CASE STUDY

COMMUNITY CAPACITY: ENABLING LOCAL LEADERS

AN EXPLORATION OF COMMUNITY-BASED CLIMATE ACTION,
ST. VINCENT AND THE GRENADINES

OUR PLACE ON EARTH

credits

Writer and concept design	Nuin-Tara Key
Co-author	Annierose Von Burg
Editorial advisor	Patrick Pringle
PHOTOS	
December flood photos	Sharika Mandeville
Bequia drought photos	Herman Belmar
Bequia comparison photos	Jessica Jaja
MULTIMEDIA ASSETS	
Video production/editor	Tom Miller, PrettyGoodProductions
Assistant film editor	Jose Arturo Torres Salinas
Producer	Nuin-Tara Key, Tom Miller

partners

UK Climate Impacts Programme
http://www.ukcip.org.uk/

special thanks

The OPOE team would like to extend a special thanks to Nyasha Hamilton, Sharika Mandeville, Herman Belmar, Katrina Collins, Stanton Gomes and Mikell O'Mealy; your support and guidance made this experience possible.

about OPOE

Our Place on Earth is a production of PrettyGoodProductions. Through storytelling and research, OPOE shares community-based efforts to respond to the greatest challenge of our time, climate change.

More about OPOE can be found at
www.ourplaceonearth.org

More about PrettyGoodProductions can be found at
www.prettygoodproductions.net

ST. VINCENT AND THE GRENADINES

St. Vincent and the Grenadines, a Small Island Developing State in the Eastern Caribbean is extremely vulnerable to the **impacts** of climate change.

However, this isn't stopping citizens, community groups, and the government from taking action. In fact, an understanding of local vulnerability serves as a catalyst for action across many **sectors**.

This case study explores how three communities across the country are finding the inspiration to build their resilience in the face of a changing climate.

OPOE is able to share these community experiences and efforts thanks to the generosity of staff working in the Ministry of Transport, Works, Urban Development and Local Government, the Ministry of Health, Wellness and the Environment, and the Directorate of Grenadines Affairs, as well as community leaders with Radio Grenadines, the Environmental Attackers, and Sustainable Grenadines on Union Island.

climate impacts

- Biodiversity
- Flooding
- Drought
- Sealevel rise

sectors

- Agriculture
- Inrastructure
- Capacity building
- Knowledge exchange
- Disaster risk reduction
- Carbon mitigation
- Ecosystem restoration
- Tourism
- Energy
- Water and sanitation
- Health

COMMUNITY CAPACITY: ENABLING LOCAL LEADERS

AN EXPLORATION OF COMMUNITY-BASED CLIMATE ACTION,
ST. VINCENT AND THE GRENADINES

TABLE OF CONTENTS

MULTIMEDIA ASSETS

Explore additional resources online and listen to community members describe their experiences in their own words.

VIDEO SHORTS

AUDIO CLIPS

CHAPTER 1
GETTING TO KNOW **ST. VINCENT AND THE GRENADINES**

Saint Vincent and the Grenadines (SVG) is extremely vulnerable to the impacts of climate change. As a Small Island Developing State the impacts of rising sea levels, increased storm intensity, prolonged drought, and the spread of new diseases have compounding effects on the economic, social, and environmental systems of this multi-island state. However, communities across the islands are stepping up to find solutions to these challenges by building their capacity to deal with the uncertainties of a changing climate.

Start on the **mainland** of St. Vincent and learn about efforts to ensure water security during times of emergency and how one person's idea can help spur an island-wide effort to build community resilience.

Then, travel to **Bequia** (pronounced beck-way), the second largest Grenadine Island, and learn how infrastructure investments are improving access to clean drinking water and reducing greenhouse gas emissions.

Finally, land on **Union Island**, where you'll hear from community leaders working to build community resilience through an integrated economic empowerment model, one that couples environmental conservation with economic opportunity and education.

GEOGRAPHIC AND ECONOMIC CONTEXT

The island chain of St. Vincent and the Grenadines was formed by a string of volcanoes that line the convergence of the Atlantic and Caribbean tectonic plates. One of the most visible volcanoes in the region is La Soufriere on the north side of the mainland. It occupies close to one third of the island's 150 square miles, and at 4,000 feet the active volcano towers over the dramatic mountainous landscape.

Dense tropical rainforest covers the island's steep slopes and are fed by an annual average of 150 inches of rain, and an average of 80 inches of rainfall on the coastal areas. The smaller Grenadine islands are distinctly different in terrain and environment, becoming flatter and more arid further south.

The 31 Grenadine islands, along with the mainland, were occupied by several colonial powers over the last 400 years including France, Spain and most recently Britain. In 1979 St. Vincent and the Grenadines became the last of the Windward Islands in the Eastern Caribbean to gain full independence and with a Parliamentary Democracy is still a member of the Commonwealth of Nations.

As of 2014 the population of St. Vincent and the Grenadines was just over 109,000 with 91 percent of the population living on the mainland. While the public sector is one of the largest employers on the mainland, many people are involved in farming as a source of livelihood, both through domestic and international markets. In contrast, the Grenadine islands are heavily dependent on international tourism, with much of the economy based in service industries. The more arid climate of the Grenadine Islands does not support the level of agricultural production seen on the mainland, with its rich volcanic soils and higher rainfall levels.

CHAPTER 2

RECOVERING FROM THE FLOOD, **MAINLAND ST. VINCENT**

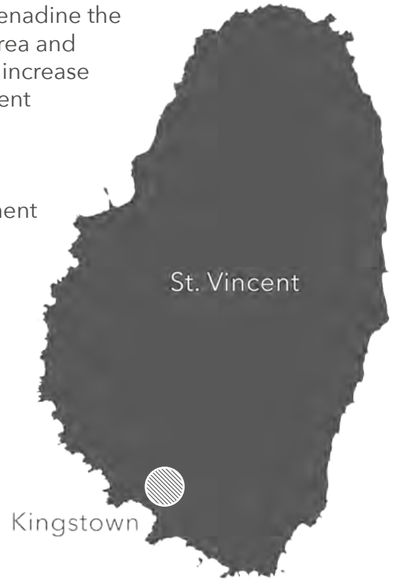
St. Vincent and the Grenadines is extremely vulnerable to the impacts of climate change, which includes:

- Sea level rise leading to coastal erosion, loss of beaches, loss of agricultural land and saltwater intrusion
- Increased frequency and intensity of tropical storms and hurricanes; increased intensity of rain creates significant vulnerabilities from landslides given the steep topography
- Increased occurrence of floods and droughts leading to disruptions to freshwater supplies
- Ocean acidification, coral bleaching and loss of valuable reef ecosystem services
- Hotter surface and water temperatures leading to increased vector-borne diseases
- Multiple compounding economic effects to key industries such as tourism and agriculture

In 2006, the World Bank ranked St. Vincent and the Grenadine the second most disaster prone country in terms of land area and fifth in terms of population. As changes in our climate increase the intensity of tropical storms and hurricanes, St. Vincent and the Grenadines is increasingly susceptible to instability on the island's mountainous terrain.

