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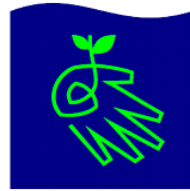
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Sustainable Development Goals being addressed



Volume 5, Issue 1

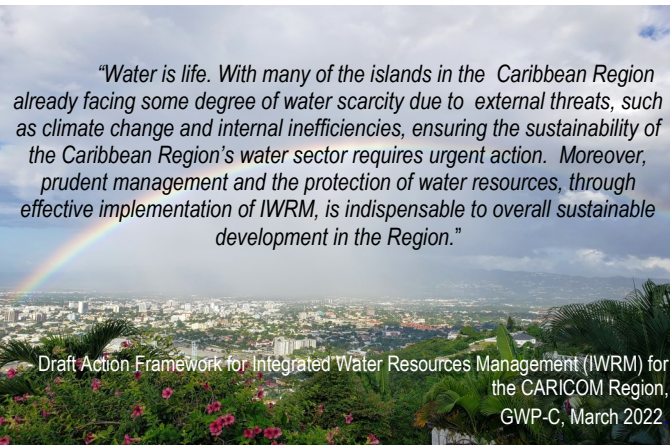
March 2022



IWeco:link

Quarterly newsletter of the GEF-funded Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States Project

www.iweco.org



"Water is life. With many of the islands in the Caribbean Region already facing some degree of water scarcity due to external threats, such as climate change and internal inefficiencies, ensuring the sustainability of the Caribbean Region's water sector requires urgent action. Moreover, prudent management and the protection of water resources, through effective implementation of IWRM, is indispensable to overall sustainable development in the Region."

Draft Action Framework for Integrated Water Resources Management (IWRM) for the CARICOM Region, GWP-C, March 2022

Lessons from the North Pole

A cautionary tale from



IWeco's Regional Project Coordinator

Invited by a climate researcher at the University Centre of Svalbard, the IWeco Regional Project Coordinator in March 2022, during his holiday, visited the northern-most human settlement on earth: the community of

(Continued on page 6)

Building Consensus, Political Will and Financial Support for IWRM Implementation in the Caribbean

Under GEF IWeco Project Component 3 (policy and legislation) the Caribbean Public Health Agency (CARPHA), a project executing partner, is collaborating with the Organisation of Eastern Caribbean States to implement activities towards **the development of an Action Framework for Integrated Water Resources Management (IWRM) for the CARICOM Region.**

In 2021, the Global Water Partnership-Caribbean (GWP-C) undertook the consultancy to develop the Framework. Its objectives include development of a Regional Action Framework for IWRM for the Caribbean, inclusive of road maps and action plans containing relevant actions and interventions; and, identification and inclusion of linkages between IWRM and intersecting areas at the national and community levels such as socioeconomic development, food security, and environmental and public health, paying special attention to their intersectionality with gender, indigenous and ethnic groups, and other relevant vulnerable demographics when appropriate.

It noted that the periodical assessments of the rate of implementation of IWRM in the Caribbean Region found that the Region falls under the "Medium-Low" level of implementation, with no significant progress between the year 2017 (baseline) and the first progress assessment conducted in 2020. This level of implementation is due mostly to the limited enabling environment for IWRM in Caribbean countries, which relies on the countries' ability to establish a legal and policy framework for the advancement of IWRM.

Currently, countries within the Region are at different stages of

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Caribbean Public Health Agency

CARPHA

SGP The GEF Small Grants Programme

Tracking Down Sources of Fecal Contamination in Soufriere, Saint Lucia

The town of Soufriere on the southwest coast of St. Lucia has been the focus of concerns regarding the impacts of pollution on public health, the tourism sector, an artisanal fishery and associated livelihoods. The environmental sustainability of the town is critical to its success as a destination for tourists visiting the Pitons World Heritage Site and other tourist attractions. The Soufriere Marine Management Area stretching along the coast is also important for sustaining an artisanal fishery, and as a site for recreational diving and snorkelling.

