2-page flyer communicating the EACCN and its mission to potential partners was developed. We look forward to ongoing activities in Kenya in 2025.



Submitted by CCCN team

Integrated Early Childhood Development Strategy for Implementation in Grenada

Devising and implementing policies for early childhood development (ECD) is complex. As young children transition from home-based care to semi-formal or formal childcare, to pre-primary school and, finally, to primary school, numerous government, non-government, for-profit, non-profit, community, and family-based stakeholders may be engaged. Thus, a comprehensive systems approach that aligns maternity leave, safe places for children to learn, curriculum development, developmentally appropriate pedagogy, teacher and caregiver training and support, specialized intervention for children identified with additional need, and community engagement is critical. Effective ECD policies must engage and empower pregnant women and mothers of young children, other primary caregivers in the home, community members, private childcare workers, and pre-primary and primary school teachers, healthcare workers, child protection workers, and government officials across ministries of education, health, social development, agriculture (i.e., nutrition), environment and cli-

mate change, etc. Across contexts, school readiness can be maximized by adapting and implementing evidence-based early childhood care and education (ECCE) programs that improve cognitive function (i.e., foundational literacy and numeracy) while empowering caregivers to establish strong social-emotional connections with children that will help them self-regulate and engage effectively with peers and teachers when they enter the formal school system. Enough is now known about child development and how to foster it. For countries to ensure robust societies and healthy citizens, it is imperative to develop strategies, commit resources, and implement evidence-based ECD programming across sectors to address the cross-sectoral nature of nurturing care.

Given its universal health care system; robust Roving Caregiver Program; the existence of government daycare centers; mix of private and public pre-primary schools; and emerging services for children with disabilities, Grenada has been proposed as an integrated ECD demonstration site within the Eastern Caribbean. Building the proposed multi-sectoral, integrated ECD system will require considerable information as well as cooperation, collaboration, and creativity. In addition to detailed analysis of individual sectors, including government and private sector services for children aged 0-8, there is a compelling need to include those stakeholders who work most closely with children and their families, without whose input and awareness such a system could be rendered ineffective or even harmful. On 15 June 2024, an agreement was enacted between UNICEF, The Grenada Ministry of Education, and the Caribbean Center for Child Neurodevelopment at WINDREF (CCCN) in which CCCN will develop an Integrated ECD Strategy and costed

Implementation Plan for Grenada. The aim is to collaborate closely with the sectors of Health, Education, Social Development, and other relevant government ministries to design an action research programme with an explicit focus on enhancing the coordination and multi-sectoral delivery of integrated ECD services in Grenada. The following specific tasks were outlined in the work plan. The CCCN team is happy to report that approximately 50% of the tasks have been completed by the end of 2024, with finalization of the other 50% in 2025.

Specific Tasks

1. A written desk review of background documents (legislation, policies, national plans, research reports etc.) from Health, Education and Child Protection/Social Development Sectors. The CCCN consulting team obtained copies of all relevant legislation, policies, national plans, research reports, and other related documents. Members of the CCCN team reviewed previous reports commissioned by UNICEF, such as the Grenada Landscape Assessment (2020) and the Situation Analysis of Children in Grenada (2017), to gain insights into the ECD landscape. The 2024 Budget Statement and the Estimates of Revenue and Expenditure for the Year 2024 provided important information about active ECD programs. Submission of a final desk review to the Grenada Ministry of Education (MOE) and UNICEF was completed in 2024.
2. A written desk review of the progress made in the implementation of the current (2007) ECD policy and written recommended updates of existing governance documents, specifically the (2007) ECD Policy; and (2017) Grenada National Standards: Requirements for the estab-

- lishment and *operation of early childhood centers. Two workshops were held in the Parish of St. George on Wednesday 27 November 2024: One for n=40 teachers, principals, and public/private daycare workers, and a second for n=10 parents. At least n=10 more follow-up workshops/consultation their reflections and perspectives about sessions with principals, teachers, public/private day care workers, other key ECD stakeholders, and parents from the rest of the Parishes in Grenada are currently being planned under discussion with UNICEF and MOE, which will focus on reviewing the 2014 Early Childhood Education Services Regulations. These sessions are targeted for January-March 2025.*
3. In consultation with Grenada Ministries of Health, Education, Social Development, Climate Change and Resilience, Agriculture, Finance, and UNICEF, the CCCN team spearheaded the formation of an ECD Intersectoral Advisory Committee. Personnel included all sectors: Educators, frontline caregivers, and parents. In consultation with the Ministry of Education, the ECD Intersectoral Advisory Committee meets weekly with the CCCN team.
 4. The CCCN team recruited parents of children ages 0-8, including parents of vulnerable children, via social media and advertising, and through various networks to conduct a minimum of 4 parent focus groups, with participants representing all parishes, assessing parents' and children's needs, challenges, strengths, and parents' awareness and views of existing services for children and parents.
 5. The CCCN team recruited frontline child-care workers in child protection services, via various networks and stakeholder consultation. Frontline worker focus groups were held to assess child protection workers' and children's needs, challenges, strengths, and frontline workers' awareness and views of existing services for children and the adults who care for them; solicit recommendations, and compile and review results.
 6. The CCCN team recruited educators in pre-primary and primary schools across parishes, including for children under 3 years via government networks and stakeholder consultation. Educators focus groups were held to assess teachers' and children's needs, challenges, strengths, teachers' awareness, and views of existing services for children and teachers; solicit recommendations, and compile and review results.
 7. The CCCN team recruited community child health workers, including visiting nurses and clinic physicians across parishes and conducted 4 focus groups and/or interviews with individuals or clinic staff groups, assessing child health workers' and children's needs, challenges, strengths, and health care workers' awareness and views of existing services for children and the medical professionals who care for them; solicit recommendations, and compile and review results.
 8. The CCN team conducted a focus group with Adolescents and Youth to get quality Early Childhood.
 9. The CCCN team conducted 25 semi-structured interview consultations with relevant high-level government officials

from the Ministries of Health, Climate Change and Resilience, and Social Development (i.e., child protection) as well as key NGO officials of organizations serving youth and family, CARICOM, OECS, UN Agencies or from within various networks to obtain information about each sector or NGO's key aims and objectives, including but not limited to existing and proposed programs for children, views of intersectoral collaboration, perceived challenges and strengths, and recommendations for optimal integrated child services.

In 2025, the CCN Team will integrate the perspectives gained from these many interviews and focus groups to build a Theory of Change that identifies clear pathways to sustainable change in the Coordination and the provision of quality integrated ECD programmes and services. This will include the establishment of a SMART Results Framework to ensure effective monitoring, documentation, and evaluation of the implementation of the strategy and integrated ECD programmes and services. Finally, the CCCN team will draft an Integrated ECD Strategy, Costed Implementation Plan and a structured monitoring and evaluation framework /plan. Through public open fora, the plan will be reviewed and revised, at which point a final integrated ECE plan will be provided to the Ministry of Education and other relevant government offices.

Submitted by CCCN team

Global Water Partnership-Caribbean (GWP-C)

Virtual Workshop - Advancing Water Quality Through Blockchain Technology



As the world grapples with escalating water challenges, the Caribbean region seeks innovative solutions to safeguard its precious water resources. The Global Water Partnership Caribbean hosted a virtual workshop titled, "Advancing Water Quality through Blockchain Technology," on Wednesday, 27 March 2024. This virtual event was poised to be a game-changer, bringing together stakeholders from various sectors to explore the transformative potential of blockchain in water quality management.

The Global Water Partnership- Caribbean (GWP-C) also completed a comprehensive overview of the current state of the water quality; unique challenges and how blockchain technology can be integrated and customized to meet distinct needs of water management in the region.

GWP-C Way Completes Internship In Jamaica

Terrisha Walcott-Pierre, a dedicated Youth Ambassador for the Global Water Partnership Caribbean (GWP-C), and Public Health Professional, proudly completed a one-week internship in Jamaica from March 2nd to March 10th, 2024, as part of the GWP-C's Caribbean Water Academy for Youth (GWP-C WAY) programme.

Pierre-Walcott was sponsored by the Global Water Partnership-Caribbean to continue her capacity building by completing her intern-

ship with the Water Resources Authority (WRA) of Jamaica. As an IWRM Intern in Jamaica, Walcott-Pierre was formally welcomed by the Deputy General Manager of the Water Resources Authority (WRA)- Geoffrey Marshall, who shared oversight of the organisation's departments and responsibilities.

As part of this process, she also attended a monthly Resource Planning and Investigations Unit meeting and Investigations Unit-participating in field activities- under the Essex Valley Agricultural Development Project- where she was able to collect groundwater samples and measure the depths at limestone wells, assess in-situ water quality parameters. The samples collected were delivered to the Government's laboratory to test pH, temperature, and dissolved oxygen. They were also tested for indicators like nitrate, coliform counts and sulphate, etc.



Images showing internship activities with WRA in groundwater depth measurements (a), water sampling (b, c) from limestone wells

Figure 1: Terrisha Walcott-Pierre during her Internship at the Water Resources Commission of Jamaica.

She reiterated her appreciation for the opportunity, explaining that it provided her with valuable insights into the field of groundwater management and reinforced her interest in pursuing a career as a public

health practitioner. Terrisha Walcott-Pierre is one of the young professionals that completed the GWP-C WAY Academy, held in 2023. It comprised of a three-month comprehensive online training, which aimed at enhancing the skills of Caribbean young leaders and professionals between the ages of 20-35.

The 2023 edition of the GWP-C WAY programme aimed to provide sound evidence-based capacity-building opportunities to youth, improving essential service delivery systems, confidence in systems management, living standards improvement and provide improved investment opportunities among thirty (31) young professionals. The GWP-C WAY Programme aligns with the United Nations Sustainable Development Goal 6-Access to safe water, sanitation and hygiene.

Wastewater Monitoring And Capacity Building Workshop



Figure 2: Participants of the Water Monitoring / Testing Capacity Building Workshop held in St. Lucia in July, 2024

Eighteen (18), industry professionals including laboratory technicians, are now better prepared to monitor and test wastewater, following their participation in a five-day Global Water Partnership-Caribbean (GWP-C) and Caribbean Public Health Agency (CARPHA) regional workshop.

Participants spent 40-hours from July 22 to 26, 2024, at the Waste Management Centre, University of Technology, Jamaica participating in the comprehensive theoretical and practical exercises that covered concepts such as industry best practices, microbiological and chemical wastewater test methods, quality assurance, result analysis and the ISO/IEC 17025:2017 Quality Management System- that laboratories use to ensure that they can produce services competently and consistently.

Participants expressed 94 to 100% satisfaction with all course content and delivery parameters assessed, with 100 % of them expressing their satisfaction with the quality of the course.

The Wastewater Monitoring and Testing Capacity-Building Workshop is part of GWP-C and CARPHA's ongoing commitment to promoting sustainable water management practices and safeguarding public health across the Caribbean.

Stakeholder Consultation To Develop An Integrated Water Resources Management (IWRM) Action Framework For The Caricom Region

The Global Water Partnership-Caribbean (GWP-C) is supporting the Caribbean Public Health Agency (CARPHA) to shape the future of water management across the CARICOM Region. GWP-C is the consulting agency for the Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States (GEF-IWEco) Project; one that is important to develop a comprehensive Regional Action Framework for Integrated Water Resources Management (IWRM).