This instability is exacerbated by changes in development and agricultural practices, resulting in landslides and erosion, which have numerous impacts on the island's economic, environmental and social systems.

Central to these impacts is the issue of water scarcity and quality – leading the national government to identify improving the resilience of the water sector as a top climate change adaptation priority throughout the country.



climate impacts

Flooding

sectors

Water and sanitation

Health

Disaster risk reduction

Inrastructure

CLIMATE IMPACTS: EXTREME EVENTS AND FLOODING

Over the last few years St. Vincent and the Grenadines has experienced a number of extreme weather events, and while no single event can be solely attributed to our changing climate, they represent the type of extreme storms that are anticipated to occur more frequently throughout the Caribbean as our climate warms.

Hurricane Tomas, October 2010

On October 30–31, St Vincent and the Grenadines was hit by Hurricane Tomas, resulting in damages estimated at about 5 percent of GDP. Damages included:

- Roughly 26 percent of the population on the mainland was severely impacted
- Significant damage to main roads, schools, community centers and emergency shelters leaving many people isolated long after the hurricane
- 1,200 people were displaced and forced into hurricane shelters

Spring Flood, April 2011

Torrential rains over the Eastern Caribbean on the morning of April 12, 2011 brought the second natural disaster to St. Vincent and the Grenadines within six months. The strong rains caused:

- Disruptions to water supplies
- Large landslides causing extensive damage to the country's infrastructure including
- highways, bridges, buildings, homes and schools
- Damages equivalent to 3.6 percent of GDP, although this figure is estimated to be low since it does not factor in long-term impacts to agriculture and tourism
- Heavy rains came at a time when reconstruction from Hurricane Tomas was underway, leaving many projects and investments derailed

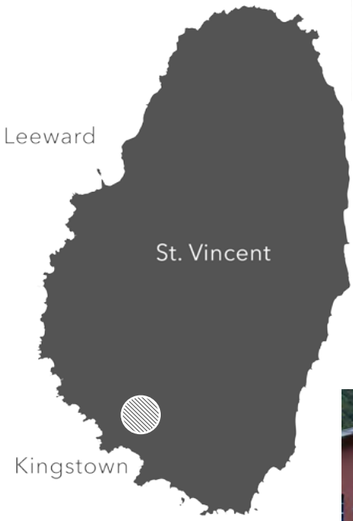
During times of extreme storm events, heavy rainfall causes landslides on the mainland's steep slopes.

These flood-induced landslides can heavily damage the island's water distribution systems, resulting in disruptions in water supplies, sometimes for months following extreme storm events. Without access to clean drinking and sanitation water, residents face increased vulnerability to waterborne diseases and other compounding economic and health stresses.

However, government and community organizations, aware of the vulnerability of the island's water system, are finding ways to increase resilience through international and cross-sector partnerships and are funding investments in backup and supplementary water storage systems.

DECEMBER FLOOD, 2013

More recently, on December 24, 2013, as families prepared for the Christmas Holiday - friends and families gathering to celebrate with food, drink, and festivities - an unexpected storm broke out across the mainland. What is now referred to as the Christmas Eve Flood devastated the mainland with massive landslides and flooding, causing large-scale destruction to roads, buildings, and bridges. Within a matter of hours 12 people died and $108.3 million worth of damages, equivalent to 15 percent of the country's GDP, had been inflicted. All hydroelectric facilities were forced offline, which left some without power until mid-2014.



December flood damage
Photo credit: Sharika Mandeville

CHRISTMAS EVE FLOOD

An unexpected storm hits mainland St. Vincent as families start their holiday celebrations.

LOCAL ACTION: BACKUP WATER SYSTEMS

IN 2011 A REGIONAL CLIMATE CHANGE ADAPTATION STRATEGY WAS LAUNCHED IN THE CARIBBEAN. THE STRATEGY, REDUCE RISKS TO HUMAN AND NATURAL ASSETS RESULTING FROM CLIMATE CHANGE (RRACC), IS ADMINISTERED THROUGH THE ORGANIZATION OF EASTERN CARIBBEAN STATES' (OECS) WITH FUNDING FROM UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID).

Through this partnership, a series of locally-selected climate change adaptation projects were implemented in six member states (Antigua and Barbuda, Dominica, Grenada, St Kitts and Nevis, Saint Lucia, and St Vincent and the Grenadines). While not a direct response to the Christmas Eve Flood, this broader effort will help increase water-sector resilience to extreme events by building a series of rainwater harvesting systems at six public buildings, including five emergency shelters and a juvenile reform center for boys, on the Mainland of St. Vincent.

This rainwater harvesting pilot project, while made possible by a complex network of national and international partners, originated from the hard work of a committed community member, Sharika Mandeville.

PROJECT BENEFITS

The mainland RRACC projects provide emergency shelters with clean sanitation water during times of emergency and public service interruptions caused by extreme storm events. The projects also support agricultural programmes at schools and community centers and provide back-up water systems to schools, allowing for fewer disruptions to school learning days, even during non-disaster related water system disruptions.

Sandy Bay Government School at the southern tip of the island is the site of two concrete tanks each with the capacity of 25,000 gallons. The tanks are underground and like other sites, have a solar pump for water extraction. This site originally was planned to have PVC tanks, but OECS and contractors modified the system to concrete and steel because of unforeseen challenges with importing equipment (both costs and transport). These tanks provide sanitation water to the community during natural disasters.