Monitoring efforts have shown that the waters of the coastal zone near the town, as well as the Soufriere River that discharges into Soufriere Bay, have loads of total coliform bacteria and *E. coli* that are above recreational water quality guidelines. The bacterial pollution could be coming from sewage, but domestic animals and livestock could also be important sources of the fecal contamination.

Through financial support from the GEF-IWEco program and financial and in-kind support from the Caribbean Public Health Agency (CARPHA) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Canadian researchers from Trent University and the Ontario Public Health Agency working in collaboration with colleagues at CARPHA and GIZ and with community volunteers conducted a multi-year study to track down the sources of microbial contamination in the region.

A scientific article by Dr. Marsha Serville-Tertullien and eight colleagues describing this study was recently published in the Springer Nature journal, *Environmental Monitoring and Assessment*.



Collecting samples from the Soufriere River



A novel tracking method used in the study involved deploying passive samplers called Polar Organic Chemical Integrative Samplers (POCIS) in both the river and the bay to monitor for chemicals that indicate fecal pollution from humans, such as caffeine and artificial sweeteners. Another novel method employed for source tracking was the analysis of genetic markers for the *Bacteroidales* class of fecal bacteria that indicate whether the bacteria come from humans, cattle or from other warm-blooded animals.

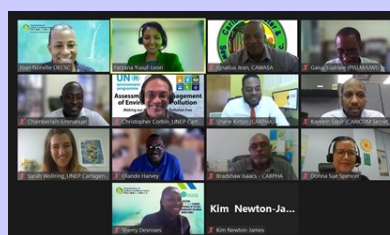
Monitoring for chemical indicators of wastewater in the Soufriere River indicated that there are indeed inputs of human fecal material throughout the entire watershed. However, analysis of *Bacteroidales* genetic markers indicated that only about 30% of bacteria were of human origin and the majority of the fecal contamination in the river was from livestock. Monitoring in Soufriere Bay using the POCIS passive samplers indicated that there are two "hot spots" of wastewater contamination located offshore of economically depressed areas of the town of Soufriere. Stormwater runoff and leakage from septic systems and pit latrines are the likely sources of the coastal pollution in these areas.

This study indicates that efforts to control fecal contamination in the region must include management of pollution originating from both sewage and livestock. These approaches and techniques could be applied throughout the Caribbean to pinpoint where efforts should be directed to reduce coastal pollution.

- by Marsha Serville-Tertullien and Chris Metcalfe

Read the paper: <https://tinyurl.com/2znsjy7r>

Kudos to the OECS for convening IWEco's Third Governance Partners' Meeting on 29th March 2022!



Read about it in our next issue!

#CaringForOurFuture

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development and practice with respect to IWRM, due to institutional, financial, human, and physical constraints, and, water resources management initiatives are, to a large extent, uncoordinated and unsustainable.

The Consultancy focused on establishing an overarching framework for CARICOM's approach to the sustainable and effective management of water resources in member and observer States in order to contribute to a higher degree of IWRM implementation in the Region as a whole, as well as an increased level of IWRM implementation in the individual countries that are member states of the Region.

The Conceptual Framework was developed with the objective of strengthening the policy, legislative and institutional mechanisms and capacity building for Integrated Water Resources Management (IWRM) and ecosystem services management, while increasing climate and disaster resilience.

Priority was given to four areas: Policies, Regulations and Plans; Institutional Frameworks; Management and Technical Instruments; and Financing. This entailed paying attention to:

- Public awareness and stakeholder engagement
- Capacity building
- Sustainable finance
- Political commitment
- Data collection, analysis, and reporting.

The conceptual framework advocates for a wider integration through public awareness and stakeholder engagement and emphasises that true participation requires the involvement of all stakeholder groups at all levels of society in water management decision-making.