On May 2nd and 3rd, 2024, the virtual consultations commenced, bringing together stakeholders virtually from Belize, Guyana, Suri-

name, Haiti, the Bahamas, Anguilla, the British Virgin Islands, and Montserrat. The consultation included lively discussions and collaborative brainstorming sessions, comprising of best practices, identified challenges, and proposed innovative solutions.

By the end of the consultations, a sense of collective achievement filled the virtual room. The draft IWRM Action Framework for the CARICOM Region was one step closer to completion, promising a future where water resources were managed sustainably, ecosystems thrived, and communities were resilient in the face of climate change.

This project encompassed four major components: the development and implementation of innovative, climate-resilient approaches to Sustainable Land Management (SLM) and Integrated Water Resources Management (IWRM); the strengthening of monitoring and indicators frameworks; the enhancement of policy and institutional capacities; and the promotion of knowledge exchange and stakeholder involvement.

GWP-C at Sids4 Conference In Antigua



Figure 3: (Left to Right- Mr. Kerron Martinez- Programme Assistant GWP-C, Ms. Simone Lewis- Regional Coordinator and Dr. Ronald Roopnarine, Senior Lecturer, Faculty of Food and Agriculture.

Two representatives from the Global Water Partnership-Caribbean, joined the vibrant SIDS4 Conference in Antigua and Barbuda from May 27-30th, at the American University of Antigua (AUA). GWP-C's team of Regional Coordinator Ms. Simone Lewis and Mr. Kerron Martinez, engaged actively throughout the conference advancing our mission of promoting sustainable water management practices with the context of Small Island Developing States.

The highlight of the GWP-C's participation was the presentation during the Global Civil Society Organizations at the (CSO) Summit, on Monday 27th May 2024 at Tradewinds Hotel Conference Room. The summit was organized by the Integrated Health Outreach (IHO) in collaboration with the SIDS4 CSO Coalition.

The presentation by the GWP-C Regional Coordinator Ms. Simone Lewis provided valuable insights into sustainable water management, reinforcing the interconnectedness of water security and climate resilience in achieving sustainable development goals for SIDS regions.

The Global Water Partnership-Caribbean was pleased to participate in this dialogue aimed to establish a continuous communication mechanism for SIDS CSOs, promoting knowledge-sharing, networking, and capacity-building.

GWP-C Introduces AI in Grenada: Assisting stakeholders to Tackle Water Security



Figure 4: Team from Wes Trade along with Farmer Ms. Theresa Marryshow (Left). Team from Wes Trade along with Nigel Gibbs- Mirabeau Plant Propagation Station

The Global Water Partnership-Caribbean (GWP-C) embarked on an innovative Pilot project to tackle water scarcity in the agricultural sector. In response to Grenada's most recent drought experienced this year, GWP-C sought to promote strategies to tackle water scarcity and implement procedures for water conservation. As such the organisation raised awareness on the use of Artificial Intelligence (AI) in Agriculture through the use of IRRIGOPTIMAL technology.

IRRIGOPTIMAL is a cutting-edge technology that integrates ground sensors, meteorological services, and a centralized software platform powered by artificial intelligence and machine learning algorithms. It refines irrigation practices and reduces water consumption by conducting test cases on lands with varying native crops and soil configurations.

Installation of two irrigation sensors were completed on June 7th, 2024, by a team led by Alessio Bucaioni CEO of Wes Trade, accompanied by Ms. Simone Lewis-Regional Coordinator of Global Water Partnership-Caribbean and Kerron Martinez Administrative Officer at Global Water Partnership-Caribbean. They were installed on the Mirabeau Agricultural/ Propagation Station in St. Andrew and on the Farm of Theresa Marry show (St. David).

The IRRIGOPTIMAL pilot also ran a parallel educational academic program that raised awareness of its importance among stakeholders, Community-Based Organisation (CBOs), Students and other groups, empowering them to contribute to Grenada's agricultural development. The training for these stakeholders were held on June 25 and June 27 respectively.

This pilot project, titled "Tackling Water Scarcity in Grenada's Agricultural Sector with the

Use of Artificial Intelligence," underscores the Global Water Partnership-Caribbean's commitment to disseminating and facilitating the use of advanced technologies in addressing water scarcity and promoting a water-secure Caribbean through innovative, integrated solutions.

Pierre-Walcott Completes Practicum At GWP-C – Assisting With Water Quality Testing For The Mt. Granby Project



Figure 5: MPH Candidate Terrisha Walcott-Pierre completes water sampling in the Mt. Granby Community.

Terrisha Walcott-Pierre a Master of Public Health candidate at the St. George's University, has interned at the Global Water Partnership-Caribbean, becoming more versed with the real-world public health settings. Walcott, a public health professional was able to merge theory, with practical applications and enhance her skills as she conducted her practicum, gaining more insight on impactful community activities particularly the Mt. Granby Water Distribution Network Project.

This project, which is funded by the Global Water Partnership-Caribbean and the Global

Environment Facility Small Grants Programme (GEFSGP), has made an impact in addressing the water quality and infrastructure in the village. This initiative, which is also supported by the Government of Grenada, aims to provide enhanced infrastructure and community education.

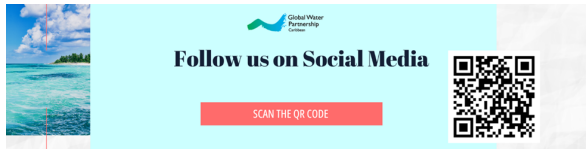
As part of her internship at the GWP-C, Walcott-Pierre acquired firsthand experience as a budding public health practitioner in water quality testing with GWP-C for the Rehabilitation of the Mt. Granby Water Distribution Network Project, as she conducted water sampling, testing and analyses for bacteriological, chemical, and physical parameters from the dam and 30 buildings in the community.

The on-site preliminary discussions enabled her to meet the community team-a key component for efficient communication and coordination, building relationships and affirming her commitment to the project. Walcott-Pierre was one of two students that completed their MPH Practicum at the GWP-C, Paulette Mitchell was the other. The practicum is an important component of the MPH program that facilitates students with experience in real-world public health settings. It aims to produce skilled public health professionals, by enabling students to merge theory with practical applications, enhance skills, meet mentors, create networks, and conduct impactful community initiatives. The general structure of this internship included placement, supervision, internship activities, and reporting & reflection.

The Global Water Partnership-Caribbean believes that both candidates Walcott-Pierre and Mitchell are now poised to utilize the information and skills gained to make a

meaningful impact in their communities and beyond. GWP-C wishes them the very best as they plan to spearhead initiatives focused on water conservation, public awareness campaigns, and educational programs that address water scarcity and promote sustainable water use.

BANNERS THAT CAN BE INCLUDED:



Global Water Partnership-Caribbean Congratulates Host Institution WINDREF Grenada on 30th Anniversary



Figure 6: WINDREF Team

The Global Water Partnership-Caribbean (GWP-C) extends congratulations to our esteemed host institution, the Windward Is-

lands Research and Education Foundation (WINDREF) in Grenada, on the momentous occasion of its 30th anniversary.

GWP-C is pleased to be associated with WINDREF and wishes to place on record its gratitude to the organisation, as it plays a pivotal role in supporting our mission to promote integrated water resources management in the Caribbean.

WINDREF’s collaborative efforts have significantly enhanced our capacity to deliver impactful programs and initiatives that ensure water security and resilience across the region.

The GWP-C also commends WINDREF on achieving the milestone- three decades dedicated to advancing research and education within the region; focusing on sustainable development and environmental stewardship.

The Global Water Partnership-Caribbean once congratulates the WINDREF Team-past and present, that have contributed to the foundation’s accomplishments. Our organisation looks forward to continued support and partnership to address challenges and opportunities for our region.

GWP-C Brings Hope To Mt. Granby And Mt. Nesbit-Commissioning State Of The Art Water System



Approximately 150 households within the Mt Granby and Mt Nesbit communities in St. John's, are poised to benefit from enhanced access to water, following the commissioning of a refurbished Community Water System. This initiative marks a significant milestone for the Global Water Partnership-Caribbean and the organisation's ongoing efforts to ensure a water secure Caribbean. Water scarcity has long been a pressing issue in these two communities, because of the old leaky pipes which resulted in increased abstraction of water from the source and reduction in the flow of water into the stream it feeds. This has impacted daily life and economic activities including agriculture, health, and overall quality of life of community members.

Through a project titled, "The Mt. Granby Community Water Improvement Project," that was funded by the Global Environment Facility-Small Grants Programme (GEF-SGP) with co-financing from the Global Water Partnership-Caribbean (GWP-C)- focus was placed on improving access to freshwater for human and ecosystem survival in the community.

"Our project was fueled by the belief that it would make a significant impact in these communities' access to reliable water," said GWP-C's Programme Assistant Kerron Martinez.

"This project was filled with valuable lessons about planning, adaptability and the strength found in collaboration. It stands as a testament of what can be achieved through dedication and strategic partnerships," he added.

Stephanie Bascombe, community member expressed her appreciation, "For the volunteers and organization which assisted in the expansion of the dam which improved its ca-

capacity to the benefit of residents in the two communities."

This project is expected to bring numerous benefits to the Mt. Granby and Mt. Nesbit communities. Included among them are increased water security, economic opportunities and empowerment.

Gregory Delsol, Member of the National Steering Committee for the GEF SGP- explained, "The GEF SGP was happy to collaborate with this organisation and this community to ensure that this project was completed and improved the lives of residents in the two communities."

Hon. Kerryne James- led by Member of Parliament for St. John, expressed her gratitude to both the funding and implementing organisation and community members that supported the initiative. According to James, "The project helps in securing our water for future generations; this also helps our citizens to have access to safe and clean water but also protects the ecosystems that sustain us."

Also participating in the commissioning were Terrisha Walcott-Pierre and Paulette Mitchell, two former Master of Public Health (MPH) candidates at the St. George's University, who completed their practicum at the Global Water Partnership-Caribbean. As part of this activity, they presented the findings from the surveys and water quality tests completed in the Mt. Granby and Mt. Nesbit Communities.

The project was commissioned with an official pipe opening ceremony on Friday 8th, November 2024, at the Mt. Granby Playing Field in St. John, Grenada witnessed by members of the community.

As GWP-C continues its mission to secure water access across the Caribbean, the Mt. Granby and Mt. Nesbit project highlights the importance of collaboration and innovation. This initiative not only addresses immediate water needs but also lays the groundwork for a more resilient and prosperous future for Caribbean communities.

GWP-C Discusses Water Management And Opportunities With Dutch Ambassador



Figure 7: Mr. Trevor Thompson- Member of the GWP-C Steering Committee and Mr. Kerron Martinez-Programme Assistant had the privilege of meeting His Excellency Cor Hersbach, Ambassador of the Kingdom of the Netherlands resident in Trinidad and Tobago, along with Ms. Shantal Richardson, Senior Policy Officer at the Embassy of the Kingdom of the Netherlands in Trinidad and Tobago.

The Global Water Partnership-Caribbean (GWP-C) is looking forward to improved collaboration and support opportunities to introduce innovative water management solutions from the Kingdom of the Netherlands following a meeting on Thursday October 3rd 2024, in Grenada.

Mr. Trevor Thompson- Member of the GWP-C Steering Committee and Mr. Kerron Mar-

tinez-Programme Assistant had the privilege of meeting His Excellency Cor Hersbach, Ambassador of the Kingdom of the Netherlands resident in Trinidad and Tobago, along with Ms. Shantal Richardson, Senior Policy Officer at the Embassy of the Kingdom of the Netherlands in Trinidad and Tobago.