Georgetown Secondary School, nestled between steep mountains and the black sand beaches of the north windward coast, is the site of a 10,000 gallon, concrete and steel catchment tank. The aboveground tank sits on the backside of the school and provides water to the neighboring community center, which is the designated hurricane shelter for Georgetown. The hurricane shelter can hold up to 30 families and the rainwater tanks ensure that local families have access to sanitation water in the event of a natural disaster.

Liberty Lodge Boys Training Centre, at Green Hill sits on 10 acres of farmland just north of the capital of Kingstown. The lodge is a training center that provides a variety of vocational and life skills for disadvantaged boys. Liberty Lodge is a designated site for concrete and steel tanks that hold 10,000 gallons of rainwater. These tanks serve as an emergency source of water as well as a source of back-up water for farming and agriculture during times of drought.

Rainwater harvesting provides the residents of St. Vincent with the assurance that the most basic need of freshwater will be met in a times of emergency and in a continuously changing environment. While the rainwater catchment projects are not technically unique, and in fact used to be common practice on the island before national water distribution networks were installed, they are an example of how looking back to traditional systems can help increase community resilience and lead to tangible community benefits.

Langley Park Government School, just down the road from Georgetown, is a water catchment site very similar to the one at Georgetown. The water tank is tucked just behind the school, overlooking the steep riverbed below. The tank feeds directly into the school's water system, providing rainwater for sanitation purposes. As with the other sites, this tank provides sanitation services in the time of a disaster, but can also provide backup water for school farming programmes during times of prolonged drought.

Park Hill Government School, on the windward side of the island is the site of two 5,000-gallon PVC tanks. These tanks are positioned above ground and collect rainwater from roofs of both nearby facilities. Both tanks are equipped with a solar pump to extract water in the case of a natural disaster.

Richland Park, a small town in Charlotte Parish is the site of one of the RRACC water catchment projects. This project has constructed a new water collection system that will allow the community to harvest rainwater, ensuring access to this critical resource in the event of a natural disaster. At the local primary school, Richland Park Government School, two 5000-gallon tanks have been installed on 4ft platforms tucked behind the main school building. Each tank is fitted with a solar pump and collects rainwater from the roofs of the school facilities. Each tank is estimated to hold enough water for 57 people for one week. These tanks provide an opportunity for the community to access lifesaving water if the town is cut off from central water services.

A POSITIVE CHANGE: HOW PERSONAL COMMITTMENT CAN LEAD TO TANGIBLE OUTCOMES

Hear Sharika Mandeville, engineer at the Ministry of Transport, Works, Urban Development and Local Government, describe the origins of the rainwater harvesting project on the mainland.

CHAPTER 3

LIVING WITH DROUGHT, **BEQUIA**

Measuring seven square miles, Bequia is the second largest of the Grenadine islands. The island's hilly landscape is covered with dense vegetation and remnants of former plantations. The many inlets and lagoons make it a popular destination among yachters looking to replenish provisions and visit the white sand beaches. Tourism makes up the largest part of the economy, supporting its nearly five thousand year-round residents.

The island does not have any surface water and very little groundwater, making it almost completely dependent on rainwater. The island's dense vegetation is quick to show a lack of precipitation by changing from lush shades of green to a brittle brown during times of low rainfall.

Bequia Island, like the mainland of Saint Vincent and the other Grenadine islands, faces several challenges from climate change. One of the most serious challenge comes from prolonged droughts, which leaves the island with limited access to freshwater.

Other climate change impacts include:

- Wave inundation, which leads to coastal erosion and drainage problems
- Saltwater intrusion from rising sea levels that contaminates sparse ground water along with low lying agricultural lands
- Prolonged periods of drought
- Increased frequency and intensity of tropical storms and hurricanes
- Ocean acidification, coral bleaching and loss of valuable reef ecosystem services
- Hotter surface and water temperatures leading to increased vector-borne diseases

A PILOT DESALINATION PLANT IN PAGET FARM IS INCREASING THE QUANTITY AND QUALITY OF LOCAL WATER SUPPLIES.

climate impacts

Drought

sectors

Carbon mitigation

Energy

Health

Inrastructure

Water and sanitation

CLIMATE IMPACT: PROLONGED DROUGHT

On an island where all drinking water is harvested from rainfall, the residents of Bequia are extremely vulnerable to the impacts of prolonged drought.

Bequia, May 2010
Photo credit: Herman Belmar

Bequia, May 2013
Photo credit: Jessica Jaja

In 2010, the residents of Bequia experienced a 10-month drought and were forced to rely on emergency water deliveries from the mainland of St. Vincent. Herman Belmar, Deputy Director of Grenadine Affairs, explains that the average household needs about 20,000 to 30,000 gallons of water in storage for a three-month drought. However, most households on the island, especially in Paget Farm, do not have rainwater harvesting tanks of this size due to the expense of building water tanks on the steep terrain.

As the island's water reserves dried up, residents relied on emergency water deliveries from the mainland. However, there were two major constraints to this emergency water delivery system. First, transporting freshwater via a barge from the mainland is a major public expense, at about $5,000 USD per trip. And while local residents receive water free of charge, the expense of transporting their water allotments can be very costly and technically challenging given the island's steep terrain. The second constraint was the size of the barge, which could only carry about 33,000 gallons of water per trip. Distributing this water to the roughly 4,800 permanent residents of the island became a challenge as people would show up with 1,000-2,000 gallon tanks. Local officials devised a rationing system, but most people still faced extreme water shortages even with the support of emergency water deliveries from the mainland.

While the prolonged drought of 2010 eventually broke after 10 months, the community faced similar conditions in the years following.

2010 water delivery from the mainland to Bequia
Photo credit: Herman Belmar

THE IMPACTS OF DROUGHT ON BEQUIA ISLAND

Herman Miller, Deputy Director of Grenadines Affairs and long-time community activist and leader, describes how prolonged drought impacts the local community of Bequia.