It seeks to address the challenges facing the sector through the promotion of the principles of IWRM, at the same time, charting the way forward for a holistic and balanced approach to the management of the water resources. It ends with this conclusion:

"Therefore, once there is political will and financial support for IWRM implementation at both the regional and national levels, significant changes to the current status of water resources management is guaranteed. Importantly, monitoring and evaluation of the achievement of specific goals and the established milestones must become an institutional practice in the Region. Moreover, given the implications of climate change (and more specifically, global warming), NO ACTION is not an option. The time to ACT is NOW."

The Revised Action Framework for IWRM was completed by GWP-C in March 2022 following wide stakeholder consultation and was presented at **IWEco's Third Governance Partnership Meeting** on 29th March 2022. Review is ongoing and the Final Action Framework for IWRM will be completed in April 2022.

See the Draft Report: <https://publ.cc/xNajS>

Protecting St. Kitts and Nevis' Hidden Treasure

On World Water Day 2022, Halla Sahely, IWEco.SKN National Coordinator, in keeping with the theme, considered the invisible nature of groundwater and how this hidden treasure enriches the daily lives of the people of St. Kitts & Nevis.

The tiny island nation, located in the Eastern Caribbean, has with the help of two different GEF-funded projects over the past ten years, worked to protect groundwater resources; first, through the establishment of a protected area in a vulnerable well-field, then in an indirect, synergistic way through the mitigation of land degradation which greatly enhances groundwater recharge.

St. Kitts & Nevis relies on groundwater for more than 75% of its potable water supply. This underpins the entire island economy which is tourism-based. Most of the islands are covered by highly permeable, recent volcanic material which results in high infiltration rates; even though in Nevis, soils tend to have more clay layers than in St. Kitts. As a result, the Federation depends heavily on regularly recharged groundwater resources.

Such resources often exist in the form of freshwater "lenses" that effectively sit on higher density saline water and must be carefully monitored and managed. Water withdrawals at rates that exceed recharge can result in intrusion of saline water into the freshwater lens. The geophysical characteristics of St. Kitts & Nevis leaves it vulnerable not only to climatological and seismic events but more critically to periods of low recharge, drought and adverse environmental impacts including pollution, saline intrusion, and soil erosion.

How have actions taken by the Government of St. Kitts & Nevis, and funded by the Global Environment Facility (GEF) since 2009, made a difference in the way groundwater is managed?

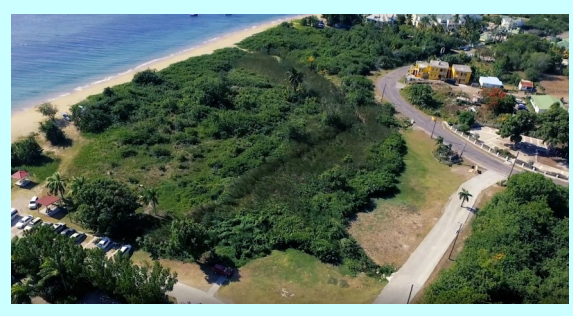
From 2009-2011, the GEF-funded Integrating Watershed and Coastal Areas Management in Caribbean Small Island Developing States (GEF-IWCAM) project helped stakeholders take practical actions to protect the vulnerable Basseterre Valley Aquifer on three fronts: (1) improved water resources management, (2) mitigation of threats from pollution and (3) designation of the well-field land space as a protected area.

It was first important to understand the groundwater resource itself. A thorough hydrogeological survey was undertaken to investigate the properties and characteristics of the aquifer which would aid in the day-to-day sustainable management of the resource. The information yielded was incredibly useful for managing pumping levels in the aquifer and understanding the likelihood of saltwater intrusion in the future, given climate change impacts such as sea level rise. In fact, the early stages of saltwater intrusion were documented. Other surveys were conducted in conjunction, including: an

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Wetlands Action for People and Nature

- A small community in Nevis leads the way



World Wetlands Day 2022 focused on 'Wetlands Action for People and Nature' - a call to take action for wetlands by investing financial, human and political capital to save the world's wetlands from disappearing and to restore those we have degraded.