Discussions during the meeting focused on water-related opportunities, challenges faced by the Caribbean region and GWP-C's initiatives geared at promoting Integrated Water Management (IWRM) and a water secure Region.

Ambassador Hersbach shared valuable insights into the Netherlands' ongoing commitment to assisting Small Island Developing States (SIDS), with the announcement of a €500,000 Dutch Disaster Risk Reduction & Surge Support (DRRS) Programme – Small Island Developing States (SIDS) fund, dedicated to supporting project proposals that align with disaster risk reduction and water security efforts. Additionally, he discussed opportunities for scholarships and potential collaborations with technology partners to introduce innovative water solutions in the Caribbean.

GWP-C remains committed to continuing this collaboration, which commenced since GWP-C's inception in 2004 and plans to coordinate future activities and explore further synergies between GWP-C and the Dutch Embassy. This meeting marks another step forward in GWP-C's mission to ensure a water secure Caribbean, through increased access to essential resources and expertise that can assist with addressing unique water-related challenges.

Message from Professor Paulette Bynoe Chair, GWP-C on Resignation of Ms. Simone Lewis as RC

On behalf of the Global Water Partnership-Caribbean (GWP-C), I wish to express our profound appreciation to Ms. Simone Lewis for her service as the Regional Coordinator over the last six years. Her dedicated stewardship has left an indelible mark on our organization, and your contributions over the years have been invaluable.

Throughout her tenure, she has led GWP-C through significant milestones, including hosting the Caribbean Science Symposium on Water, establishing the GWP-C Water Academy for Youths, and developing the Action Framework for IWRM for the CARICOM Region. Her vision and commitment have also brought to life innovative initiatives such as the GWP-C Shark Tank Competition and our first published book, *Saving Water: The Journey of Two Caribbean Kids to Understanding Water Security*.



**Professor Paulette Bynoe
Chair of the GWP-C**

As the longest-serving Regional Coordinator, Ms. Simone has played a crucial role in ad-

vancing Integrated Water Resource Management (IWRM) across the Caribbean.

Ms. Lewis is currently on leave and her resignation becomes effective on November 15th. As Ms. Lewis embarks on the next chapter of her professional journey, we wish her success and want to reassure her that our relationship will continue. We look forward to staying connected in our efforts to achieve a water-secure region, knowing that her expertise and passion will always be a part of our shared mission.

Submitted by GWP team

The UNFCCC Regional Collaboration Center for the Caribbean

In 2024, the UN Climate Change Regional Collaboration Centre for the Caribbean (RCC Caribbean), under the leadership of team lead, Mayra Santaella, continued advancing climate action across the region, with strengthened technical assistance and collaboration across a diverse portfolio of work programs including mitigation, adaptation, climate finance, transparency, and other cross-cutting areas such as gender and youth engagement.

This year also saw the addition of new team members: Clyde Walcott as Administrative and Finance Officer, Quianna Watson as Climate Action Tracking and Reporting Officer, Muhammad Afaq as NDC-LT-LEDS Intern, and Emilia and Cabrera as Article 6 and Carbon Pricing Intern, complementing the ongoing contributions of Patrick Munyaneza in Article 6 and carbon pricing, and Jason Williams in NDCs and LT-LEDS implementation. Looking ahead, the RCC is set to strengthen its capacity by recruiting an Adaptation Spe-

cialist and a Climate Action Specialist in 2025. These roles will enhance the center's ability to address the region's climate needs effectively.

With the continued support of steering committee members including WINDREF's Director Dr. Calum McPherson, Deputy Director Dr. Trevor Noel, Ms. Isha English, and Ms. Nakita Francis Williams, the RCC Caribbean has successfully organized and facilitated over 34 events, workshops, and engagements. These activities, in support of the 16 Caribbean countries covered by the RCC, have facilitated over 31 collaborations and strengthened engagement with over 60 partners in support of advancing climate goals with both Party and non-Party stakeholders. The RCC Caribbean has also provided direct support to 10 countries, and facilitated nine publications, including quarterly newsletter reports, technical flyers, and articles.

An overview of the key activities and accomplishments achieved throughout the year is highlighted below:

Adaptation

Regional Workshop on 2030 Climate Solutions - Latin America and the Caribbean

On 27th-29th August 2024, RCC Caribbean provided support to the virtual validation workshop for Latin America and the Caribbean on 2030 Climate Solutions in the region.

During this impactful event, RCC Caribbean provided introductory remarks and facilitated the participation of three distinguished speakers from the region. These speakers shared inspiring success stories highlighting effective adaptation actions, innovative approaches, and practical solutions to climate

challenges. The workshop was a valuable opportunity to validate the regional inputs on 2030 Climate Solutions and foster the contribution of non-Party stakeholders towards enhanced NDCs/NAPs. The workshop's insights fed into a Regional Outlook published ahead of COP 29 and shaped the 2030 Climate Solutions to align with regional needs and promote effective climate action. Read more about the event [here](#).

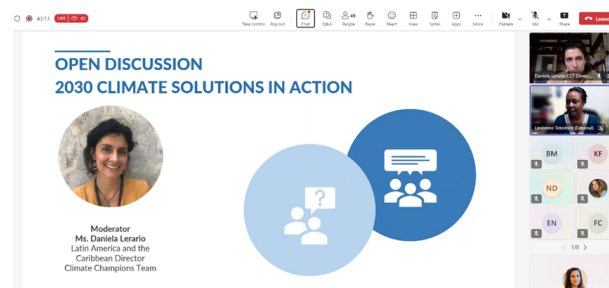


Figure 1: Participants from the Regional Workshop on 2030 Climate Solutions - Latin America and the Caribbean, which included participation of Doctor Lindonne Telesford, Assistant Professor, Department of Public Health and Preventive Medicine, SGU

Strengthening Climate Resilient Health Systems in the Caribbean

On October 23, the RCC Caribbean had the privilege to be invited to present at a themed online session organized by the University of the West Indies St. Augustine campus as part of the Climate Change and Health fellowship programme. This initiative, funded by the EU and implemented by PAHO, aims to enhance climate-resilient health systems in the Caribbean. The session engaged 11 participants and featured a presentation delivered by RCC Caribbean which highlighted the vital work of the RCCs and the support available to countries. This interactive session fostered valuable dialogue, and the RCC Caribbean looks forward to exploring future collabora-

tions in addressing climate challenges in the region.

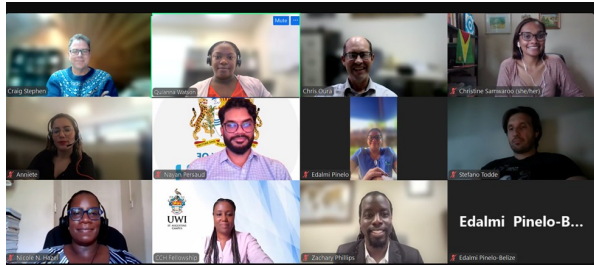


Figure 2: Participants from the UWI – Climate Change and Health session on "Strengthening Climate Resilient Health Systems in the Caribbean"

Mitigation

NDCs/LT-LEDs

Webinar on the Support Ecosystem for the Next Round of Nationally Determined Contributions (NDCs) for the Caribbean

On the 26th of March 2024, the RCC Caribbean and the NDC Partnership organized a webinar on the Support Ecosystem for the next round of Nationally Determined Contributions (NDCs) for the Caribbean region. Ten organizations presented on the NDC process and support for countries in the region. The webinar was attended by 70 participants and included a country-presentation featuring lessons learned during the preparation and implementation of St. Lucia’s NDCs. There was also a presentation on the thematic call for NDCs to countries by NDC Partnership. A key outcome of this webinar was that countries received specific information on the types of support that various partners provide in the Caribbean. Moving forward, RCC Caribbean will continue engagements with partners to discuss approaches that increase cooperation and support for ambitious and implementable NDCs by 2025. Learn more on the event page here.

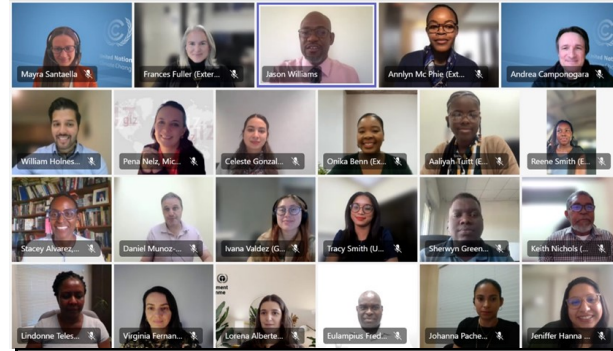


Figure 3: Participants from the webinar on the Support Ecosystem for the Next Round of Nationally Determined Contributions (NDCs) for the Caribbean

Engaging with local communities and academia in the region

The RCC Caribbean engages with local communities and academic institutions to share knowledge on UN Climate Change initiatives and recent international climate decisions. In February 2024, RCC Caribbean contributed as a guest lecturer to the Partnering for the Planet course at St. George's University in Grenada, providing insights into the organization's work and global climate priorities. In April, NDC and LT-LEDs expert Jason Williams presented the RCC Caribbean team's regional efforts as a guest lecturer at Sir Arthur Lewis Community College in St. Lucia.

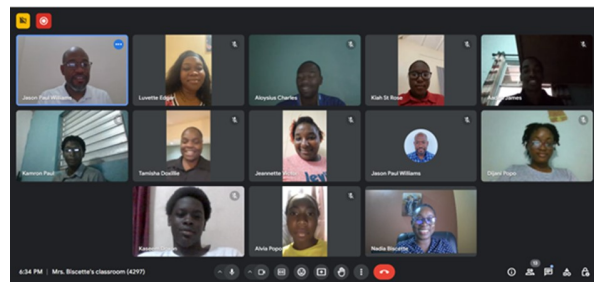


Figure 4: Students engaging in a capacity-building session led by RCC Caribbean, fostering collaboration between local communities and academic institutions.

First Regional Partners Stocktaking Meeting on the NDC 3.0 – Caribbean

On 24th of April 2024, the RCC Caribbean co-organized a regional partner stocktaking meeting on the NDC 3.0 for the Caribbean together with NDC Partnership. This virtual meeting provided a platform for dialogue and exchange among development and implementing organizations actively supporting countries in the Caribbean on NDC development in 2024-2025. Partners discussed the support available and identified opportunities for awareness creation around support. The RCC will continue to engage in support for NDC development with regular meetings to continue the discussions and collaborations on the way forward for the region in respect to the preparation and submission of the NDCs 3.0. See more on the event page.

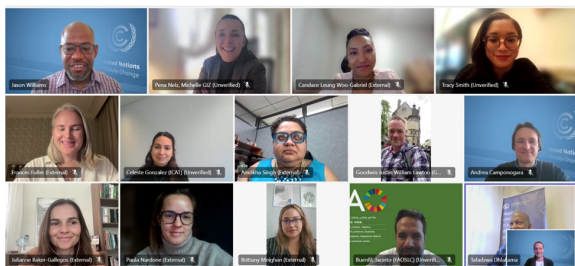


Figure 5: Participants from the First Regional Partners Stocktaking Meeting on the NDC 3.0

Island Innovation session: Governance and Multilateralism in SD

On May 7th, 2024, the RCC Caribbean was featured as a guest lecturer in the 'Best-Practice Skills for Sustainable Development in SIDS' course launched by the Island Innovation". RCC Caribbean presented a brief overview of the climate crisis, an introduction to the UNFCCC to include its Treaties, the Regional Collaboration Centres, workstreams and engagements, explanation

of the national commitments highlighting the NDCs and the sustainable development agenda. Find more information on the session here.