LOCAL ACTION: DESALINATION PLANT

In 2011, a desalination plant became operational, providing a key lifeline of freshwater to the island community. Because of continued droughts, without the desalination plant the community would simply not have enough water to support life on the small island. Bequia continues to increase the resilience of their local water sector by participating in the Reducing Risks to Human and Natural Assets Resulting from Climate Change (RRACC) demonstration projects. These projects are funded and administered through a partnership between USAID Barbados and the Secretariat of the Organisation of Eastern Caribbean States (OECS). This effort includes eleven projects in six countries throughout the Caribbean.

Bequia's RRACC project expands the storage facility for freshwater coming from the desalination plant from 20,000 to 60,000 gallons, and includes a local distribution system to Paget Farm, a highly vulnerable community with very limited water access and supplies.

SYSTEM SPECIFICATIONS

STORAGE | Freshwater storage capacity
- 60,000 gallons

DISTRIBUTION | Two distribution points
- Paget Farm
- Desalination plant

ENERGY SUPPLY | Renewable photovoltaic system
- Installation - 330 standard panels mounted on the hangar roof at the Bequia airport
- Nominal power - 70kW
- Rated output - 130,000 kWh/year

ENERGY DEMAND | Total energy production is greater than consumption
- Energy demand - 78,000 kWh/year
- Surplus energy is sold to the national utility, Vinlec, and transmitted to the island's grid via six inverters located at the airport
- Revenue from net metering supports ongoing maintenance costs

MONITORING | Remote system
- PV system is monitored from a remote location and provides timely notifications in the case of generation disruptions
- Remote monitoring provides an additional layer of security for long-term monitoring and safeguards data in the case of an extreme event or storm

INCREASING WATER SECURITY IN PAGET FARM

Herman Miller, Deputy Director of Grenadines Affairs, and long-time community activist and leader, explains why the desalination plant is such a critical infrastructure investment for both the community of Paget Farm, and the island in general.

While desalination has been incorporated as a critical source of freshwater on the island, this technological adaptation has not gone without its challenges. In addition to the technological adaptation, the community of Paget Farm needed to overcome the perception that desalinated water was not suitable to drink. However, as droughts worsened on the island and people became more desperate for water this misconception quickly disappeared. In addition, there are a set of complicated behavior change challenges that arise from adaptation projects like the desalination plant in Bequia; as freshwater is more consistently available there is a risk that residents may abandon water-saving and conservation practices, thereby possibly reducing overall community resilience and creating a false sense of security. These behavior changes can set in place a type of path dependency that is hard to reverse."

The desalination project on Bequia has also led to some unanticipated behavior changes. For example, since the introduction of a PV system for the desalination plant in Paget Farm, the growth of solar energy demand grew more rapidly than anticipated. The local adoption of renewable energy grew so quickly that the electricity company capped the expansion of solar since demand outpaced the speed at which they could adapt their energy supply infrastructure. Given Bequia's limited water resources and the high costs of obtaining fresh water on the drought prone island, the desalination plant provides a critical resources to local residents. For the community of Paget Farm, a low-income and climate vulnerable community, this resource provides relief to an already stressed population. It is estimated that up to 30 percent of housing construction cost is allocated to building a rain harvesting system, yet given the steep terrain of the Paget Farm area, many of these systems cannot be built large enough to sustain households during periods of prolonged drought. The desalination plant provides an alternative option to a situation that may otherwise require forced migration from the island for many residents.

CHAPTER 4

LEADING BY EXAMPLE, **UNION ISLAND**

Union Island, the southernmost island in the Grenadines is an active community with motivated and ambitious leaders working to create the future they want in the face of a changing climate.

Meet Katrina Collins, the founder of The Union Island Environmental Attackers, as she discusses the role her organization has played in community-based adaptation and capacity building on the island, as well as the critical importance of incorporating economic opportunity into environmental conservation. Roseman Adams, a community leader and local business owner, highlights the important role the Attackers play in improving the health and wellbeing of people and the environment. And finally, Orisha Joseph, Executive Director of Sustainable Grenadines (SusGren), highlights some of the challenges and opportunities of working on climate change on a small island.

Union Island lies at the southern tip of the multi-island state of St. Vincent and the Grenadines, about 40 miles south of the mainland. The island is three miles long and about one mile wide, and is home to approximately three thousand residents. Union Island depends on tourism as its main source of income and serves as an important anchorage location for passing yachts in the East Caribbean. The volcanic island is home to the tallest peak in the grenadines, but does not reach a height sufficient to capture moisture or increase rainfall, as on the mainland. With little surface water or groundwater the island is reliant on rainwater catchment systems to supply enough fresh water for drier months.

CLIMATE IMPACTS: PROLONGED DROUGHT

Union Island, like other islands throughout the Caribbean, faces many impacts from climate change, including:

- Wave inundation, which leads to coastal erosion and drainage problems
- Saltwater intrusion from rising sea levels that contaminates sparse ground water, along with low-lying agricultural lands
- Prolonged periods of drought
- Increased frequency and intensity of tropical storms and hurricanes
- Ocean acidification, coral bleaching and loss of valuable reef ecosystem services
- Hotter surface and water temperatures leading to increased vector-borne diseases

climate impacts

Drought

sectors

Capacity building

Inrastructure

Knowledge exchange

Tourism

Water and sanitation

LOCAL ACTION: COMMUNITY EMPOWERMENT

In 1999, a group of motivated community members joined together to start the Union Island Environmental Attackers. The catalyst for this community collaboration was an understanding of the importance the environment plays in the economic survival of Union Island. While a tourist destination, the residents of Union Island often feel removed from the decisions of the mainland so they have focused on building their local capacity to solve community issues. But, this doesn't mean there isn't a place for collaboration or partnerships – in fact, Union Island is home to a number of organizations that work across sectors and international boundaries.

The first challenge the Attackers focused on was garbage. They started with a single clean up event but it didn't stop there – this effort ultimately led to major improvements in island-wide garbage collection and waste management practices. "We have changed Union Island's garbage collection and the way people do things here on the island, you know a whole lot. It's much better than it was many years ago… we don't have those open trucks where the garbage would be thrown in… and as the winds blow, the plastic bags go flying all over the place. We used to also burn the garbage, now we don't do that anymore…" Instead, it's put in "a landfill that is mixed with dirt. It's treated and managed much better than before."

A residential rainwater harvesting tank, Union Island

UNION ISLAND ENVIRONMENTAL ATTACKERS

Union Island's all-volunteer organization the Environmental Attackers is a vibrant and unique example of community action.

