Climate Adaptation and Mitigation in the Dominican Republic and Cabo Verde

Gaudi Nunez & Nandy Lima

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2. Abstract

Our research sought to study each country's position on climate change effects. Both Dominican Republic and Cabo Verde are small islands which do not contribute too much to the greenhouse gas emissions. Their responsibility on global warming is thus minimum. However, small islands like these are unfortunately greatly affected by the effects of climate change. Due to this factor, our research is mostly focused on adaptation plans rather than mitigation. We identified each country's characteristics, how vulnerable they are and how they are implementing adaptation plans. Eventually, we conclude that the tourism sector is an important asset for the economy development of each country and that there is an urgency for climate change adaptation implementation focusing on the coastal zones since it relies on those to prosper.

3. Introduction

Global warming is very real. It has been observed for decades and has culminated to the emergence of many catastrophic climatic hazards, which are gradually becoming more frequent and more intense due to the volume of greenhouse gases released in the atmosphere. The increase in global temperatures is permanently changing the Earth's geophysical setting and creating a domino effect of natural damages such as acidity of the ocean, melting glaciers, sea level rise and many others. Scientific studies have concluded that global temperatures have risen by about one degree since the end of the nineteenth century and the levels of CO2 in the atmosphere have increased and accumulated by relatively 30% .

Along with the world's environmental alterations, global warming bears heavy negative socio economic repercussions on all countries. Countries that are most vulnerable to its impacts are the same ones that have contributed the least with greenhouse gas emissions. This is the case of Small Island Development States (SIDS). Those islands are prone to natural catastrophes and many have already started feeling the effects of climate change. Many SIDS are low-lying coastal countries that share similar sustainable development challenges. The characteristic risks of SIDS that increases vulnerability to climate change are small surface areas, relatively high population density, inadequacy of infrastructure and the lack of natural resources, particularly potable water resources. Due to the lack of infrastructural and financial resources in SIDS there is an urgency to take action towards building up resilience and mitigation of climate change in a global scale. The Alliance of Small Island States (AOSIS) is a coalition that stands as a negotiating voice for SIDS at the United Nations arena. One of their biggest challenge at the

moment is fighting for the reduction of global temperature rise and coming to terms with reaching 1.5°C above pre-industrial levels rather than 2°C as projected by developed countries.

The two case studies that we will be discussing in this report are Dominican Republic, located in the Caribbean and Cabo Verde, located on the west coast of Africa. They are both Small Island Developing States that are part of AOSIS and part of the list of countries with the highest degree of fragility and vulnerability facing the occurrence of extreme natural phenomena. According to Global Climate Risk Index of 2016 (based on 2014 analysis), Dominican Republic occupies the 11th place and Cabo Verde is placed 159th as most affected countries by climate risk. While both are affected by sea level rise, each has distinctive characteristics related to climatic, geophysical and socio-economic conditions, existence of natural resources and location that challenges each differently when dealing with climate change; Dominican Republic being affected mostly by hurricanes and Cabo Verde by flooding. Since the tourism sector is a major economic driver for each country, we observed their present and future adaptation plans to become more resilient to climate change future disasters while sustaining their service oriented economy.

United Nations' effort towards both Dominican Republic and Cabo Verde have consisted on interventions through United Nations Framework Convention on Climate Change (UNFCCC) in order to incentivize both SIDS to elaborate and implement national strategies integrating environmental issues into the planning process and promotion of a sustainable development.

4. Case Study of Dominican Republic

4.1. Country's Context

The Dominican Republic shares ⅔ of The Hispaniola island (second largest) in the Greater Antilles Archipelago. It is located in between the Caribbean Sea (South) and the Atlantic Ocean (North); Haiti (West) and the Mona Passage (East) which separates it from the island of Puerto Rico. The country's current population is of approximately 9,883,486 inhabitants. Its total surface area is around 48,511.44 sq km.

This island is home to the highest peak of the Caribbean, Pico Duarte, which height is 3,175 m above sea level; and the lowest point in the Caribbean, Enriquillo Lake, falling 45 m below sea level. Although the Dominican Republic is surrounded by water in it majority, the island offers a very mountainous aspect as well; it has three main mountain ranges (Cordillera Central, Cordillera Oriental and Cordillera Septentrional) with fertile valleys good for agriculture. Inland water represents 1.6% of the national territory. The country has many rivers, but four of them are considered the most important, due to their sizes, the amount of water they carry and the use their waters is given. Those are: Yaque del norte, Yaque del sur, Yuna and Artibonito.