Strengthening Social Protection Systems in the Caribbean to Adapt to Climate Change: Opportunities and Challenges

RCC Caribbean was delighted to participate in the workshop titled “Strengthening Social Protection Systems in the Caribbean to Adapt to Climate Change: Opportunities and Challenges” co-organized by the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Children's Fund (UNICEF), which took place on May 15 and 16, 2024, in Bridgetown, Barbados.

RCC Caribbean’s intervention focused on increasing the knowledge of government representatives from a diverse range of ministries including environment, agriculture and social development on the NDC process and the 2025 NDC outlook. Key organizations were present including NDCP, IDB, World Bank, WFP, FAO, and UNICEF regional representatives, who have expressed high interest in continuing collaborating with the RCC on NDC 3.0 support to Caribbean countries. Read more on this FAO-UNICEF collaboration here.

Webinar Supports Tracking Progress on Nationally Determined Contributions (NDCs) under the Enhanced Transparency Framework (ETF)

RCC Caribbean participated in a webinar hosted by United Nations Environment programme’s Capacity-building Initiative for Transparency (UNEP-CCC CBIT GSP) Anglophone Caribbean network on “Tracking Progress of the Mitigation Commitments of Na-

tionally Determined Contributions (NDCs) under the Enhanced Transparency Framework (ETF)" on 18 June 2024. RCC Caribbean presented on the linkages of NDC tracking to the NDC 3.0 cycle and its relevance in the region for implementing the Paris Agreement. To learn more about this event, please visit the Climate Transparency Platform event page here.

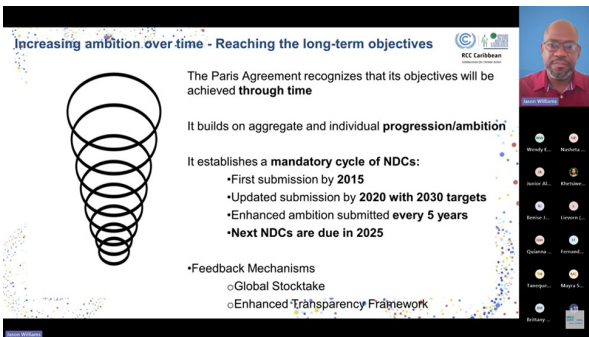


Figure 6 RCC Caribbean NDC-LT-LEDS expert, Jason Williams, delivering presentation to participants during the webinar titled "Tracking Progress on Nationally Determined Contributions (NDCs) under the Enhanced Transparency Framework (ETF) "

Second Regional Partners Stocktaking Meeting on Nationally Determined Contributions (NDCs) 3.0

On 6th August 2024, the RCC Caribbean, NDC Partnership, and UNDP co-hosted the second virtual Regional Partners Stocktaking Meeting for the Caribbean on NDC 3.0. The meeting facilitated dialogue among partners supporting NDC development in 2024-2025, providing updates on NDC 3.0 progress, the Climate Promise initiative, and introducing the NDC 3.0 Navigator tool. Key takeaways included the need for a coordinated approach, capacity building, and financing as priorities. Partners are encouraged to use the NDC 3.0 Navigator and foster collaboration toward ambitious NDCs by 2025.



Figure 7: Participants from the second regional partner's stocktake meeting held in August 2024

NDCs 3.0 Regional Forum for Latin America and the Caribbean

The NDC 3.0 LAC Regional Forum was hosted in Bogotá, Colombia from August 27-29, 2024, and organized by UNEP, UNDP, NDC Partnership in cooperation with the UNFCCC Secretariat and co-organized by UNEP-convened Climate and Clean Air Coalition as well as the GIZ.

This regional forum brought together government representatives from over 26 countries and stakeholders from Latin America and the Caribbean to address the urgent need for more ambitious and actionable NDCs. Participants explored best practices, challenges, and opportunities for advancing climate goals, highlighting the importance of both mitigation and adaptation in shaping effective climate policies. The RCC Caribbean participated in the event as presenter and facilitator of group discussions. Read more about the event here.



Figure 8: Participants at the NDCs 3.0 Regional Forum for Latin America and the Caribbean

Pathway to Nationally Determined Contributions (NDC) 3.0 for the Caribbean region: Experiences and Challenges

On September 10, 2024, the RCC Caribbean, NDC Partnership, and UNDP co-hosted a webinar on the Pathway to NDC 3.0 for the Caribbean region. Roughly 59 participants attended this event, including representatives from 11 Caribbean countries and several development partners. The session facilitated updates and the exchange of knowledge and experiences in relation to NDC preparation. Discussions focused on successful practices, challenges from previous NDC cycles, current preparation processes for NDC 3.0, and ways to enhance ambition. The webinar also included updates on the Climate Promise initiative, the NDCP Global Call on NDC 3.0/LT-LEDS, and a demonstration of the NDC [NDC 3.0 Navigator tool](#). Read more about the event [here](#).

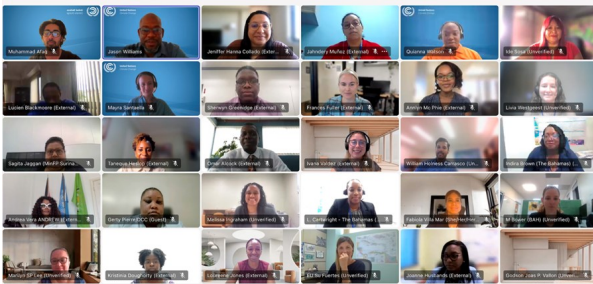


Figure 9: Participants of the webinar on Pathway to Nationally Determined Contributions (NDC) 3.0 for the Caribbean region: Experiences and Challenges

NDC 3.0 Caribbean Workshop

The UN Climate Change Regional Collaboration Centre for the Caribbean (RCC Caribbean), together with the NDC Partnership (NDCP), the United Nations Development Programme (UNDP), the Organization of Eastern Caribbean (OECs), and Gesellschaft für Inter-

nationale Zusammenarbeit (GIZ), hosted a two-day workshop in St George, Grenada, from 17th to 18th October, focused on advancing NDCs, enhancing tracking through Transparency Reporting and exploring available financial mechanisms under key thematic areas for the Caribbean. This workshop, which saw participation from 60 stakeholders including 24 representatives from 10 Caribbean countries, provided an opportunity for governments to communicate with regional and international bodies with a view to meet priorities, increase resilience, address challenges, gaps and barriers under the unique characteristics and context of the Caribbean region.



Figure 10: Participants at the NDC 3.0 Caribbean Workshop in Grenada, including Permanent Secretary Peron Johnson of the Ministry of Climate Resilience, the Environment and Renewable Energy

Technical Session on Exploring Opportunities to Integrate Tourism into NDCs in a nationally determined manner in the Caribbean Region

The UN Climate Change Regional Collaboration Centre for the Caribbean (RCC Caribbean) had the pleasure to be invited to present in a technical session co-organized by the UN Tourism and the Caribbean Tourism Organization on the 23 October. The webinar aimed to

empower the Ministries of Tourism across Caribbean nations to understand the NDC process and explore the integration of tourism into their respective NDCs in a nationally determined manner. It also discussed elements of Article 6 of the Paris Agreement on carbon markets and voluntary cooperation towards NDC achievement. The session provided actionable insights, best practices, and collaborative opportunities to ensure that tourism contributes positively to climate goals while safeguarding the sector's future viability. Read more about the Glasgow declaration on tourism and explore details of the event here.

and achieve 1.5°C goals. Explore insights from this side event here!



Figure 11: Participants at the RCC Caribbean COP29 Side Event in Baku Azerbaijan: Participants at the RCC Caribbean COP29 Side Event in Baku Azerbaijan

RCC Caribbean at COP29

On the 13th November 2024, RCC Caribbean organized the side event "Overcoming challenges in NDC design in the Caribbean: success stories from Small Islands Developing States (SIDS) towards inclusive and implementable Nationally Determined Contributions". Building on the NDC 3.0 Caribbean workshop held in Grenada in October 2024, the event featured insights from organizations such as UNDP, NDC Partnership, United Nations Environment Programme (UNEP), and country officials from Guyana, Belize, and the Dominican Republic. The keynote address was delivered by the UN Resident Coordinator from the Multi-country Office in Barbados and the Eastern Caribbean. Discussions highlighted the importance of collaboration among ministries, the private sector, and UN agencies to advance NDC 3.0 while creating fiscal space, leveraging partnerships, and bridging technical expertise gaps through capacity-building in GHG management and project design. Despite challenges, Caribbean countries remain committed to ambitious climate action, highlighting the need for innovative financing and support to sustain carbon sinks

Building effective implementation capacity for Article 6

RCC Caribbean teamed up with RCC Panamá to conduct a 3-day workshop in Cuba, to provide Cuban officials with the knowledge and skills needed to effectively implement Article 6 of the Paris Agreement. The workshop also included a knowledge exchange with representatives of the government of the Dominican Republic and Panamá which was convened from the 14th –16th May 2024. Find more information from the workshop in Cuba here.



Figure 12: Participants at the workshop "Building Effective Implementation Capacity for Article 6" in Cuba

Webinar. Navigating Article 6: A Deep Dive into the Paris Agreement Cooperative Approaches

On the 20 June 2024, the RCC Caribbean, in collaboration with Interamerican Development Bank (IDB's) Regional Climate Change Platform of Economy and Finance Ministries, the Climate Change & Environmental Advisory Unit (C2EAU), and the Office of the Prime Minister of the Bahamas, conducted a webinar titled "Navigating Article 6: A Deep Dive into the Paris Agreement Cooperative Approaches". Participants were introduced to the intricacies and applications of Article 6 instruments to various governmental ministries beyond the environmental sectors in Latin America and the Caribbean. The webinar, which saw participation from 28 individuals, focused on discussions around the role of Ministries of Finance in the institutionalization of Article 6 of the Paris Agreement.

How OECS Member States can benefit from international carbon markets

RCC Caribbean was honored to present at the Organization of Eastern Caribbean States (OECS) Commission's workshop titled: "How OECS Member States can benefit from international carbon markets. During this event, which was hosted on June 26th 2024, RCC Caribbean presented on the benefits and opportunities for Caribbean SIDS in engaging in market mechanisms under the Paris Agreement. The workshop also featured a session dedicated to exploring potential synergies and regional collaboration through a Caribbean Alliance on Carbon Markets and Climate Finance.

CPA's Carbon Pricing and Article 6 Workshop and REdiCAP

The RCC Caribbean, in close collaboration with RCC Latin America supported Carbon

Pricing in the Americas (CPA) and ECLAC in hosting the CPA's Carbon Pricing and Article 6 Workshop and REdiCAP from July 22-26, 2024, at ECLAC headquarters in Santiago de Chile, Chile. This five-day training, funded by Euroclima and the Ci-ACA Project, convened around 70 participants UNFCCC Focal Points, CPA members, observers, and partners to explore carbon pricing instruments, with focus to the implementation of Emission Trading Systems (ETS). Additionally, the event included Ci-CA's flagship Regional Dialogue on Carbon Pricing (REdiCAP) and Article 6 training, fostering practical experience sharing and promoting carbon pricing as a key climate change mitigation tool. Find More information on this event here



Figure 13: Participants at the workshop CPA's Carbon Pricing and Article 6 Workshop and REdiCAP in Chile

RCC Caribbean Webinar-Demystifying Carbon Pricing

On 22nd August 2022, RCC Caribbean, in collaboration with the Issue-based Coalition on Climate Change and Resilience for the Latin America and Caribbean region, hosted an online seminar titled "Demystifying Carbon Pricing". The webinar aimed to enhance understanding of carbon pricing for Guyana United Nations Country Team (UNCT) and facilitated discussions on Article 6 role in har-

monizing carbon markets, reinforcing Guyana's commitment to monetizing its forest assets and enhancing its position in global climate action. Read more about the event here.