The attackers have since moved on to other issues, including climate change and water security.

While the Caribbean is expected to experience greater precipitation during storms, more frequent and longer droughts are expected to stress an already fragile water system. On an island with no surface water and extremely limited groundwater for nonpotable uses, the dynamic of more intense, but less frequent rain results in a dependence on rainwater harvesting for all drinking water. As described by Roseman, during times of drought, "persons who are not as privileged as others…" are "unable to have their own water catchment at their homes." He continues, "So, if you can't afford [your own tank] then you'd have to go to the government cisterns" to fill up water containers. While water from the government cisterns is free, the transport costs are not. And, because only a limited amount of water can be transported at a time, "…it means that you have to do it many times per week. And that can run up a serious bill. So you find those who are not so privileged, they have to spend a lot of their income on transportation of water to their homes." This feedback loop means that as the climate changes, families face hard economic choices and limitations.

However, the Environmental Attackers "thought it wise", as Roseman says, to address this water scarcity issue and distribute water tanks to vulnerable households across the island.

With funding of $200,000 ECD (East Caribbean Dollars) from the Canadian Government's Caribbean Disaster Risk Management Fund (through the former Canadian International Development Agency) the group launched their project in September 2012. They held monthly training meetings and workshops with community members around issues of water sanitation and conservation and, in April 2014, one hundred 1,000-gallon tanks arrived on the island – increasing the island's storage capacity by 100,000 gallons. The tanks were distributed to households who either had damaged and inadequate tanks or no water storage capacity.

ACTING ON AN IDEA

Katrina Collins, founder of the Union Island Environmental Attackers, describes the origins of the organization.

While providing on-the-ground support to the community is critical, climate change awareness and capacity building is equally important on Union Island. Orisha Joseph, Executive Director of Sustainable Grenadines (SusGren), a local non-profit that primarily focuses on trans boundary marine and coastal conservation, recognizes that climate change is a relatively new issue for residents on the island. Through different participatory events and trainings SusGren and the Union Island Attackers are starting the conversation. "In talking about climate change, it's something that is new and people are getting the hang of it. They know that something is happening in their environment and in the climate, although they don't know what exactly… they realize they do have to act." Organizations like SusGren and the Attackers are helping mobilize that action.

But this work takes a deep understanding of the community – a one-size fits all approach doesn't work. After a number of conversations, Katrina realized there was a need for more awareness programs, but rather than just holding public meetings at a "lone resource center…", where you would only find a few people, she decided to meet people where they are. "…if you go where you find people 'liming' a lot on the blocks, and you go there, people will receive the message..." and you can get them to better understand.

OPPORTUNITIES

Working on a small island presents a number of opportunities...

When asked why the Environmental Attackers have managed to be so successful, Roseman responded "I think it's because there is so much of a love within the group. We just love to do things for the island - we love the island, you know…. On a small island like this, it's easier for us to work with one another. And, we all know the problems the island faces, and so it's easy for us to agree on some of the problems that we have and to try and fix it… And of course, the funding that we receive, you know, that goes a whole long way."

CHALLENGES

But there are also many challenges to doing this work on a small island...

Katrina explains that members of her organization work voluntarily, "none of us are being paid." But she started to notice that as the cost of living continues to increase, fewer and fewer people are donating their time in volunteering because, according to Katrina, they "have families to mind, electricity bills to pay, [a] phone bill to pay, cable bill to pay." The island does not produce the majority of its goods and services locally, which means most everything is imported from the mainland and other nearby islands, making to cost of even basic commodities increase. In addition, since Union Island's economy is largely dependent on tourism, especially yachting, the community is dependent on a steady stream of visitors to support their economy – something that is not always guaranteed. With all these economic pressures affecting day-to-day life, climate change is not always at the top of people's mind.

But, Roseman, Katrina, and the Attackers used this economic challenge as an opportunity to integrate their climate change and environmental awareness programs with livelihood creation. The Union Island Nature Adventure Tours is a cooperative that "came out of the Environmental Attackers because we recognize that… we need some source of income to keep us going… You know there must be some form of income so that people's families can get by." So the Attackers have organized bird watching trainings and tours, and with funding from the UN Global Environment Facility (GEF) Small Grants Programme, provided ten community members the opportunity to travel to Trinidad to become certified turtle handlers. Union Island is a home to a Leatherback Turtle nesting site and the training provided the local community an opportunity to "bridge the gap between public awareness, ownership, participation and sustainable livelihoods.

While there is no shortage of work still to do, organizations like the Union Island Environmental Attackers and Sustainable Grenadines work tirelessly to conserve the local environment, increase the resilience of Union Island to the impacts of climate change, and provide sustainable livelihood options. At the core of these efforts is a small group of residents who, through their love of place and commitment to their community, are investing in their future.

TALKING ABOUT THE CHALLENGES & OPPORTUNITIES OF WORKING ON A SMALL ISLAND

Katrina Collins describes how to talk about climate change at a "grassroots" level.

Orisha Joseph, Sustainable Grenadines, describes community reaction to working on a participatory climate change project and explains some of the advantages of working on climate change on a small island.

THE ENERGY TO LEAD

Katrina Collins explains how she maintains the energy to lead, finding motivation through collaboration.

CHAPTER 5

LIVING WITH CLIMATE CHANGE

A common theme across each of the three locations in St. Vincent and the Grenadines is the need to build institutional and community capacity to ensure projects realize long-lasting success and communities have the ability to continue to adapt in the future. Building capacity requires a suite of strategies and tools - there is no single solution or approach - however, there are a number of common challenges and opportunities to be shared from the experiences of people working on the ground in St. Vincent and the Grenadines.

LESSONS LEARNED: DEALING WITH THE CHALLENGES OF IMPLEMENTATION

While climate change is a global phenomenon the impacts are always local and unique, which in turn requires response be tailored to local economic, social, and environmental contexts. However, communities often face many of the same implementation challenges and barriers, in spite of localized differences. For example, finding and securing funding for low-carbon technologies, supporting broad social and behavior changes, and developing and implementing a policy environment that enables climate adaptation are all common challenges to transitioning to a low-emissions and climate resilient world.

