Caribbean Community and Common Market
(CARICOM)

Mitigating the adverse effects of climate change in the Caribbean

Research Report

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Fake news

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Introduction

The Caribbean is located southeast of the Gulf of Mexico and the North American mainland, east of Central America, and north of South America.[1] Climate change has been an ongoing worldwide issue for the past couple of decades. The negative effects of climate change are especially noticeable in the Caribbean, where there are countless ecosystems and communities who are vulnerable to these changes. The effects are many and varied, suggesting the need for diverse and extensive solutions. The most important and frequently discussed topics include the increase in natural disasters, the decline in flora and fauna and the turbulent weather as a consequence of climate change. All of these consequences directly impact the inhabitants of the islands socially and economically, as well as the animals that reside there.

This has led to a great amount of deaths through natural disasters, droughts, disease and much more. The detrimental effects to the ecosystems that reside in the Caribbean will lead to a decrease in the many benefits and necessities that the flora and fauna provide the inhabitants and the rest of the world, such as natural resources, nourishment and protection, if no measures are taken. Due to this, finding ways to mitigate these effects are of utmost importance.

[1] https://en.wikipedia.org/wiki/Caribbean

Definition of Key Terms

Biodiversity
The variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable.

Bleaching
Coral bleaching is the process when corals become white due to various stressors, such as changes in temperature, light, or nutrients.[2]

Caribbean
The region consisting of the Caribbean Sea, its islands (including the West Indies), and the surrounding coasts.

Climate change
As the name already suggests, climate change is an occurring change in our climate, also described as a long-term change or even permanent change to our climate. Often climate change is replaced by the term global warming, due to the elevated temperatures in the atmosphere as one of the effects of the changing climate. There are primarily negative effects that result from climate change, often damaging and harming the environment and organisms.

Colony
A colony is a territory subject to a form of foreign rule.

Coral reefs
A ridge of rock in the sea formed by the growth and deposit of coral.

Ecosystem
A biological community of interacting organisms and their physical environment.

[2] https://oceanservice.noaa.gov/facts/coral_bleach.html

General Overview

The Caribbean

The Caribbean consists of the Caribbean sea, its islands and the surrounding coasts. There are thirteen sovereign states recognised by the UN and nearly two dozen territories part of the Caribbean. Many of these states and territories belong to the Small Island Developing States (SIDS). SIDS are particularly vulnerable to loss of biodiversity and climate change due to the high import and export costs, their dependency on external goods from international markets as a result of limited resources and the fragility of their ecosystems.[3]
The Caribbean is known to have one of the most diverse ecosystems in the world. The flora and fauna of the Caribbean bring both natural resources and economic benefits to the inhabitants and to the rest of the world. Many resources are exported to other countries and the main industry of the Caribbean is tourism and fisheries, which constitute about a third to a half of the GDP.[4] With that being said, most resources are acquired from the ocean, with one of the most important ecosystems being the coral reefs.

Climate change

Climate change influences many different aspects of life. Besides the average temperature rising, many other things change. Many islands of the Caribbean are at risk of disappearing due to the rising sea levels. There is a significant increase in extreme weather, resulting in natural disasters being more frequent as well as prevailing droughts and floods. Additionally, the change in the weather and climate increases the amount of climate related diseases.

The impact on the ecosystems of the Caribbean is also quite noticeable. The largest and arguably most important ecosystem of the Caribbean, the coral reefs, have been reported to be bleaching. In a study they have found that it is highly unlikely that the bleaching of the coral reefs is merely coincidental, but rather a byproduct of human activity and rising temperatures from climate change.[5]

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[3] https://www.un.org/ohrlls/content/about-small-island-developing-states
[4] https://web.worldbank.org/archive/website00969/WEB/OTHER/751673D3.HTM
[5] https://www.mdpi.com/2071-1050/14/10/6161

Causes and provocations

There are a huge amount of factors that come into play when discussing the causes and provocations of climate change. Here will primarily be discussed the actions within the Caribbean that further influence the climate.