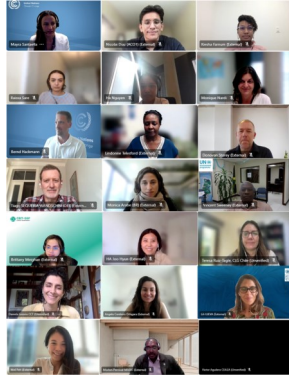


Figure 14: Participants engaged in the webinar on Demystifying Carbon Pricing

Building effective capacity for Article 6 implementation in Haiti

On September 12, 2024, the RCC Caribbean organized a webinar exploring the implementation of Article 6 of the Paris Agreement in Haiti. The event, which attracted over 22 participants from multiple government ministries, offered comprehensive insights into the mechanisms of Article 6 and how they could enhance Haiti's climate action, particularly its NDC implementation. Discussions also addressed the country's efforts to integrate these mechanisms into its future climate policies, promoting awareness of carbon markets. Read more about the event here.

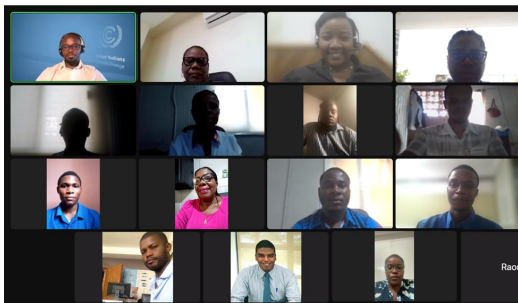


Figure 15: Participants in the webinar on Building effective capacity for Article 6 implementation in Haiti

Initial Consultation and Workshop on Tailoring the ETS Design in the Dominican Republic

On October 1–2, the RCC Caribbean, in collaboration with the National Council for Climate Change and consultants from IDOM and Sajoma, initiated the stakeholder engagement process for the Dominican Republic's pilot Emissions Trading System (ETS).

The first day's session brought together representatives from the public sector and national institutions to discuss foundational elements, including carbon pricing, sectoral coverage, and technical barriers. The second day focused on private sector participants, delving into sectoral coverage, technical challenges, and regulatory implications specific to non-public entities. Through these targeted dialogues, the ETS framework is being refined to support the country's low-carbon transition goals.

Find more information about the initial consultation here and read more about tailoring the ETS design with participation from the private sector here.

Article 6 of the Paris Agreement and RediCAP Caribbean workshops

The RCC Caribbean, together with the NDC Partnership (NDCP), the United Nations Development Programme (UNDP), the Organization of Eastern Caribbean (OECs), and Gesellschaft für Internationale Zusammenarbeit (GIZ) hosted a three-day workshop in St George, Grenada, from 14th to 16th October, focused on Regional Dialogue on Carbon Pricing (RediCAP) and Article 6 training. The week of events, which commenced with capacity building on Carbon Pricing and Article 6 of the Paris Agreement, was officially opened by the Government of Grenada, represented by Minister Kerryne James, Minister of Climate Resili-

ence and Renewable Energy. The workshop, which saw participation from 35 participants, including 16 representatives from 9 countries and representatives from non-party stakeholders addressed practical steps for Article 6 implementation, including reporting, authorization processes, and carbon pricing strategies. It also provided a collaborative platform for Caribbean government officials, DNAs, and stakeholders to share insights, best practices, and challenges in carbon pricing within diverse Caribbean contexts.



Figure 16: Participants at the Article 6 and Redi-CAP Caribbean Workshop in Grenada, which included Minister Kerryne James and Permanent Secretary Peron Johnson from Grenada Ministry of Climate Resilience, the Environment and Renewable Energy

ETS Pilot. Consultation with DR Government and Private Sector

RCC Caribbean, in collaboration with the Dominican Republic’s National Council for Climate Change, and consultants from IDOM and Sajoma, hosted a series of workshops from 1st-2nd October 2024. These consultations, designed for both public and private sector stakeholders, supported the design of a pilot Emissions Trading System (ETS) in the

Dominican Republic. The workshops addressed key elements such as carbon pricing instruments, sectoral coverage, and technical barriers. Participants engaged in discussions aimed at tailoring the ETS to the country’s specific climate and economic conditions, marking the beginning of an essential process in transitioning towards a low-carbon economy.



Figure 17: Public and Private sector stakeholders that participated in the ETS Pilot. Consultation with DR Government

Navigating the Complexities of implementing an ETS in the Dominican Republic: Consultations with key private and public stakeholders.

From 29-31 October, the RCC Caribbean, in partnership with the Consejo Nacional de Cambio Climático y Mecanismo de Desarrollo Limpio and IDOM/Sajoma, convened a series of bilateral technical meetings in Santo Domingo with the aim t to gather insights and perspectives on the implementation of an Emission Trading System (ETS) in the Dominican Republic. RCC Caribbean met representatives from cement producer associations, energy companies, the Ministry of Finance, and the Ministry of Economy, Planning and Development.

ETS Pilot Consultation for Cement Sector in the Dominican Republic

On 29 October 2024, RCC Caribbean, in partnership with the Consejo Nacional de Cambio Climático y Mecanismo de Desarrollo Limpio and Cemex Dominicana, convened a consultation in Santo Domingo to advance the development of an Emissions Trading System (ETS) pilot for the cement industry. Key discussions centred on defining baseline emissions, establishing a Monitoring, Reporting, and Verification (MRV) system, and navigating regulatory challenges in emission reduction efforts. This pilot aims to lay the foundation for sustainable industry practices within national climate objectives.

Climate Finance

Unlocking a Sustainable Future in Small Island Developing States (SIDS)

RCC Caribbean co-hosted a side event alongside Island Innovation and GIZ titled “Unlocking sustainable future in SIDS: national climate policies and actions on clean energy and climate finance” on May 30th at the SIDS4 Conference in Antigua and Barbuda. The event discussed linkages between national policies, transparency reporting and finance mechanisms through the lens of energy transition in SIDS as an opportunity to advance climate action in small islands. It was well attended and brought together participants from the Caribbean and Pacific SIDS. For more information on this event, visit the webpage here!



Figure 18: Participants at the SIDS conference event “Unlocking a Sustainable Future in Small Island Developing States”

UN Tourism side event at the Fourth International Conference for Small Island Developing States (SIDS4) Features RCC Caribbean

RCC Caribbean participated in the UN Tourism side event at the Fourth International Conference for Small Island Developing States (SIDS4). Mayra Santaella, Regional Lead for the RCC Caribbean delivered the Keynote Address at the UN Tourism side event titled “Regenerative Tourism for Resilience: Policy, Practice and Finance” on May 29th at the SIDS4 Conference in Antigua and Barbuda. Mayra highlighted the importance of tourism to SIDS countries and the role of mitigation and adaptation actions to the sector. To learn more, visit the event page here

Youth

Caribbean Youth Webinar: Introduction to Nationally Determined Contributions (NDC) and the NDC 2025 Outlook

On September 24, 2024, the RCC Caribbean, in close consultation with the UNFCCC ACE team, hosted an interactive webinar targeting youth within the Caribbean Region. The session explored the NDC process and how Caribbean countries are integrating youth perspectives. Eleven participants, including members of the Youth Advisory Group (YAG) and the Caribbean Youth Environment Network (CYEN), gained insights into NDC design and the importance of inclusivity. Participants also discussed ways for youth to actively engage in their countries' NDC processes, promoting greater involvement in climate action. Read more about the event here.

Communication and Outreach

In 2024, RCC Caribbean continued to enhance its communication and outreach initiatives, ensuring stakeholders remained informed and engaged through a variety of channels. Our

efforts focused on delivering timely, relevant content to support climate action across the Caribbean region. Here are the key resources we made available:

- RCC St. George's Webpage
- RCC Caribbean bi-monthly Newsletters

Submitted by RCC Caribbean team

The CREEi-Hastings Center Climate Bioethics Program (NIH-FIC Award # 3R25TW 009731-11S1)

The final cohort of students enrolled in the two-year long CREEi master's in bioethics degree program (MScB) completed in May 2024 during an intensive course hosted by WINDREF on the SGU campus in Grenada. In addition to educational activities, each of the 15 enrolled presented and defended their master's theses, much of which reflected normative work in research ethics with policy implications. Four of the graduates were from English-speaking countries and 11 were from Spanish-speaking countries of the Caribbean basin.

CREEi's supplemental award, the Climate Bioethics Program, accepted nine scholars including four from English-speaking countries (Guyana, Belize, Jamaica), two from Honduras, and three from Mexico. They participated in a series of webinars led to immerse them in normative and ethical concerns about the health impacts of climate change as each developed an essay topic that concerned them as it impacts their own country. Two of six webinars were led by prominent bioethicists with extensive work on environmental health concerns (Dale Jamieson and James Dwyer) and one was led by the Executive Director of the Lancet Countdown (Marina Romanello).

The CBP scholars then continued to develop and improve their essays with individual mentoring by a CBP faculty assigned to them. These essays will be published on The Hastings Center website early in 2025 as volume 2 of Voices in Bioethics from the Caribbean Basin (volume 1 was essays on other topics by CREEi graduates who participated in the Bioethics Scholars Program in 2023 and is available here <https://www.thehastingscenter.org/>

The CBP also conducted a three day virtual workshop (entirely online) for invited guests comprising Caribbean health professionals confronted by health impacts of climate change, CBP scholars and faculty, and select guests from high income countries. CREEi scholars and Caribbean public health leaders gave short summaries of their work and regional responses to a given climate-health challenge, and plenary discussions moderated by CBP faculty and affiliates ensured robust interdisciplinary dialog. Additionally, a public facing webinar about key issues addressed by participants will be presented by The Hastings Center of February 13, 2025 at 12pm EST. The link to the recording of this webinar will be available open access on The Hastings Center website along with English- and Spanish-language transcripts.

CREEi and its supplemental programs will close out in 2025 after having educated nearly 100 fellows in research ethics and bioethics through its one-year certificate program, credentialing 41 with its MScB degree, and providing additional professional development in critical thinking and writing for 17 graduates. Outputs will include publicly available curricular materials from the bilingual MScB program, 17 essays by scholars of the CBP and preceding Bioethics Scholars Program, and at least several of the six manu-

scripts to be submitted for publication by graduates and faculty in 2025.

CREEi and its supplemental programs are the result of a collaborative partnership between SGU, WINDREF, Clarkson University, Universidad Autónoma de Querétaro, and The Hastings Center.

The Caribbean Research Ethics Education initiative (CREEi) is supported by NIH-FIC Award number 3R25TW 009731-11S1.



CBP workshop: scholars in USA, March 2024



CREEi Cohort 3. Celebrating the birthday of a fellow during the Intensive course at WINDREF. Photo in Caribbean House, SGU campus, Grenada, May 2024.