Wetland restoration efforts in St. Kitts and Nevis under the IWEco project have focused on the wetland at Nelson's Spring on the island of Nevis. This restoration work is an example of how, from the grassroots level, a community and a local NGO can work together to bring a wetland back to its former glory.

In recent years, Nelson's Spring has been subjected to many negative environmental pressures and neighbouring developments have cut off the natural links with other wetlands. There has also been wholesale clearing of vegetation aimed at 'cleaning up', without any attempt at replanting. The result of these disturbances has been the invasion of the whole area with non-native species. These invasives have severely reduced the open water of the pond and changed the open aspect from the road to the sea (Nevis Historical Conservation Society (NHCS), 2021).



The NHCS teamed up with a local community group - the St. Thomas' Improvement Group (STIG) - to restore the wetland at Nelson's Spring by removing non-native invasive cattail reeds and scrub, thus reopening the beautiful vista to the sea. Clearing began in late November 2020 and proceeded rapidly. Cattails were

cleared from the whole perimeter of the pond, and scrub was cleared in the southern section to around 50ft from the pond edge. Replanting began in December 2020.

In January 2021, community days were held and a number of species were planted. These included seagrape, coconut, white mangrove, seaside almond (*Terminalia catappa*), swamp fern (*Acrostichum danaeifolium*) and beach morning glory (*Ipomoea pes-caprae*). Volunteers also helped remove cattails which had already begun to grow back. Along with the replanting, there was encouraging regrowth of native species of sedge and spike reed (*Eleocharis mutata*).



By April 2021, the water lily (*Nymphaea ampla*), had re-established and has now spread through the whole pond. Water birds have been very visible during all stages of the project. In April 2021, a group of young birders on an ornithology course visited Nelson's Spring on a field trip. The local ornithologists

accompanying them identified 33 species of birds in the two-hour visit, more than at any other site they had visited in both St. Kitts and Nevis. Nowadays fish are seen jumping in the pond, and crab holes are evident. Recently lots of butterflies have been seen in the areas where native plants are re-establishing. In addition, the neighbouring beach is a nesting site for Leatherback and Hawksbill turtles.

More recently, work is focused on slowing down the regrowth of cattails by employing one or more labourers to physically remove plants and cut off flower stalks. This has been especially difficult and the cattails have returned to a large portion of the pond. Many lessons have been learnt and now efforts are being refocused to ensure a more sustainable solution.

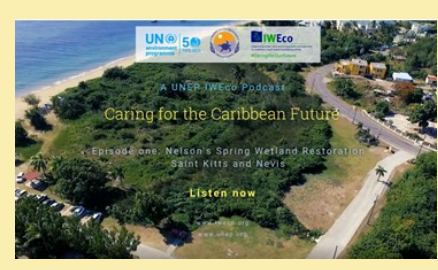


In mid-2021, the NHCS applied for, and received, grant funding from the US National Forest Service under their Natural Infrastructure for Caribbean Resilience (NiCAR) programme to continue the restoration effort at Nelson's Spring. This funding will be crucial to continue the restoration efforts, especially with the knowledge and lessons learnt from the pilot effort conducted under IWEco.SKN.

There is no doubt that to take action for wetlands requires a sustained collective effort. We must be willing to invest significant capital (financial, human and political) as well as our time to save these wetlands. An emerging theme from all of the restoration work undertaken in Nevis is that restoration efforts take a lot of time and we must be willing to take the plunge and invest over the long term in order to reclaim these critical ecosystems.