Other than the usual emissions of CO2 gases by the usage of fossil fuels, the effects of climate change are sped up by other human activities. The decline in the coral reefs is a consequence of global warming, but also overfishing, ocean acidification[6] and pollution. The decline and disappearance of on-land ecosystems are a result of deforestation, pollution and human encroachment.[7] Acts like tourism add to the amount of pollution, as well as the disruption of habitats. The emission of gases from travel to the Caribbean for tourism adds up as well.

Effects of climate change

The effects of climate change on the social and economic life of the inhabitants of the Caribbean are many and varied. When considering solutions many of these effects should be taken into consideration and there should be an attempt to find ways to mitigate as many of these effects as possible. Do note that many of these effects cannot be placed in either of the categories 'social' or 'economic', but are rather socioeconomic effects. For simplicity and overview they have been divided into these categories.

Social effects

The increase in extreme weather conditions causes numerous deaths every year. The increase in natural disasters such as hurricanes Irma and Maria have caused countless deaths, injuries, a shortage of necessary care, water and electricity and have been devastating events for Puerto Rico. Not only does the immediate impact cause devastating results for the inhabitants struck by a hurricane, but the aftermath usually takes months if not years to restore. Extreme weather conditions also include prevalent droughts, which results in failed crops and insufficient hydration for both humans and ecosystems and food insecurity.

The decrease in biodiversity as a result of climate change limits the already limited resources of the Caribbean islands. Many natural resources that have helped people before, will not be available to them any longer. This could range from food and nutrients gathered from the oceans or forests to protection from natural disasters, much like the dunes from the Netherlands.

As last the increase of climate related diseases will add up to the already high counting deaths caused by climate change. The changing climate gives mosquitoes and ticks more opportunities and time to reproduce, increasing the likelihood of them passing diseases amongst people. The climate also forces certain animals to migrate to different areas to accommodate their needs, which brings more people

[6] https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-acidification.
[7] https://en.wikipedia.org/wiki/Caribbean

into contact with animals. Furthermore, there is an increase in fungi and harmful algae blooms.[8] Food and water-borne diseases are also becoming more frequent due to climate change.[9]

With all this being said, densely populated areas will be impacted most by climate change.

Economic effects

The increase of extreme weather conditions and the disappearance of the biodiversity of the Caribbean both have negative impacts on tourism. Seeing as tourism makes up a large part of the GDP for many countries and territories of the Caribbean, a decrease in tourism could be detrimental to the economy and lives of many people. The rising sea levels could mean the disappearance of coasts and entire parts of islands, which in return is also detrimental to tourism, as many tourist hotspots are located near the shore, as well as many hotels, restaurants and resorts.

The reparations of infrastructure and providing of humanitarian aid after natural disasters make up a hefty sum. The increase in these disasters will make it difficult for governments to keep up with. Not only does this set back economic growth, it also restricts development.

Droughts and lack of resources can result in high import costs as many resources such as food will have to be obtained from external sources rather than local sources. Due to the Caribbean's remote geography, transportation, import and export are expensive. If less local resources can be obtained and more must be imported, many resources will increase in price, leading to both social and economic effects.

Difficulties

There are quite a lot of difficulties that come with combating climate change in the Caribbean. As a result of its past colonialism, many islands are dependent on past colonial overlords. Due to this many islands struggle to compete with the world economy and face difficulties when attempting to be self-sufficient. Including the presence of the SIDS, combating climate change is an exceptionally difficult task for the Caribbean.[10] Enforcing policies to combat climate change is a complex and meticulous task. Many provocations for climate change and declining ecosystems come from the blooming tourism industry, which also constitutes a large amount of the GDP. Limiting tourism will lead to economic difficulties which will in turn lead to unknown results for already struggling islands and communities. It is also difficult to enforce policies regarding CO2 emissions, as the islands heavily rely on external sources to provide for its inhabitants. Import and export consume lots of fossil fuels.

Futhermore, the decrease in biodiversity is a vicious circle, as the lack of a strong biodiversity exposes the Caribbean to more disasters that occur as a result of climate change, but climate change diminishes the biodiversity. Besides that, many resources are taken from

[8] https://www.cdc.gov/ncezid/what-we-do/climate-change-and-infectious-diseases/index.html
[9] https://iris.paho.org/bitstream/handle/10665.2/38566/PAHOCDE19007_eng.pdf
[10] https://www.un.org/ohrlls/content/about-small-island-developing-states

nearby ecosystems to help the islands become more self-sufficient and rely less on other countries. This however leads to phenomena such as deforestation and overfishing.