Its climate is tropical with temperature ranging from 77 F to 86 F. "Inter−annual variability in Caribbean climate is influenced strongly by the El Niño Southern Oscillation (ENSO)". This phase of climate pattern is responsible for warmer and drier than normal conditions between June and August. La Niña, on the other hand, does the opposite by bringing colder and wetter conditions around the same season.The Dominican Republic is right in the middle of the Atlantic hurricane belt. Hurricane season is said to start in August through the

month of October (McSweeney). However, the island has experienced off season strong storms due to climate change effects.

In terms of socio-economic and environmental framework, the touristic sector has a big impact on the Dominican Republic's economy. Studies have shown that there has been a significant increase in the demand of hotel rooms during the last 3 decades. Most hotels and resorts are located in the coastal area since the beaches are the country's number one attraction. This aspect requires attention since tourism represents a greater demand on the country's natural resources: not only the beaches, but also forests, mangroves, wetlands, reefs, groundwater, and many others (NAPA DR). The Dominican Republic's forest coverage has increased in the last 40 years due to several factors such as, the expansion of protected areas. However, the threat of wildfires has not diminished (NAPA DR).

4.2. Vulnerability

The Dominican Republic is highly vulnerable to climate events, due to their recurrence as well as the accumulation of damage and loss. There is evidence of increase of physical, economical and social vulnerability due to the process of global climate change, both in affected zones, the rest of the country and the island (NAPA DR).

The Dominican Republic's vulnerability to climate change is mainly derived from sea level rise and the recurrence of hurricanes. In a Vulnerability and Assessment Report done in 2013 by the USAID, the organization projected a "decrease in rainfall" during the month of May and "an increase [of rainfall] in December"; "Temperature increases for 2030 and 2050, which are projected to be 0.5-1.0 °C and 1.0-2.5 °C respectively and will increase evaporation and induce additional water stress". Therefore, the report states that the consequences of sea level

rise will worsen coastal flooding and beach erosion. Also, hurricanes frequency and intensity will increase "as ocean and global temperature continue to rise." In consequence, the damages will exacerbate.

Over the last 10 years, Dominican Republic has been considered one of the most affected countries "by the impacts of weather-related loss events (storms, floods, heat waves etc)." Considering the CRI (Global Climate Risk Index)[1], the Dominican Republic occupies the 11th place of the most affected countries from 1995 to 2014. Considering this information, we asked Yomayra Martino, about the consequences of climate change and when the country will start noticing such consequences. She explained:

> Certainly, globally [the Dominican Republic] is number 8, according to the Climate Risk Index of German Watch and its analysis made between 1993 and 2014 as an annual average, and Haiti in the same average is in the position number 3. The number of annual deaths associated with hydrometeorological phenomena, the number of extreme weather events, loss of resources in the amount of millions of dollars, among other indicators were considered.
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> We are already experiencing the adverse effects of climate change: when noticing drought periods outside their normal parameters and for longer time, when experiencing flooding due to rain, with the scarcity of water resources, rising sea temperatures, among other indicators, that scientists and the Intergovernmental Panel on Change climate Change (IPCC) have already warned that would occurred because of climate change on their last AR5 report.

According to a projection found in the Second National Communication[2] for the Dominican Republic, by 2020 the coasts of Dominican Republic and the marine ecosystems would be significantly impacted by the effects of climate change. Although it is not yet possible

[1] "The Global Climate Risk Index (CRI) developed by Germanwatch analyses the quantified impacts of extreme weather events – both in terms of fatalities as well as economic losses that occurred – based on data from the Munich Re NatCatSERVICE, which is worldwide one of the most reliable and complete data bases on this matter". (https://germanwatch.org/)

[2] "NCs from developing countries provide information on greenhouse gas (GHG) inventories, measures to mitigate and to facilitate adequate adaptation to climate change, and any other information that the Party considers relevant to the achievement of the objective of the Convention. Developing country Parties are required to submit their first NC within three years of entering the Convention, and every four years thereafter" http://unfccc.int/national_reports/items/1408.php

to indicate with certainty the possible impacts of the expected increase in seawater temperature on seagrass, it is possible that such ecosystems could be affected by strong waves due to the projected increase in the amount and intensity of weather related events.