- submitted by Dr. Halla Sahely, IWEco.SKN Project Coordinator

Caring for the Caribbean Future: UNEP IWEco Podcasts



Episode 1: Nelson's Spring Wetland Restoration, St. Kitts & Nevis
<https://www.youtube.com/watch?v=RCWgcdWHc5A>



Episode 2: Quarry Rehabilitation, Trinidad & Tobago
<https://www.youtube.com/watch?v=umufJYF31Jc>

#CaringForOurFuture



Laboratory training for better environmental monitoring begins under IWECO

The Regional Laboratory Assessment conducted for UNEP GEF IWECO in 2020 aimed to strengthen national and regional capacity to perform environmental quality monitoring. It assessed environmental quality monitoring needs, including the capacity in the national and regional laboratories and Regional Activity Centres to respond to demands for environmental quality monitoring in participating SIDS. The assessment made recommendations for suitable laboratories in which to conduct capacity building activities.

IWECO committed to capacity building in selected laboratories through the provision of equipment to support environmental quality monitoring and, through training, to support the provision of consistent results fit for the intended purpose.

The first Training Webinar in a series related to environmental quality monitoring within the IWECO project entitled “Improving Laboratory Management Practices – An Introduction to ISO 17025” took place over two days: 15th and 16th March 2022.

This first in the series of five interactive training modules had the primary objective of building support for improving and standardizing laboratory practices for water quality sampling and analysis. It :

- Explained the benefits of adopting sound and standardized laboratory processes and procedures.
- Introduced ISO 17025:2017, and its key concepts, as a guide to improving laboratory practices and procedures.

Participants included staff and on-site managers of government and non-government water quality testing laboratories within the ten (10) participating countries of the UNEP GEF IWECO Project.

All five modules are being prepared and conducted by the UNC Water Institute and UNITAR.

Module 1 presentations and videos are now available at:

<https://chemicalsandwaste.wixsite.com/env-monitoring/module-1>

(Continued from page 3)

assessment of land use and zoning, threats from pollution and a review of the legal enabling environment. These set the stage for crafting on-the-ground interventions to address some of the critical issues identified. Such activities included measures aimed at water use efficiency such as tank level controls and mitigation of pollution through the installation of an oil-water separator at the main power station.

Finally, the sensitive well-field area, including approximately 500 acres of land, of the Basseterre Valley Aquifer was designated as a Protected Area named the Royal Basseterre Valley National Park – a significant achievement. The vision was for the National Park to be an icon of national pride for all and an attraction for visitors to St. Kitts & Nevis.

Ten years later, the lessons learnt from the IWCAM Project led directly to the design of the current interventions under the national GEF-IWECO Project. These started in 2019 and will end in mid-2022. The main project focus is the mitigation of land degradation in the sensitive College Street Ghaut (in St. Kitts) and at quarries (both onsite at an abandoned quarry and downstream of active quarries) in Nevis.

While, on the surface, this may seem to not be connected to groundwater resources, many of the restoration activities undertaken under IWECO SKN mitigate land degradation which in turn allow for enhanced groundwater recharge. Since 2015, St. Kitts & Nevis has been experiencing significant rainfall variability and drought which have greatly impacted the amount of water which infiltrates and recharges coastal aquifers. Residents can experience severe water shortages during dry periods. Any activities focused on enhancement of groundwater recharge are therefore critical.

Project interventions have included land degradation controls works in the College Street Ghaut, St. Kitts, and in Nevis, reforestation and restoration activities across three sites at Coconut Walk, Potworks Estate and Nelson’s Spring wetland. In St. Kitts, over 5 acres of ghaut lands were restored reducing excessive soil erosion, flood risk to neighboring homes, and enhancing groundwater recharge.

In Nevis, over 20 acres of degraded lands have been restored with more than 2,685 trees planted and soil conservation actions such as contours, sediment traps, composting and planting of deep-rooted grasses transforming the landscape at three separate sites. These measures have not only restored both natural and modified ecosystems, but significantly improved groundwater discharge in vulnerable areas severely impacted by drought in recent times.