Lastly, the constant hammering of natural disasters cost the islands way more money than their national GDP. *Dominica's total damages and losses from Hurricane Maria in 2017 have been estimated at $1.3 billion, about 226% of the country's gross domestic product (GDP)*, according to a study by the WHO.[11]

Major Parties Involved

France
France has connections with a couple of territories in the Caribbean, such as Guadeloupe and Martinique. This is a result of their colonial past. As a result of this, France and the French language are relevant when discussing the Caribbean. French is a complementary language in CARICOM, besides English and Dutch.

Grenada
Grenada is known to be incredibly motivated and prepared to combat climate change. Mitigating its effects has been high on the agenda of the Government of Grenada.[12]

Haiti
Haiti is exceptionally susceptible to the effects of climate change. The country possesses qualities that add to this vulnerability, such as high population density, extensive deforestation and high income inequality. There are many complications that come with combating climate change in Haiti that must be addressed during debate.

Mexico
Mexico neighbours the Caribbean, as does the Gulf of Mexico, which is home to plenty of ecosystems, much like the Caribbean sea. Both the Caribbean and the Gulf of Mexico struggle with declining biodiversity and great climate change drawbacks. The Gulf of Mexico has also experienced bad oil spills from BP previously, adding to the devastation of a rich and resourceful region. The USA is also known for sourcing a large amount of oil from the Gulf of Mexico.

The Netherlands
For similar reasons as explained above by 'France', the Netherlands is a relevant country when regarding the Caribbean, due to their colonial past. Some territories that are connected to the Netherlands are the famous 'ABC islands': Aruba, Bonaire, and Curaçao. Dutch is also a complementary language within CARICOM.

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[11] https://iris.paho.org/bitstream/handle/10665.2/38566/PAHOCDE19007_eng.pdf
[12] https://en.wikipedia.org/wiki/Climate_change_in_the_Caribbean

Puerto Rico
Due to Puerto Rico's affiliation with the USA and the devastating events of hurricanes Irma and Maria, Puerto Rico has been exposed to much more climate change programmes and agenda's, compared to their fellow Caribbean islands.

Small Islands Developing States (SIDS)

The SIDS are a distinct group of countries and territories that face unique social, economic and environmental vulnerabilities. SIDS face challenges mainly concerning their geographical location. It is especially difficult for SIDS to manage climate change, due to their limited resources and lack of alternatives. Furthermore, climate change is much more tangible for SIDS, as they are often located in areas where natural disasters are more prone to occurring and where biodiversity is an integral part of their way of living.[13]
A list of the SIDS can be found on this site: https://www.un.org/ohrlls/content/list-sids

United States of America (USA)
The USA is right next to the Caribbean and contributes to helping territories such as Puerto Rico combat climate change. However, one could argue that the USA is counterintuitive due to their high fossil fuel consumption.

Caribbean Community (CARICOM)
CARICOM consists of fifteen Member States and five Associate Members. After the establishment of the WIF and the CARIFTA (see below), CARICOM has been established to further offer the islands of the Caribbean economic development. According to the official CARICOM website, *CARICOM rests on four main pillars: economic integration; foreign policy coordination;human and social development; and security.*[14]

The Caribbean Free Trade Association (CARIFTA)
CARIFTA was founded by the English speaking Caribbean islands, primarily consisting of the islands that previously formed the WIF. CARIFTA was established to unite the Caribbean economically and provide a linkage between these former colonies. The CARIFTA came forth as a result of the previously disbanded Federation, WIF.

World Health Organisation (WHO)
The WHO is a largely relevant organisation that is currently in debate on the effects of climate change on various parts of the world, including the Caribbean. They have held multiple studies and conferences on the topic. These will be included in the report at 'past attempts to solve the issue'.

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[13] https://www.un.org/ohrlls/content/about-small-island-developing-states
[14] https://caricom.org/our-community/who-we-are/#:~:text=The%20Caribbean%20Community%20(CARICOM)%20is,States%20and%20five%20Associate%20Members.