CBP workshop: Scholars and faculty at UAQ campus in MX, March 2024

Submitted by Dr. Cheryl Macpherson

The Caribbean Cancer Portal – Formally Launch in the Caribbean

The Caribbean Cancer Portal was officially launched on 4 February, 2024 with five other Caribbean countries joining Grenada. The Ministries of Health in Dominica, St. Vincent and the Grenadines, Antigua, St. Kitts and Nevis, and St. Lucia approved implementation in their respective countries. The launch was attended by cancer patients, survivors, healthcare workers, academics and research-



CREEi Cohort 3 fellows and faculty at Intensive course at WINDREF on SGU campus in Grenada, May 2024

ers, health administrators, and others from across the region. The launch featured cultural features and patient testimonials about the value of cancer education in guiding their decisions. Following the launch, a series of cancer education programs were delivered via the portal with high Caribbean participation but also with an active following by other countries across the globe. Topics were tailored to address cancer among men, youth, and women. Education sessions with CME credit also targeted healthcare professionals. The medical illustration team, Women in Medicine, and the Department of Public Health and Preventive Medicine at St. George’s University created new tailored education materials for hosting on the portal site. Under the Organizational Capacity Building component, several organizations’ representatives registered to participate in a series of training by a regional organizational development expert. Special thank you is extended to the Steering Committee for its tremendous work in 2024.

Wastewater Treatment and Recycling Project

A major step was taken in the Wastewater Treatment and Recycling Project for the Princess Alice Hospital and community farmers towards ensuring the million-dollar project meets its completion deadline in the first quarter of 2025. The pilot project will use Activated Filtration Media (AFM) technology to transform wastewater from the hospital to a standard for reuse in agriculture production. On 26 April 2024, the Memorandum of Understanding was signed between senior officials of the Windward Islands Research and Education Foundation (WINDREF), Ministry of Health, Wellness and Religious Affairs, National Water and Sewerage Authority, and the Ministry of Agriculture. Permanent Secretary in the Ministry of Health, Ms. Ronda Jones, signed on behalf of the Ministry. Mr. Terrance Smith, Acting General Manager of NAWASA and Permanent Secretary in the Ministry of Agriculture, Mr. Isaac Bhagwan, also signed on behalf of the organizations in the ceremony witnessed by health workers and members of the project Steering Committee. The MOU affirms the full implementation and maintenance of the project through technical support and financial contributions. Dr. Telesford, the grantee and Project Manager, presented remarks emphasizing the co-benefits of the project for livelihood, the environment, and food security and safety. The project is also supported by the Government of Grenada through the Ministry of Infrastructure Development, Transport and Implementation (MOIID) and the Ministry of Mobilization, Implementation, and Transformation (MIT). The first container of equipment, consisting of a three-phase septic tank, designed for



Featured and supported events of the CCP in 2024.

Submitted by Dr. Lindonne Telesford

efficient tertiary-level treatment of sewerage, arrived on the island in late December, 2024. This modern septic system will replace the traditional and defunct systems at the Princess Alice Hospital. The project marks a crucial and transformative step by for environmental protection and food safety. Mirabeau is a major basket for fresh produce production in Grenada. The project is a first for the Windward Islands and is expected to be replicated to address livelihood and climate change in the region. The Wastewater Treatment and Recycling Project is funded by the Caribbean Development Bank, the Government of Grenada, WINDREF, and NAWASA.



Figure 1: Dr. Telesford making remarks at the signing ceremony, April, 2024



Figure 2: Permanent Secretary in the Ministry of Agriculture, Mr. Isaac Bhagwan and Acting Manager of NAWASA, Mr. Terrance Smith, signing the MOU



Figure 3: Permanent Secretary in the Ministry of Health, Ms. Ronda Jones, signs the MOU



Figure 4: 3-phase septic tank at Mirabeau



Figure 5: L to R: Sr. Marva Primus-Joseph, Administrator, Princess Alice Hospital, Hon. Phillip Telesford, Minister of Health, (MOH), Dr. Calum Macpherson, Director of WINDREF, Dr. Trevor Noel, Deputy Director of WINDREF, Mr. Wayne Finlay, Ministry of Mobilization, Implementation and Transformation, 2 representatives from Biomedical Sciences, (MOH), Mr. Todd LaBarrie, Senior Engineer, NAWASA, Mr. Terrance Smith, Acting General Manager, NAWASA, Dr. Lindonne Telesford, Public Health Program, SGU, Jasmine Palmer, Public Health Student, York University. Additionally our collaborators from Scotland, David Maclennan and Stephanie Brown were online via zoom call

Submitted by Dr. Lindonne Telesford

Investigating the role of mangroves in protecting shorelines in island nations in the tropics and subtropics

Mangroves are a group of salt-tolerant woody plants that thrive in the intertidal zone, serving as a critical buffer between land and sea. These plants provide essential ecosystem services, including coastal protection, serving as a biodiversity hotspot, and playing an important role in carbon sequestration (storing carbon at a rate up to 10x greater than other tropical forests). Additionally, they offer valuable benefits to local communities, supporting livelihoods and fisheries. Despite their importance, global mangrove coverage continues to decline with an estimated 20-35% already lost due to deforestation, coastal development and climate change. Understanding the importance of preserving and restoring these habitats plays a major role in protecting shorelines in island nations.

The goals of this study were to assess varying mangrove restoration approaches for maximum regrowth and shoreline stabilization with an additional goal of examining the invertebrate and vertebrate diversity within established mangroves and their recolonization following the reestablishment of new mangroves. The project had the following aims: 1) Compare the survival rates between nursery plants and propagules in the wild; 2) Compare the growth rate between nursery plants and propagules in the wild; 3) Compare the advantages and disadvantages of nursery production of mangrove plants; 4) To compare the species diversity within established mangroves and newly reestablished mangroves; 5) To examine the recolonization of species following the reestablishment of new mangroves.

For this study *Rhizophora mangle* (Red mangroves) were selected due to being the most resilient species overall with studies showing more success transplanting this species than others. Additionally, *R. mangle* is the dominant species within the Caribbean and widely distributed around Grenada. In April 2024 mangroves were planted from propagules in the Grenville Bay community nursery which are being utilized as part of this study (Figure 1). In October 2024 an additional 20 *R. mangle* propagules were collected from the Woburn area (Figure 2). A total of 16 nursery plants and 16 propagules were planted alternatively along Kirani James Boulevard in November. Each plant was tagged and coded appropriately. Biweekly data collection is ongoing, with monitoring of plant survival rates, missing individuals, height (measured from the ground to the tip of the shoot), leaf count, crown cover and salinity levels.



Figure 1: Mangrove nursery plants grown in Grenville Bay Community



Figure 2: *R. mangle* propagule collected from Woburn

The first two months revealed that propagules initially grow faster than nursery plants. The tallest propagule currently measures 42.5 cm, while the tallest nursery plant stands at 57.4cm. To date 6 propagules have been lost and 2 nursery plants. Crown cover ranges from 11-20.9cm for propagule and 0 – 28.5cm for nursery plants, providing further insights into growth patterns across both approaches (Figure 3 - 5).

The projects ultimate aim is to provide evidence-based data for restoration efforts targeting mangroves. If nursery development can be justified following the outcome of this study future studies such as redesign of nursery propagules conditions, examining the duration of propagule growth in the nursery and developing a replanting method will be considered and investigated.

Submitted by Kiera McPherson, Kendon James, Steven Nimrod and Cal Macpherson



Figure 3: Propagule seedlings at initial planting stage



Figure 4: Propagule growth after a month in the wild



Figure 5: Propagule growth after two months in the wild

External Grants and Funding

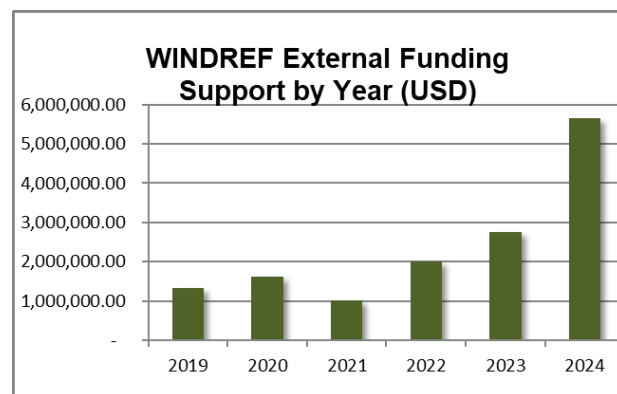
We thank all the donors who have made WINDREF's work possible in 2024:

- Global Water Partnership (GWP) – For the GWP Caribbean Regional Office
- National Institutes of Health, Fogarty International Center – For the Caribbean Research Ethics Initiative (CREEi) and CREEi supplement
- National Institutes of Health – Sample-to-Answer, Rapid, Multiplexed and PCR-Free Diagnostics of Arboviral Diseases in Resource Limited Settings
- United Nations Food and Agriculture Organization (FAO) – For the Practical Climate Adaptation in Fisheries Interventions in Grenada project
- United Nations Framework Convention on Climate Change Secretariat (UNFCCC) Secretariat – For the Caribbean Regional Collaborating Center St. George's
- Caribbean Biodiversity Fund, Ecosystem-based Adaptation Facility – For the Innovative Nature-based Solutions to Enhance Community Resilience in Grenada project
- Caribbean Biodiversity Fund, Ecosystem-based Adaptation Facility- Safeguarding

- Telescope’s Coastline, using a Living Shoreline Approach
- Becky Bailey Foundation – For the Conscious Discipline Grenada project
- American Psychological Association Helping Hands Grant – For the Novel Reintegration into the Community Program
- Caribbean Development Bank – For the Grenada Wastewater Treatment and Recycling Project
- The National Oceanic and Atmospheric Administration through the University Corporation for Atmospheric Research – Assessing Excessive Heat Vulnerability in Caribbean Countries
- German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety, International Climate Initiative (via the Greenhouse Gas Management Institute) – For the WINDREF-based Measurement, Reporting & Verification Hub (CCMRVH)
- The Pan American Health Organization (PAHO)– The Caribbean Cancer Portal
- FAO- Provision of Practical Climate Change Adaptation in Fisheries Interventions in Grenada
- Caribbean Biodiversity Fund- Safeguarding Telescope’s Coastline, using a Living Shoreline Approach
- The American Psychiatric Association Foundation- Determining the Efficacy of Podcasts in Increasing Mental Health Literacy in Baltimore
- The American Association of Veterinary Medical Colleges (AAVMC) – Threshold Concepts and Capabilities in Veterinary Pharmacology; a Multi-Center International Study of Students' Perspective
- UNICEF- Integrated Early Childhood Development (ECD) Strategy for Implementation in Grenada

- The Global Environment Facility (GEF) - Small Grants Programme- To enhance coral reef restoration efforts within the Grenville Bay Area through the integration of community knowledge and leadership
- Unleashing the Blue Economy of the Caribbean - Contingency Emergency Response Component (UBEC-CERC)- Capacity Building in Safety at Sea, Onboard Fish Handling and Dropline Techniques for SVG Fishers
- University of Trinidad & Tobago - Improving Metastatic Breast Cancer (mBC) Quality of Care and Equity in the Caribbean
- The European Commission- A Community-based Intervention Program to Support Children’s Rights and Prevent Gender-based Violence
- The McGuinness Foundation

Total funding received in 2024 was \$5.65 million. This was more than double the funding received from the previous year.