Nationally, efforts are underway to upgrade water quality monitoring protocols and strengthen legal instruments and management plans. This will cement sustainable management into daily practice across St. Kitts and Nevis and continue to provide positive impacts into the future and ensure sustainable use and management of groundwater. There is no doubt we are on the path to becoming Generation Restoration!

- by Halla Sahely, IWECO.SKN Project Coordinator

Significant replanting was carried out at Coconut Walk, Nevis



(Continued from page 1)

Longyearbyen at the High Arctic Archipelago of Svalbard (or Spitsbergen) in the Arctic Ocean, about midway between the northern coast of Norway and the North Pole.

Due to its geographical position, Svalbard experiences an extreme and cold Arctic climate.

However, global warming has resulted in clear changes and over the last few decades the average temperature has risen by about 4°Celsius in summer, and about 7°Celsius in winter.

When I arrived on the island, there was no direct sign of climate change: The daily temperature was -27 ° Celsius (-17 ° Fahrenheit), quite a contrast to the 30° Celsius I had been enjoying just a few days before in Jamaica!

“It is not only the extreme temperatures which define climate change”, my host told me. “Climate change is a gradual phenomenon and it cannot be explained by minimum or maximum temperatures only”.

In the days after my arrival we explored the vast icy landscape with impressive snow-covered mountains, glaciers and coastal areas with estuaries with massive and packed sea ice.

Svalbard has a permafrost: 90 % of its surface is permanently frozen and only about 10 % of the island thaws in the summer. This has huge implications for human settlements but also for the very limited wildlife, which includes the well-known Polar Bear.



Svalbard Reindeer survive the cold winter months by scratching the snow away from the surface to reach the

minimal vegetation underneath. However, the warmer periods which have been occurring recently during the Arctic winter causes part of the snow to melt. If it freezes again, a hard frozen layer of ice is formed, making it much more difficult for the Reindeer to reach their food.

I was invited to descend into a glacier cave, formed by melt water from the glacier. “These melt water caves are absolutely normal.” I was told “Glaciers melt partially during warmer periods and the water finds its way below the surface. However, in recent years, melting goes much faster than the glacier grows, resulting in shrinking of the glaciers in general”.

While struggling beneath the surface of the glacier, I admired the wonderful colours of the ice around me, taking care not to hit my head on the sharp icicles which were hanging down from the ceiling and sides of the cave.



“When it becomes warmer outside in summer, you cannot be here as this will be an under-ice river further hollowing out beneath the glacier”. Compared to the past, these rivers with melt water below the glacier occur more frequently - the direct effects of Climate Change visible in front of my own eyes.



On the way back to base, we experienced some fresh avalanches: The unusual and unpredictable changes in temperature also cause more avalanches in wintertime making the icy landscape even more hostile. “When temperatures rise, the top of the snow and ice might melt and form water bodies on ice. When temperatures drop, the top of the water freezes again. When covered with snow, you cannot be sure where it is safe to pass as below a thin layer of ice there could be flowing water. If you crack the surface, you will be stuck and freeze to death. Last week several people needed to be rescued by helicopter as they had entered an area which is normally safe to pass but had become unsafe due to temperature fluctuations”. In June 2020, a record high temperature of 21.7 °Celsius (71.1 °Fahrenheit) was measured at Svalbard and in July 2020 exceptional temperatures of more than 20 degrees were measured on four consecutive days.

While the Intergovernmental Panel on Climate Change (UN IPCC) predicts a worst-case scenario with a total increase of 4.5 °Celsius for the temperate zones by 2100, the High Arctic at Svalbard is moving towards a temperature increase of between 7 and 10 degrees by the end of the century.

When discussing these events - which will have a catastrophic impact on all living organisms - with some scientists at Svalbard, we heard on the news that Antarctica at the far south of the Earth, experiences temperatures which are 40 degrees above average.....