THE FOLLOWING PAGES PROVIDE INSIGHT INTO A NUMBER OF IMPLEMENTATION CHALLENGES AND LESSONS LEARNED, SHARED BY COMMUNITY MEMBERS , AGENCY STAFF AND OFFICIALS WHO ARE LEADING IMPLEMENTATION OF CLIMATE CHANGE PROJECTS THROUGHOUT THE COUNTRY.


Hayden Billingy


Herman Belmar


Nyasha Hamilton


Sharika Mandeville


Howie Prince

LESSONS LEARNED AND EXPERIENCES FROM THE FIELD

PATH DEPENDENCY

How do we ensure development doesn't come at the cost of our potential for future adaptations? On the mainland, installation of the central water distribution system caused shifts in social and behavioral practices; households started to move away from rainwater harvesting, becoming exclusively dependent on a single "path" or system for fresh water. However, this distribution system is vulnerable to disruptions from extreme storm events, increasing the community's vulnerability to water scarcity.

The development of new systems and technologies always comes with the risk of establishing new path dependencies. This is not a reason to forego development or the exploration of new technologies, however within the climate adaptation context, it is important to understand the impact that development has on induced demand and resource availability. Infrastructure development in Bequia highlights the relationship between social behavior and development.

MULTIMEDIA ASSETS

Public perceptions around rainwater harvesting have changed over time; while once a common practice, many people are currently unaware or misin formed about the health and safety benefits of having backup residential water systems. This shift in perception is an unintended consequence of becoming exclusively dependent on the central water system.
Sharika Mandeville, Engineer, Ministry of Transport and Works

Infrastructure investments on the mainland changed local practices, leading to the removal of backup water systems that enhance community resilience. *
Nyasha Hamilton, Environmental Management Unit, Ministry of Health and Environment

Infrastructure investments on Bequia increased household water demand and increased vulnerability to prolonged drought
Herman Belmar, Deputy Director of Grenadine Affairs

TERMS

While there are different types of path dependency, within the context of climate adaption we refer to decisions that constrain rather than expand future adaptation options, typically by locking investments into options that are not easily adjusted to changes in future conditions. Barnett, J. et. al., 2013, Reducing the risk of maladaptation in response to sea-level rise an urban water scarcity, in Successful adaptation to climate change: linking science and policy in a rapidly changing world, Eds. Moser, Susanne C. and Maxwell T. Boykoff. *Nyasha Hamilton refers to the CWSA, which is the Central Water and Sewerage Authority. The CWSA is responsible for the provision of water and for solid waste management in St. Vincent and the Grenadines.

MANAGING SYSTEM CHANGES

As efforts are made to transition away from fossil fuels, the social dynamics of behavior change and governance are equally important to a smooth transition as are the technical aspects. And a significant challenge to this transition occurs when the rate of supply for new technologies is not in pace with demand. In the case of Bequia, the demand for solar energy rapidly increased after the photovoltaic system for the desal plant was installed. Unfortunately, the local grid and electric company could not adapt the system fast enough to meet the level of demand, demonstrating the financial and technical challenge of pacing physical and social transitions.

MULTIMEDIA ASSETS

When demand for renewable energy outpaced supply on Bequia, the local energy company was not able to adapt the island's physical infrastructure to keep pace with the local community's willingness to adopt new technologies.
Herman Belmar, Deputy Director of Grenadine Affairs

ACCESS TO LOW-COST TECHNOLOGIES AND MATERIALS

While the cost of alternative energy, especially solar, has decreased over the last decade, there are still significant barriers to accessing low-cost technologies, especially for Small Island Developing States (SIDS). Even beyond new technologies, just the process of getting basic building materials and equipment onto a small island, or to a remote community, complicates climate adaptation and mitigation projects.

MULTIMEDIA ASSETS

The costs of low-emissions technologies are still a barrier to widespread adoption throughout St. Vincent and the Grenadines.
Nyasha Hamilton, Environmental Management Unit, Ministry of Health and Environment

TERMS

Photovoltaic and solar thermal energy (as used at electric utilities): Energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted at electric utilities into electricity by means of solar (photovoltaic) cells or concentrating (focusing) collectors." - US Energy Information Administration

FUNDING SYSTEM CHANGES

Adapting physical infrastructure to the impacts of climate change is a key component to reducing vulnerability for people living on small islands. While there are uncertainties around the timing and scale of impacts, consensus around the types of impacts Small Island Developing States (SIDS) will experience provides useful direction for adaptation and mitigation planning. However, one of the biggest challenges in St. Vincent and the Grenadines isn't planning for these impacts, but rather finding implementation resources, necessitating strong cross-sectoral and international partnerships.

Finding resources for physical adaptation efforts isn't the only challenge to reducing vulnerability; increasing adaptive capacity by investing in people so as to strengthen their own ability to adapt and respond to the impacts of climate change is an issue the government of St. Vincent and the Grenadines is working to address.

Given the critical role that non-governmental organizations (NGOs) play in implementing local climate actions, building community capacity is equally important to institutional capacity. While climate change is a global issue, the impacts are always local. However, without intentional investment in people, local organizations will not be equipped to respond to climate impacts. While this is a challenge in St. Vincent and the Grenadines, there are international, national and local efforts to strengthen NGOs across the country.

MULTIMEDIA ASSETS

Limited financing options are a significant barrier to implementing existing climate plans.
Howie Prince, Director, National Emergency Management Organisation

While public agencies in St. Vincent support climate adaptation and mitigation, the tough sell comes when local agencies have to find new funding to support these efforts.
Howie Prince, Director, National Emergency Management Organisation

Building the capacity of the people of St. Vincent and investing in the local community's ability to design and manage climate change programs from start to finish is currently the most critical resource need.
Howie Prince, Director, National Emergency Management Organisation

Similar to the capacity building needs of the public sector, local nonprofits also need funding for long-term capacity building.
Nyasha Hamilton, Environmental Management Unit, Ministry of Health and Environment

The role and ability of NGOs in St. Vincent to respond to both long-term and immediate community need is not well defined, in part because of the limited investment in local capacity building. However, the UN Global Environment Facility (GEF) Small Grants Programme provides a vehicle for for local capacity building.
Hayden Billingy, National Coordinator for the GEF Small Grant Programme at UNDP

CREATING AN ENABLING ENVIRONMENT

Creating an enabling environment for climate adaptation and mitigation can take many shapes depending on the local context and partners. In St. Vincent and the Grenadines, the government has a clear role in providing an enabling environment, including modifying and creating legislation that supports rather than inhibits adaptation and mitigation efforts and providing relevant and timely information through public education and training programs and warning systems. However, identifying these key roles for government is much easier than implementing them.