West Indies Federation (WIF)
WIF, also known as the West Indies, was a political union that had been established by islands that were previously British colonies. The original intention of this federation was to become independent from Britain, similar to the Australian Commonwealth. However before anything could be formed, internal conflict set the islands apart.

Timeline of Events

Date	Description of event
03/01/1958	The establishment of the West Indies Federation (WIF)
31/05/1962	The disestablishment of the West Indies Federation (WIF)
15/10/1965	The establishment of the the Caribbean Free Trade Association (CARIFTA)
01/08/1973	The establishment of the Caribbean Community (CARICOM)
01/05/1974	The disestablishment of the Caribbean Free Trade Association (CARIFTA)
03/06/1992 - 14/06/1992	SIDS were recognized as a special case at the United Nations Conference on Environment and Development in 1992
30/08/2017 – 13/09/2017	Hurricane Irma
Sept. 20, 2017	Hurricane Maria

Past Attempts To Solve The Issue

There is lots of debate and discussion about climate change in the Caribbean and its surroundings, however, primarily they consist of reviews and matter of fact reports, rather than set rules and procedures to attempt to solve this issue.

There are a couple of organisations currently attempting to solve the issue, such as the WHO. They have composed an action plan on health and climate change in the Caribbean. The pdf file:
https://iris.paho.org/bitstream/handle/10665.2/38566/PAHOCDE19007_eng.pdf.

Furthermore, there is a list of UN related organisations and programmes that are working to help mitigate the effects of climate change in the Caribbean.

1997 – 2001 Caribbean Planning For Adaptation To Climate Change Project (CPACC)
https://unfccc.int/files/cooperation_and_support/capacity_building/application/pdf/caribadapt.pdf

2014-2018 Coastal Protection for Climate Change Adaptation in the Small Island States in the Caribbean (KfW)
https://oldsite.caricom.org/projects/detail/2014-2018-coastal-protection-for-climate-change-adaptation-in-the-small-isl/Calendar.doc/P10

2012-2014 The Australia Caribbean Coral Reef Collaboration (ACCRC)
https://portals.iucn.org/library/efiles/documents/2014-019.pdf

UN Involvement, Relevant Resolutions, Treaties and Events

The United Nations Conference on Environment and Development (UNCED), also known as the 'Earth Summit', held in Rio de Janeiro, Brazil, 3-14 June 1992.

Paris Agreement, 12 December 2015

Possible Solutions

The most important point you must keep in mind during debate is that the Caribbean is a very vulnerable region, socially, economically and politically. Many policies that you will want to enforce can possibly result in devastating repercussions for communities, ecosystems and governments. Despite these policies on tourism and CO2 emissions being necessary, they must be composed with caution.

A few important points to think about are the economic load of the Caribbean islands, a way to manage preserving biodiversity while keeping the tourism industry and the health concerns. The increasing natural disasters will lead to great economic costs for the Caribbean islands. Where will they find the money to restore their cities, streets, infrastructure, etc? Or the people who offer humanitarian assistance?

It is known that biodiversity is an important part of the Caribbean islands, not only for their resources but also cultural or even spiritual connections for the inhabitants. However the biodiversity is the main attraction for tourists, such as the shores, coral reefs, rainforests, etc. The amount of tourism can be detrimental to the biodiversity that attracted them in the first place, and detrimental to the environment and lifestyle of the inhabitants. The rising sea levels could also mean the vanishing of current coasts where hotels and resorts are. Tourism is, however, an integral part of many islands as the national GDP is dependent on tourism. There must be a way to balance tourism and preservation of biodiversity and ecosystems. Here it is important to limit the actions of tourists, while also preserving the industry.

The increase in diseases and necessity for humanitarian assistance due to droughts, floods and other natural disasters means a shortage of medicine, food, fresh water, medical assistance and much more. How will we be able to provide the islands with the necessary supplies to support their inhabitants?

Lastly, it is important to enforce strong, concrete policies on deforestation, overfishing and other environment and climate unfriendly practices and to enforce better, greener alternatives as much as possible. For this money and remote location are the biggest barriers for the islands. Take a look at other countries attempting to be more self-sufficient and use greener alternatives to see what can be applicable for the Caribbean countries. Being original and experimental is no problem, during lobbying you can discuss with other delegates on what is realistic and plausible.

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