It is clear that the poles will suffer a lot during the decades to come, releasing vast amounts of water and causing sea level rise. “Is it too late already? Can we reverse this temperature rise?” I asked my host. He responded “Better be prepared for the worst.” Knowing that these scientists are on the forefront of the scientific research and non-political, makes their warnings more meaningful. It would seem we *are* heading towards a climate catastrophe.

Wherever you live on this planet, be prepared for changes. Restore ecosystem functions as much as possible to build up resilience. Prepare yourself against extreme weather events—restore forests, build stronger houses, create resilient infrastructure, prepare for extreme rainfall and droughts, and for changes in temperatures.

These actions would at least make us more resilient to what is expected to come.

IWECO contributes to efforts to improve our resilience. It matters that we use available resources wisely. Resilience building is not done overnight, so we need to act now to be prepared.



Sargassum influx, St. Vincent, 2019

Sargassum in the Caribbean

Reports completed by IWEco Research Partners show how collaboration works!

Under IWEco's Component 2, co-executing partner CARPHA, made a call for proposals to the project's Research Partners in late 2019.

The following two studies were subsequently conducted by the Centre for Resource Management and Environmental Studies (CERMES), University of the West Indies, and the final reports are now available.

The IWEco Project had been pleased to support this two-part review lead by Dr. Peter W. Schuhmann, an output of the Caribbean Biodiversity Fund (CBF) project 'Adapting to a new reality: managing responses to influxes of sargassum seaweed in the Eastern Caribbean' (SargAdapt).

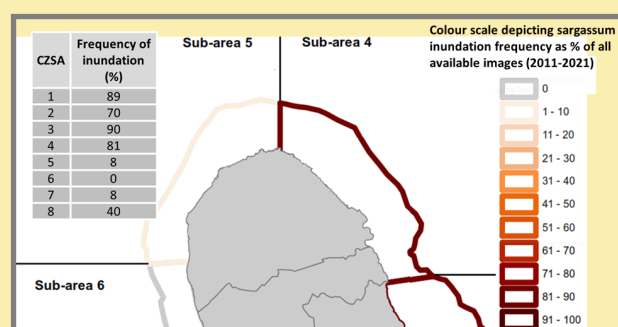
Economic Impacts of Sargassum Inundation in the Caribbean, Part 1: Insights from the Literature

"A comprehensive overview of several branches of literature that provide insight into the potential economic impacts from sargassum events in the Caribbean Region. Recognizing that understanding the scope, magnitude, and distribution of the economic consequences of sargassum events is an important prerequisite for appropriate planning and mitigation efforts, the review aims to develop a framework and research agenda for market and non-market valuation efforts directed at quantifying economic losses from sargassum." (Ref. Executive Summary)

See the report at: <https://tinyurl.com/5fyeyca>

Applying Hazard Risk Assessment and Spatial Planning Tools to Sargassum Inundations in the Eastern Caribbean Small Island States as a basis for improving response.

"Episodic Influxes of pelagic sargassum into the Caribbean often result in inundation of coastlines with significant negative impacts to the environment, society and the economy. As such, sargassum inundations qualify as a coastal hazard. Spatial variation in sargassum inundations have important implications for management response to this hazard, including alleviation of associated negative impacts and/or harvesting sargassum for valorisation. However, there is no systematic monitoring of sargassum inundations and thus a lack of data on the spatial and temporal distribution and extent or magnitude of this hazard. In this study we apply, in combination, the tools of hazard risk response and spatial planning to the problem of sargassum inundations for the first time, to assess the efficacy of this approach. We use secondary data in the form of publicly available remotely sensed images (from Google Earth) to develop sargassum inundation hazard maps for each of the five project countries in the Eastern Caribbean (Barbados, Dominica, Grenada, St Lucia, and St Vincent and the Grenadines). We also use spatially explicit secondary data on important assets within three categories (fisheries, tourism, and coastal ecosystems) obtained from a variety of sources to map assets and subsequently overlay with sargassum inundation hazard maps to examine exposure of different assets to this hazard." (Ref. the article Abstract)