4.3. Overall Presentation of Adaptation Projects

The Dominican Republic has published two National Communications for the United Nation Framework Convention on Climate Change. The Initial Communication was submitted in June of 2003, the Second National Communication was submitted in 6 years later in December of 2009 and the country is currently working on a Third National Communication.

In 2008, in the effort of preparation for the Second National Communication the Ministry of Environment and Natural Resources (SEMARENA, acronym in spanish), publishes the National Action Plan for Adaptation for Climate Change (NAPA DR, acronym in spanish).

Interviewing the Coordinator of the Third National Communication for United Nations Framework Convention on Climate Change, Yomayra Martino she let us know that the National Action Plan for Adaptation of 2009 is being reviewed and updated under the third national communication and it will be based on these 5 strategic focus areas:

- Improve food and water security
- Promote the built environment and the climate-proof infrastructure
- Promote healthy and resilient communities
- Increase resiliency in the ecosystems, biodiversity and forest
- Enable companies competitiveness (especially on productive sectors like tourism) through programs of sustainability and climate resiliency

4.4. Zooming in Adaptation plans

The Least Developed Countries Expert Group (LEG[3]) from the United Nations Framework Convention on Climate Change recommends that the nations take advantage of the NAPA programs to integrate activities of adaptation within national development policies, both in the preparation and implementation of such. The urgency in which this adaptation measures should be adopted, according to the LEG are first of all in terms of human impact such as population death, which would increase if the measures are not applied immediately; irreversible changes and potential damages, remove principal causes of deterioration and environmental, social and economic degradation.

Dominican Republic, since its entry to the United Nations Framework Convention on Climate Change in 1998 has been developing programs to address effects of climate change. The Initial National Communication was submitted in 2003 and included the first inventory of greenhouse gases and studies of the impact of climate change in agriculture, human health, water resources and coastal/marine resources (NAPA DR).

When the NAPA DR report was published, Dominican Republic was working on the elaboration of the Second National Communication, which had also done an inventory of the emissions of greenhouse gases, vulnerability studies and adaptation on touristic areas, the definition of scenarios and evaluation of current (at the time) climate trends, studies regarding

[3] "The LEG was established by the COP in 2001.The LEG is requested by the COP to provide technical support and advice to the least developed countries (LDCs) on the national adaptation programmes of action (NAPAs) and the LDC work programme, and to provide technical guidance and support to the national adaptation plan (NAP) process." http://unfccc.int/adaptation/groups_committees/ldc_expert_group/items/4727.php

malaria and dengue, the change in the use of soil and forest cover, and studies regarding biodiversity and agriculture.

The Dominican Republic was just evaluating the effects of climate change and NAPA plays a big role identifying the measures for adaptation through a process strongly supported by the nation.

The NAPA DR (2008) document introduces the Dominican Republic in three different context: socio-economic, environmental and international. Then it presents climate scenarios, focusing on Bavaro- Punta Cana, due to its socio-economic impact, and the implications of potential sea level rise, increase of temperature, changes in precipitation patterns, and then climate risk. The reports explain that the main threats for the island is the frequency and intensity of hurricanes. Then, secondary issues include: the aftermath of flooding and landslides. The fact that the magnitude of some of these could potentially be minor, does not reduce the impact. In fact, it worsens it because the affected community did not receive the necessary resources to overcome the damage. Also, there was no mitigation or preventative measures, leaving the population exposed to future events.

Adaptation policies are oriented towards integration of adaptation into policies and planning. Since the adaptation happens at different levels, which include local, it provides a “bottom up” perspective and also a “top down” perspective. This combines the vision of the communities and risk management agencies with broad participation of stakeholders.

In the planification process, with a top-down perspective: the government adds the climate adaptation within its public policies and national agenda; in compliance with their international responsibilities.

In the process of participative planification: the government adds climate adaptation to its national agenda, defining and executing public policies with the active participation of the society.

In the local endogenous process, with a bottom-up perspective: the adaptation is promoted from the local level, in terms of local adaptation measures and advocacy measures for their incorporation in public policies.