2024 Grant Applications

Thirteen grant applications were submitted to external funding agencies in 2024. The total potential value of these grant applications was \$8.8 million USD. Three of these

applications were successful and five are still waiting for a final decision about funding and one was not funded (green = funded, black = waiting for a decision, red = not funded):

- Noël, TP. Capacity Building in Safety at Sea, Onboard Fish Handling and Dropline Techniques for SVG Fishers (UBEC-CERC)
- Telesford, L. Improving Metastatic Breast Cancer (mBC) Quality of Care and Equity in the Caribbean (UTT)
- Landon & Waechter. A Community-based Intervention Program to Support Children's Rights and Prevent Gender-based Violence (The European Commission)
- Martin. ADAPT: Adapting Ocean Best Practices to the local context (Caribbean Pilot Project) (UNESCO)
- Macpherson. Reducing the Impacts of Climate Change through Enhancing the Marine and Coastal Ecosystems within the Community of Soubise St. Andrew (CBF)
- Landon & Waechter. Using public awareness, positive engagement, and youth empowerment to reduce gender-based violence in Grenada (LEAF)
- Landon & Waechter. Reducing Adverse Childhood Experiences to Improve the Rights and Health Outcomes of Grenadian Children (The Commonwealth Foundation)
- Noël., TP. Unleashing the Blue Economy Project-CRW (UBEC-CERC)
- Landon & Waechter. Expanding the Saving Brains Grenada program to promote inclusive early learning and school readiness across three Caribbean nations
- Macpherson, CNL. Implementing Circular Wastewater Solutions to Restore Marine Health by Improving the Water Quality of Infiltration and surface runoffs

- Macpherson, Cheryl. Bringing Caribbean Bioethics to Climate-Health Research
- Landon & Waechter. Generating knowledge to scale the Saving Brains Grenada program to promote inclusive early learning and a smooth transition to school readiness across four Caribbean nations
- Bandelow, S. Advancing commercial, scalable processing or storage of Caribbean Sargassum'

Past Research Projects

Non-communicable Diseases

- Assessing the prevalence of diabetic complications by examining type I and type II adult diabetics for signs of retinopathy, neuropathy, nephropathy and dermatological changes associated with poor glucose control within the native Caribbean population of Grenada
- A Church-based intervention to improve hypertension prevention and control among women in Grenada
- Alcohol consumption in Grenada
- Angiotensin converting enzyme and angiotensinogen gene polymorphisms in the Grenadian population: relation to hypertension
- Antimicrobial properties of skin secretions from *Eleutherodactylus john-stonei* on bacteriological isolates
- Assessment of the effectiveness of broad-spectrum treatment to children with protozoan and nemathelminthic parasitic infections on diarrhea and school attendance
- Decompression sickness among the indigenous fishing population in Grenada: Assessing the burden of disease

- Development of a decision rule for screening Obstructive Sleep Apnea and its epidemiologic relevance to the people of Grenada
- Diurnal variation of urinary endothelin -1 and blood pressure: related hypertension
- Epidemiology of human injuries by wildlife in six villages within Queen Elizabeth National Park, Uganda
- Epidemiology of human injuries resulting from wildlife in ten villages within Queen Elizabeth National Park, Uganda
- Evaluation of the relocation potential for villagers residing in Queen Elizabeth National Park, Uganda
- Examination and analysis of prostate cancer in Grenada
- Genetic Correlates of the Addictive Diseases: Cocaine, Alcohol and Marijuana Addiction
- Gram-negative bacteria isolated from aquatic environments of Grenada (61.4° W, 12.0°N), West Indies
- Grand Challenges Canada – For the Saving Brains Grenada Scale-up project
- Grenada School Nutrition Study: Evidence to Inform Policy
- Hypertension management and control in two Caribbean countries
- Identification of bacteria producing antibiotics isolated from deep marine biofilms of Grenada
- Knowledge, attitudes, beliefs and practices of sickle cell anemia in Grenadian primary and secondary school children
- Neglected Tropical Diseases (NTDs) and Rheumatic Fever in Grenada: a project to prevent/eliminate helminthic and rheumatic fever infections among children (5-15 years of age)
- Novel antibiotics from tropical marine environments: drug development in Grenada
- Occupational Health Problems among Nutmeg Factories Workers, SGU Small Research Grant Initiative
- Perspectives on the Uptake of Breast and Cervical Cancer Screening in the English-Speaking Windward Islands: A Collaborative Approach
- Post-hurricane water surveillance in problematic areas of Grenada
- Prevalence of *Campylobacter fetus* subspecies *venerealis* and other microorganisms in the reproductive tracts of cattle from the southern region of Santo Domingo, Dominican Republic
- Prevalence and associated risk factors of hypertension in a sample population of native Caribbean's in Grenada, West Indies
- Promoting Resilience Among Medical Students: A Comparison of Mindfulness, Yoga, and Exercise
- Rural Ugandan village perspective on lion, leopard and hyena conservation
- SGU Environmental Testing Unit (ETU)
- Spice Research Program
- Sport for Health Programme
- Study of the calls of the spotted hyena at feeding
- Study of the mutacin C-7A
- Sulfate-reducing bacteria in oxidized freshwater of tropical mangroves
- Survey on the attitude of villagers in Queen Elizabeth National Park, Uganda towards the threat of lions, leopards and hyenas
- The Effectiveness of Life Seasons' Diabet-X in reducing HbA1c among Grenadians with Metabolic Syndrome

- The effects of iron-deficiency anemia on cognition and behavior in infants
- The Elimination of the Soil Transmitted Helminths from Grenada and Beyond
- The incidence and mortality of cancer in Grenada over the ten-year period: 1990-1999
- The prevalence of abnormal haemoglobin traits in Grenadian secondary school adolescents
- UNICEF – For the Saving Brains Grenada Scale-up project and Combatting Violence Against Women and Girls: Development of GBV Victims’ Rights Policy for Grenada
- WINDREF / SGU Hurricane Relief
- Woman to Woman: A Cervical Cancer Education Program for Grenadian Women
- Assessment of Neurocognitive Functioning in 2-year-old ZIKV-exposed Children
- Chlamydial infection among STD clinic attenders in Grenada
- Covid 19 Screening and Surveillance Programme in 2021
- COVID 19 Screening and Surveillance Programme Report and Vaccination Report
- Possible genetic predisposition to Cystic echinococcosis in Morocco and Uganda
- Dengue virus in Grenada: seroprevalence and associated risk factors
- ELISA antibody titres against group A streptococcal M protein moiety and cell wall N-Acetyl-D-Glucosamine in Grenadian Rheumatic Fever patients
- Evaluating the level of perceived fear and desensitization towards HIV/AIDS in Botswana

Infectious Diseases

- Characterization of Immune Factors of Chronic Chikungunya Disease
- A multi-center longitudinal research study of the ethical analysis of informed consent of the prevalence of HIV-1 infection in pregnant women and their babies on the islands of Grenada and St. Vincent
- A cross sectional study of the current status of *Schistosoma mansoni* in St. Lucia by field surveys and supplementary data collection
- A current appraisal of dengue virus in Grenada –serotype analysis and vector assessment
- A site receptivity study determining the threat of reintroduction of malaria into Grenada through the study of *Anopheline* spp. mosquito vectors
- Assessing the potential risk factors of dengue and dengue hemorrhagic fever in the tri-island state of Grenada, Carriacou and Petit Martinique
- Investigation of Disease in Pre-growout Fish in a Commercial Aquaculture Operation in Ecuador.
- Fever in Grenada
- HIV/AIDS health education and evaluation program in Grenada
- HIV/AIDS in rural Botswana differentiating between informing and educating
- Intestinal protozoan infections in 6-12 year old children in Grenada
- Intestinal helminth infections in 6–12-year-old children in Grenada
- Investigation of the prevalence of SIV in the mona monkey (*Cercopithecus mona*) in Grenada
- Isolating Tcells from Rheumatic Fever positive blood: immunofluorescent assay of T lymphocytes via fluorescently labeled monoclonal antibodies
- Dengue Surveillance in a Caribbean Travel Population
- Engaging Young People as Agents of Change

- Zika and Neurodevelopment among Infants in Grenada: 36-month Assessment
- Mosquitoes and tourism in Grenada
- Rheumatic Fever in Grenada
- Rheumatic Fever: demonstrating the inheritance fashion of non-HLA B lymphocyte alloantigen D8/17, a marker for Rheumatic Fever
- Screening for Batrachochytrium dendrobatidis and ranavirus in Grenadian amphibians, potential threats to native Grenada Whistling Frog *Pristimantis euhronides*
- Seroprevalence of heartworm infection in dogs in Grenada
- Streptococcal program in St. Vincent
- The efficiency of diagnosing women of *Toxoplasma gondii* using PCR techniques in comparison with ELISA
- The prevalence of filariasis and its effects on children aged 8-14 in the central corentyne region of rural Guyana
- The prevalence of intestinal parasites in school children in rural Guyana
- The prevalence of streptococcal infection in school children aged 5–15 years in Grenada, Carriacou and Petit Martinique
- The seroprevalence of *Toxoplasma gondii* in a population of pregnant women and cats in Grenada, West Indies
- The Spectrum of Zika Disease in Grenada
- Zika Surveillance in the Southern Caribbean and Reference Lab Support
- A comparative study to find out if there is an association between sexual practices and knowledge in adult populations of Botswana and Grenada with the prevalence of HIV/AIDS
- A multi-center longitudinal research study of the behavioral significance of the prevalence of HIV-1 infection in pregnant women and their babies on the islands of Grenada and St. Vincent
- Determining the role of IL-15 in mediating function of viral-specific CD8+ T cells in the myelopathogenesis of HTLV-1: symptomatic versus asymptomatic patients
- Effectiveness of a formula feeding/weaning intervention program in preventing transmission of HTLV-1 from seropositive mothers to newborns in Grenada
- Evaluating the effectiveness of educational methods in the prevention of Rheumatic Fever and knowledge, awareness and practices
- Identification and characterization of hantaviruses among the mammal population of Grenada
- Elimination of Lymphatic Filariasis in Guyana Program
- Neurodevelopment and Vector-borne Diseases: Building Research Capacity in the Tropics.
- Neglected Tropical Diseases and Rheumatic Fever in Grenada: A project to prevent/eliminate helminthic and rheumatic fever infections among children (5-15 years of age)
- Prevalence of intestinal helminth infections in rural Grenadian school children
- Seroprevalence of HIV-I and HIV-II in pregnant women in Grenada, W.I. – their knowledge of AIDS and their exposure hazards to the virus
- Studies examining the elimination of lymphatic filariasis as a public health problem in Guyana