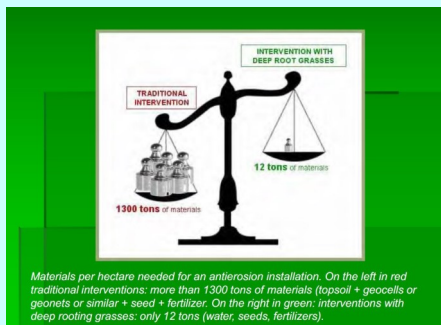
Excerpt of hazard map for Barbados showing the data for frequency of inundations and the colour scale used to depict % frequency of sargassum inundations for CZSAs (Figure 5, the report)

See the report at: <https://tinyurl.com/mrvsesvw>

Vetiver - Use and Benefits for Land and Soil Restoration

Following our webinars on nature-based solutions in 2021, IWECO's 17th Partners' Webinar on 18th January 2022, focused on vetiver. Two presentations were made.

The first, by Elise Pinner, Director of The Vetiver Network International (TVNI) focused on **Vetiver ecoengineering - plant characteristics and overview of applications worldwide.** This provided the wider context based upon Ms. Pinner's vast experience. She stressed that success depends not only upon good knowledge and understanding of how to use vetiver effectively but also upon having buy-in from leaders (a commitment to use of "green infrastructure") and the creation of economic incentives.



In the second presentation, Jonathan Barcant, Caribbean Coordinator of TVNI, introduced participants to "The Vetiver Education & Empowerment Project (VEEP) model and the Vetiver System (VS) in the

Caribbean." Among the many successful Caribbean examples he shared was the quarry rehabilitation project in IWECO, Trinidad & Tobago, in which IAMovement, the NGO which he established, is a partner.



Both presentations contain a wealth of information and are available on IWECO's website. Check the links below.

Vetiver ecoengineering - plant characteristics and overview of applications worldwide.

[IWECO 17th Partners Webinar GCC VS Intro eco-engineering and cc 180122 0.pdf](#)

The Vetiver Education & Empowerment Project (VEEP) model and the Vetiver System (VS) in the Caribbean.

[PowerPoint Presentation \(iweco.org\)](#)

Stay safe everyone!

For up-to-date info on COVID-19: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

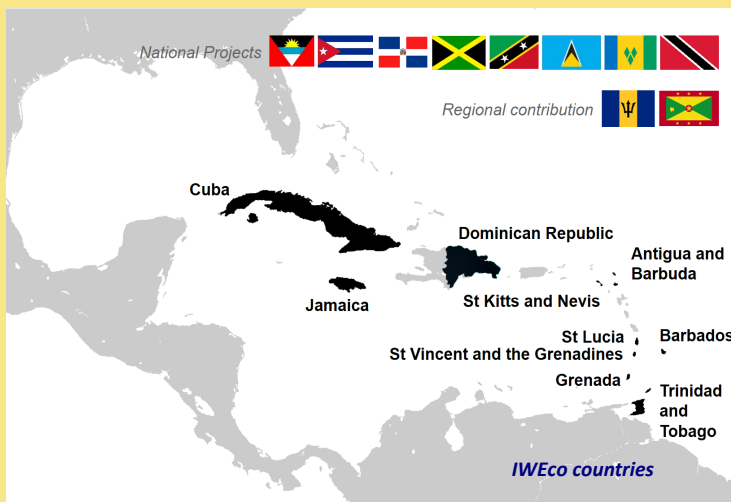
IWECO thanks its partners, both regional and national, for their contributions to this issue and for their continuing support.

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The IWECO Project is a five-year multi-focal area regional project funded by the Global Environment Facility (GEF). UN Environment is the lead Implementing agency and it is hosted by the Cartagena Convention Secretariat.