MULTIMEDIA ASSETS

The government can create an enabling policy environment in two keys ways: first, there needs to be a strong legislative foundation to support programs and systems that enhance resilience and respond to climate change and sec ond, government agencies need to facilitate and convene an integrated, multi-sector approach because government alone cannot be responsible for addressing climate change.
Howie Prince, Director, National Emergency Management Organisation

Adjustments to existing tax systems are needed to better support and incentivize climate action; for example, the slow duty-free waiver process delayed implementation of the RRACC project on the mainland of St. Vincent.
Nyasha Hamilton, Environmental Management Unit, Ministry of Health and Environment

TERMS

Small Island Developing States (SIDS) were recognized as a distinct group of developing countries facing specific social, economic and environmental vulnerabilities at the Earth Summit, held in Rio de Janeiro, Brazil (3-14 June 1992). - United Nations, Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States."

There are many definitions of an enabling environment, in the context of sustainable development generally, the UN Sustainable Development Platform characterizes a national enabling environment as one that includes "an equitable and predictable legal framework, capacity-building, including institutional capacity-building, and the implementation of appropriate macroeconomic, social and environmental policies and transparent, effective, participatory and accountable governance, conducive to sustainable development and responsive to the needs of the people, so that domestic and international resources may be effectively mobilized and used for sustainable development."

DATA COLLECTION AND MANAGEMENT

As with anything else, sound decisions require sound information. However, creating, managing and maintaining useful, accurate and timely data is expensive and time consuming. Storage is especially important in an environment that is so vulnerable to extreme events, which increases the risk of losing entire information systems in one storm event. However, creating a centralized system for data collection and management is an important focus area in St. Vincent and the Grenadines. This includes ensuring that local and traditional knowledge is equally valued with scientific data.

MULTIMEDIA ASSETS

While many government agencies maintain local data collection systems, there is not enough investment in cross-agency coordination to ensure consistency in methods and format across departments. Because there is no central data storage and maintenance system it is often difficult to locate data sources held by different government agencies.

Nyasha Hamilton, Environmental Management Unit, Ministry of Health and Environment

The government of St. Vincent is working to develop a central data management system; a key consideration in this process is the need to ensure that backup data systems are secure from local vulnerabilities. For example, local data infrastructure can be wiped out during one extreme storm event, requiring backups to be stored and secured outside of the country.

Herman Belmar, Deputy Director of Grenadine Affairs

Local government agencies are working to improve and enhance their data collection systems so they can move away from relying solely on anecdotal evidence.

Nyasha Hamilton, Environmental Management Unit, Ministry of Health and Environment

Similarly, local organizations are working to develop more robust baselines using both traditional knowledge and empirical data; these efforts are supported with funding through the UNDP GEF Small Grants Programme.

Hayden Billingy, National Coordinator for the GEF Small Grant Programme at UNDP

PUBLIC PERCEPTION

Public perceptions of climate change rely on a complex system of value-based social norms that affects people's understanding of risks and vulnerabilities, as well as potential solutions. Building public awareness of climate change takes considerable time, requiring culturally relevant and technically accurate information that balances risk and opportunity.

And, overcoming misperceptions about solution alternatives can be just as big a challenge as overcoming misconceptions about risk, sometimes resulting in a reactive adoption or uptake of solutions, once all other options are no longer available.

MULTIMEDIA ASSETS

Linking the abstract concept of climate change to local events and impacts - especially in a community with experience responding to extreme climatic events - is a useful strategy for engaging local communities in a newly evolving conversation about climate adaptation.

Hayden Billingy, National Coordinator for the GEF Small Grant Programme at UNDP

Fear-based communication and education strategies rarely work to mobilize action around climate change; information about climate impacts needs to be coupled with information about solutions.

Hayden Billingy, National Coordinator for the GEF Small Grant Programme at UNDP

Often, public misconceptions can be a greater barrier to implementing climate mitigation and adaptation strategies than technical challenges. On the mainland there are misconceptions about the cleanliness of rainwater catchment systems and in Bequia desalination wasn't accepted as a source for clean water until drought conditions rendered it the last available water source on the island.

Sharika Mandeville, Engineer, Ministry of Transport and Works & Herman Belmar, Deputy Director of Grenadine Affair

ANNEX 1

REFERENCES

CONTEXT

"Blank map of Saint Vincent and the Grenadines" by TUBS - Own work. Licensed under CC BY-SA 3.0 via Wikimedia Commons
https://commons.wikimedia.org/wiki/File:Blank_map_of_Saint_Vincent_and_the_Grenadines.svg#/media/File:Blank_map_of_Saint_Vincent_and_the_Grenadines.svg

St. Vincent and the Grenadines, Ministry of Tourism, Sports and Culture. SVG Facts.
http://www.gov.vc/tourism

UNDESA Population Division, St. Vincent Population, 2013.
www.un.org/esa/population

The Commonwealth, St Vincent and the GRenadines: Economy, member profile
http://bit.ly/1n3myPU

The World Bank Data Dashboard - St. Vincent and the Grenadines
http://bit.ly/1KjPqsE

UNESCO, The La Soufrière National Park
http://whc.unesco.org/en/tentativelists/5751/

World Development Indicators Report, 2006
http://bit.ly/1OVVgpm

CLIMATE CHANGE IMPACTS

St. Vincent and the Grenadines Pilot Program for Climate Resilience (PPCR): phase one proposal
http://bit.ly/1OVVgpm

CARIBSAVE Climate Change Risk Profile for St. Vincent and the Grenadines
http://bit.ly/1ZE6buO

IPCC, 2014: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1132 pp.