Unique Projects

- Beekeeping in Grenada: effects of the mite *Varroa jacobsoni* and its contro

- Building Climate Resilient Health Systems in the Caribbean: A One Health Approach. Pan-American Health Organization (PAHO).
- Caribbean Research Ethics Education Initiative (CREEi)
- Caribbean Cooperative MRV Hub
- Center for Research on Storytelling in Education (CRSE)
- Characterization of five amphibians inhabiting Grenada and subsequent isolation and antimicrobial assay of potential antibiotics derived from their skin
- Conservation Leadership in the Caribbean (CLiC)
- Effects of Grenadian medicinal plants on endemic microbial causes of diarrhoeal diseases
- Genotyping and satellite tracking of Hawksbill (*Eretmochelys imbricata*) and Green (*Chelonia mydas*) sea turtles in Grenada
- In-country Project Coordinator for the Eastern Caribbean Marine Managed Areas Network (ECMMAN) Project
- Innovative Nature-based Solutions to Enhance Community Resilience in Grenada (ING) Program
- Investigation of medicinal plants in Grenada
- Microgrant Award - Council on International Veterinary Medical Education
- Knowledge, Attitudes, and Practices Regarding Rabies in Grenada: A Cross Sectional Study
- Medicinal drugs from the sea: what do Grenada's waters have to offer?
- Mona monkey studies in West Africa
- NDA Toolkit & No -Objection Procedure and the Establishment of a Monitoring, Reporting and Verification System (MRVS) -Saint Vincent and the Grenadines
- Novel Reintegration Program into the Community
- The Center for Research on Storytelling in Education
- Provision of Practical Climate Change Adaptation in Fisheries Interventions in Grenada
- REM sleep and memory
- St. George's University – For the One Health Research Initiative
- Stimulation of angiotensin 4 in cardiac fibroblasts activates matrix metallo- proteinases through MAP kinases pathways: A model for astrocytes
- The neurobiological basis of hypoglycemia associated autonomic failure
- The Spencer Foundation – For the Center for Research on Storytelling in Education
- UNICEF 2022 Spotlight Initiative STAR Public Service Announcements
- United Nations Food and Agriculture Organization (FAO) – For the Caribbean CC4 Fish project
- US Fish and Wildlife Service – For the Consumer Behavior Change Campaign and Intelligence-led Conservation Capacity Assessment to Address the Illegal Wildlife Trade in Trinidad and Tobago
- Use of medicinal plants in Grenada
- WS Atkins International Limited – For the Blue Economy Assessment project
- Health, Polluted Water and Soils: Pathways to Impact

WINDREF Associated Research Publications

Publications

Journal Articles (26)

- Andrade M.C, Elzibak S and Bidaisee S (2024). Barriers to prevention of premature mortality in rheumatoid arthritis

- among low socioeconomic status Hispanics in the United States. *IPHJ* 2024;16(2)
- Arora, K, Elzibak S and Bidaisee S (2024). Impact of COVID-19 pandemic on social isolation and mental health of adolescents in the United States. *IPHJ* 2024;16(2)
- Bidaisee, S (2024). The intersection of health: Humans, animals, and the environment. *The International Public Health Journal Special Issue*, Volume 16, Issue 2, 2024
- Birky C, Elzibak S and Bidaisee S (2024). Survey related to Leatherback sea turtle consumption, of people 18 years or older in Grenada. *IPHJ* 2024;16(2)
- Blackmon, K., Evans, R., Mohammed, L., Burgen, K. S., Ingraham, E., Punch, B., ... Landon, B. (2024). The Grenada Learning and Memory Scale: Psychometric features and normative data in Caribbean preschool children. *Journal of the International Neuropsychological Society*, 30(9), 856–866. doi:10.1017/S1355617724000481
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Abstracts/Presentations at International Conferences (7)

- Evans R, Isaac R, Murray T, Mohammed L, Burgen KS, Punch B, Waechter R, Landon B, Blackmon K (2024). Beyond Zika Virus: Socioeconomic and Maternal Health Factors Influence Early Childhood Memory Functioning in Grenada, West Indies.

Poster presented at the Global Neuropsychology Congress in Porto, Portugal July 3-5 2024.

- Kiener M, Dawes B, Fletcher M, Macpherson C, Noel T, Pinsky BA, LaBeaud AD (2024). "Dengue Viremia Among Febrile Persons in Grenada, West Indies" presented at the 2024 American Society of Tropical Medicine and Hygiene Annual Meeting, Nov 15th 2024, New Orleans, LA, USA
- Landon B & Waechter R (2024). Achieving quality universal early childhood education: Weighing the costs and benefits. Presented at the Regional Transforming Education Symposium and Policy Dialogue organized by the Caribbean Development Bank, Grand Cayman, Cayman Islands, September 2024.
- Landon B, Evans R, Belmar-Roberts C, Holmes S, Isaac R, Mohammed L, Murray T, Noel J, Thomas ED, Waechter R (2024). The Saving Brains Grenada/Conscious Discipline Programme: A Pre-primary and Primary School-Based Violence-Prevention Program for Children and Adults. Oral Presentation given at the 68th Annual CARPHA Conference, St. Lucia, April 25-27 2024.
- Mohammed L, Thomas ED, Noel J, Murray T, Isaac R, Belmar-Roberts C, Evans R, Waechter R, Landon, B (2024). Adverse Childhood Experiences among English-Speaking Caribbean Adults Raised Without Corporal Punishment in the Home. Oral Presentation given at the 68th Annual CARPHA Conference, St. Lucia, April 25-27 2024.
- Noel J, Thomas ED, Mohammed L, Murray T, Isaac R, Waechter R, Landon, B (2024). Quality of Life Among English-speaking Caribbean Adults Raised Without Corporal Punishment—Comparing Quantitative and Qualitative Assessments. Oral Presentation given at the 68th Annual CARPHA Conferenec, St. Lucia, April 25-27 2024.
- Waechter, R., Landon, B., & Evans, R (2024). Cross-cultural adaptation of neuropsychological assessments for intervention studies: A matter of timing. Presented at the International Neuropsychological Society Global Meeting. Porto, Portugal July 3-5 2024.

Thesis Defenses (3)

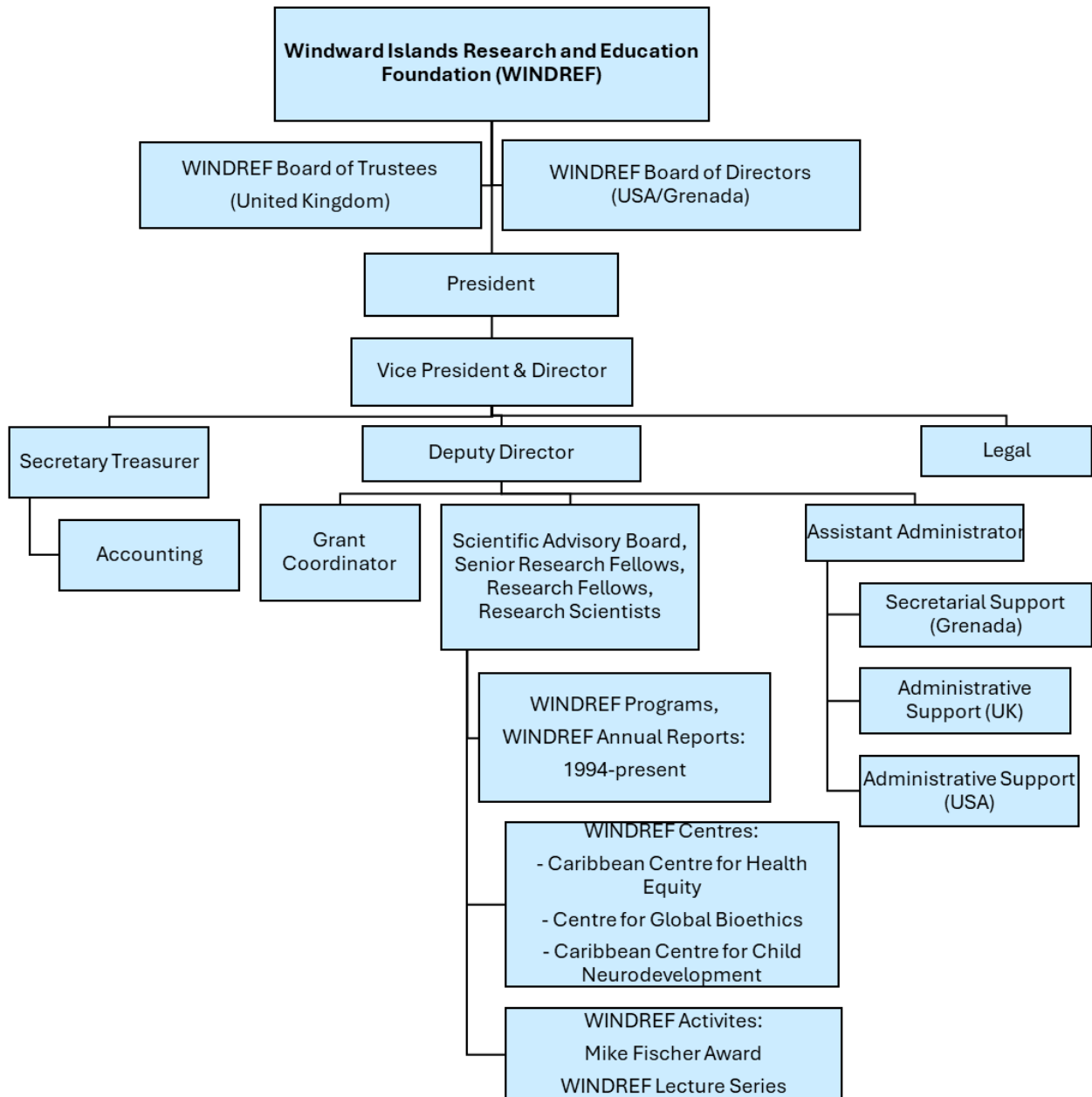
- Dr. Huidi Shucheng (PhD Candidate): "Therapeutic effect and mechanisms of oncostatin M in the management Psoriasis" 10th April 2024
- Jocelyn Shorts (MSc Candidate): "Mistrust among black in American Medicine : A bioethical examination of trust - building with physicians" 10th April 2024
- Mina Mekhail (MSc Candidate): "Impacts of AI on the doctor-patient relationship " 25th November 2024

Graduate Seminars (16)

- Dr. Satish Bidaisee: "Importance of controls on alcohol outlets to reduce harm: case of Trinidad and Tobago" 31st January 2024
- Dr. Melanie Ann Kiener: "Back to the future: Field work and infectious disease" 6th February 2024
- Dr. Angelle Desiree LaBeaud: "Field work in global Arbo virology: Prevention and behavior change at the intersection of

- human health and climate change” 14th February 2024
- Mr. Mustafa Mutlu: “Surrogate-based plasmonic assay: power-free detection of biomarkers at femtomolar sensitivities” 19th February 2024
- Emory Competition Group: “A storm’s A-Comin’! Implementing innovation hurricane disaster preparedness strategies in Japan and Madagascar in a changing global climate “ 13th March 2024
- Emory Competition Group: “Tackling India’s twindemic accelerating integrated diabetes mellitus-tuberculosis care to end TB” 20th March 2024
- Mr. Mina Mekhail: ‘Is Three A Crowd? Should physicians be concerned about the impact of artificial intelligence on the doctor patient relationship?’ 3rd April 2024.
- Ms. Jamila Norman, “Molecular Characterization of internal protozoa in healthy mountain gorillas of Bwindi impenetrable National park, Uganda” 17th April 2024
- Ms. Victoria Flaherty: “Assessing the vitamin D status of wild green sea turtles : A comparative study between liquid chromatography -tandem mass spectrometry and antigen enzyme- linked immunosorbent assay” 6th May 2024
- Dr. Mauricio Seguel: “Wildlife diseases and one health” 4th September 2024
- Dr. Paul Fields: “Fundamentals of research” 12th September 2024
- Ms. Shelley Lownds, “Prevalence of *Batrachochytrium dendrobatidis* and ranivorous in Grenada” 17th September 2024
- Ms. Sydney Enns, “Anatomical, histological and ultrastructural comparisons of the reproductive organs of male iguana (green iguana) during its reproductive cycle” 25th September 2024
- Ms. Hollie M’gog: “Human –Wildlife interactions: Balancing urbanization demands and co-existence” 2nd October 2024
- Dr. Satish Bidaisee, “One health facilitated through sympatric medical, veterinary ,public, health and ecology programs” 15th October 2024
- Mr. Ramy Vance, “Storytelling 101:the fundamental of fiction and how anyone can use a story to improve “ 27th November 2024.

WINDREF Organizational Chart



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