EXTREME EVENTS

IMF, St. Vincent and the Grenadines; "Request for Disbursement Under the Rapid Credit Facility and Purchase Under the Rapid Financing Instrument" Country Report No. 14/360. December 2014
The World Bank, http://www.worldbank.org/en/results/2014/09/25/hurricane-thomas-saint-vincent-grenadines-strengthen-reslience.

International Monetary Fund "St. Vincent and the Grenadines–Request for Disbursement under the Rapid Credit Facility" IMF Country Report No. 11/344, December 2011

International Monetary Fund "IMF Executive Board Approves US$ 2 Million Disbursement Under Rapid Credit Facility for St. Vincent and the Grenadines" Press Release No. 11/293, July 26, 2011

IMF Country Report No. 11/344, December 2011, http://www.imf.org/external/pubs/ft/scr/2011/cr11344.pdf

INFRASTRUCTURE

Green, Earl, 2012: Implementation of adaptation measures to address the absence of fresh water and coastal vulnerabilities in Bequia, St. Vincent & the Grenadines. Technical Note. Caribbean Community Climate Change Centre, Belmopan, Belize
http://bit.ly/236ZKQc

Ground water sources and uses on Union
Road Map toward Integrated Water Resources Management (IWRM) Planning for Union Island Saint Vincent and the Grenadines
http://bit.ly/1OxAGbr

PROJECT DESCRIPTIONS

OECS Secretariat, St. Vincent and the Grenadines Demonstration Project. Rainwater Harvesting and Disaster Management Demonstration project to Build Resilience to Climate Change. Project Proposal, revised February 15, 2013 (RRACC USAID-OECS Secretariat Frant No. 538-LSSAG-538-2011-001)

Australian AID. Case Study - Bequia Sustainable Water Supply Tool for replicating success in other small island states. January 2012.

100,000 Gallons of Water Storage for Union Island, Union Island Environmental Attackers
http://bit.ly/1ZE8a2m

Capacity Building for the Conservation of Leatherback Turtles in Bloody Bay, Union Island, St. Vincent and the Grenadines
http://bit.ly/1U2Rfj3

LESSONS LEARNED

Barnett, J. et. al., 2013, Reducing the risk of maladaptation in response to sea-level rise an urban water scarcity, in Successful adaptation to climate change: linking science and policy in a rapidly changing world, Eds. Moser, Susanne C. and Maxwell T. Boykoff.

U.S. Energy Information Administration, Glossary. Photovoltaic (PV)
http://1.usa.gov/1PiJLUZ

United Nations, Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States.
http://unohrlls.org/about-sids/

Smit, B. & Wandel, J. (2006). Adaptation, adaptive capacity and vulnerability. Global Environmental Change 16: 282-292.
http://bit.ly/1Op38OE

United Nations Sustainable Development Knowledge Platform, Decisions by Topic: International Cooperation for an Enabling Environment, Third International Conference on Financing for Development Commission on Sustainable Development (E/CN.17/2001/19)
https://sustainabledevelopment.un.org/

ANNEX 2

ACKNOWLEDGEMENTS

INDIEGOGO CAMPAIGN CONTRIBUTORS WHOSE SUPPORT MADE THIS PUBLICATION POSSIBLE

Anonymous
Genevieve Anderson
Michele Anderson
Brianna Ayres
Richard Barrett
Thomas Beatty
Paul Benson
Rajiv Bhatia
Hilde Binford
Sondre Bjordal
Joan Blythe
Mark Bosnian
Danielle Boulé
Gordon Brown
Emily Brownlee
Elizabeth Burger
Rex Burkholder
Meghan Burnett
Alyssa Carlson
Molly Chidsey
Marion Christ
Alison Colwell
Caleb Cressman
Lindsey Cressman
Michele Crim
Bea Davis
J. Claire Dean
Tony DeFalco
Ali DeMersseman
Lee Dunne
Kim Ellis
Roger Espinoza
Carolyn Faszholz
Amanda Finke
Sharon Fujioka
Ted Fujioka
Kara Griffin
Caroline Haas
Corie Harlan
James Harrison
Matt Hayes
Brien Hemann
Melissa Herlitz
Jillian Hicks
Kyra Hill
Adam Hixon
Mike Hoglund
Kai Hsing
Juniper Hunter
Diane Husic
Ivan Interfeld
Gary Jacobs
JoEllen Jacobs
Amanda Johnson
Tom Johnson
Mike Jones
Maya Kamoshita
Ina Karish
Sheryl Kelsey
Melanie Ladygo
Elisa Lamont
Alyssa Latuchie
Karen Latuchie
Karin Laupheimer
Caroline Leary
Annie Lee
Lou Leonard
Jonas Lerman
Danielle Liu
Eli Madrone
Juliana Madrone
Sarah McCarty
Andrea McDowell
Chris Miller
Mark Miller
Paula Miller
Susie Miller
Ellen Millick
Elizabeth Milner
Adrian Mishek
Tacey Mishek
Katy Mistretta
Judy Mosher
Josh Naramore
Melanie Nead
Angie Noriega
Nigel Noriega
Libi O'Brien
Teresa O'Donnell
Mikell O'Mealy
Mary-Rain O'Meara
Alyssa Phelps
Bonnie Porter
Lizzy Prestel
Cheyenne Purrington
Cynthia Rancatore
Dan Rasay
Jon Ray
Christian Rebholz
Kalama Reuter
Beth Rodin
Natalia Ronceria Ceballos
Katie Rosinsky
Sayuri Sasaki Hemann
Ahn Scanlon
Ali Schneider
Lauren Schneider
Dean Scott
Dan Silk
Ellen Simmons
Oliver Smith
Carrie Snow
Kathryn Sofich
Laura Spidell
Cary Stacey
Erika Street
Nik Strong-Cvetich
Michael Sulis
Terra Tolley
Rory Turner
Daniel Vance
Annie Von Burg
Benjamin Waddell
Jason Ward
Ann Weinstein
David Weinstein
Aubrey White
Jodi White
Ken White
Chris Williams
Martin Wilson
Steve Zavetoski

www.ourplaceonearth.org
info@prettygoodproductions.net
2016

Our Place on Earth is a project of
PrettyGoodProductions

PGPs' mission is to creatively depict our beautiful and complex reality through film, art, and the written word.

More about PrettyGoodProductions can be found at
www.prettygoodproductions.net