Within the guidelines to address climate change in the DR, the following priority systems were selected, adding infrastructure, human settlements and hydropower (NAPA DR):

- Water Resources
- Tourism
- Agriculture and Food Guaranteed
- Health
- Biodiversity
- Forest
- Coastal-Marine Resources
- Infrastructure and human settlements
- Energy

4.5 Impact of Climate Change and adaptation project related to tourism sector

Since the purpose of this project focuses more on the impact of climate change effects on the country's tourism for a comparison study with the islands of Cabo Verde, we are going to focus on the second priority system of the NAPA RD report.

Tourism is one of the most important and dynamic sectors in the economy of the Dominican Republic. In 2003, it represented 8% of the GDP against 3.8% from 1990. The number of tourist had doubled from 1,608,000 in 1993 to 3,282,000 in 2003. Therefore tourism represent fragility and vulnerability related to the geographic concentration (Punta Cana) and "thematic" (sun and beach).

The damages result of extreme climate events affecting the tourism of the country, according to the NAPA report, are:

- Repair and reconstruction cost of the touristic infrastructure.
- Repair and replacement cost of touristic real estate and equipment
- Damages to the beaches and other touristic attractions

The same document lists the losses result from such events are:

- Temporary reduction in occupancy of hotel capacity and revenue of the companies.
- Negative effects over related sectors
- Cancellation of future reservation and cost of marketing campaign
- Unemployment

4.6 International Intervention

The USAID[4] has been working into making tourism part of their plans and activities in order to "reduce poverty [...], provide higher education and economic opportunities" to the community, "promote gender equality by involving women into tourism activities" and also "Ensure environmental sustainability and the vitality of the resource base on which tourism depends".

In the Dominican Republic specifically, according to the USAID the "expertise and funding for climate change adaptation efforts will reduce the impacts of weather-related disasters on important tourism zones, such as storm surges and beach erosion in coastal areas and landslides and seasonal flooding in watersheds."

[4] United State Agency for International Development "is the lead U.S. Government agency that works to end extreme global poverty and enable resilient, democratic societies to realize their potential".

Aside from many other projects, the USAID (in terms of sustainability and plans of adaptation to climate change), is currently supporting tourism in the north-central part of the Dominican Republic in "Sonido del Yaque[5]". The USAID is supporting this establishment in the form of an "eco-tourism and climate change project", and they have already installed "four bio-digesters that create cooking gas out of organic waste". They also focus in the training of how can the community, including business owners and their employees on how they can increase their resilience to climate change. They also funded the construction of a new pathway, that would not only make the trip easier to the cabins but also reduces soil erosion, turning a 30 minutes walk into a 5 minutes trip.

The business owners and administrators have also done their part, by conditioning the area and they assure that their energy consumption has gone down significantly.

Small projects like this one, make the difference. By the initiative that this project represent on the business around, they set up an example. Meaning, that other business owner will be motivated, not only for the economic incentive of tourist attraction but also the peace of mind of having a business that not only tries to not harm the environment, but helps reduce the impacts of climate change.

5. Case Study of Cabo Verde

5.1. Country's Context

Located in the Atlantic Ocean around 550 km (350 miles) away from the west coast of Africa, Cabo Verde is an archipelago composed of 10 islands, 9 of them being inhabited. They

[5] Sonido del Yaque (Sounds of the Yaque River), is a touristic complex in the town of Jarabacoa.

cover a combined area of 4033 square kilometers (1,500 square miles). The archipelago is spatially divided into two groups by their location according to the prevailing winds, namely islands of Barlavento (windward islands of Santo Antao, Sao Vicente, Sao Nicolau, Santa Luzia, Sal, Boa Vista) located in the North and islands of Sotavento (leeward islands of Maio, Santiago, Fogo and Brava) located in the South. The current population number, according to the last 2015 estimates, is of 524,832 with the majority residing in the capital island of Santiago, one of the biggest islands of the archipelago alongside Santo Antao and Sao Vicente.

The archipelago is of volcanic origin and the topography varies from island to island. The eastern islands of Sal, Boavista and Maio have similar topographies with predominantly flat areas in contrast to younger islands, namely Fogo, Santiago, Santo Antão and S. Nicolau, that tend to be more hilly with steep and deep valleys. Even though the country is completely surrounded by water one of the biggest challenges it faces is providing potable water to every citizen because there are no permanent water courses and the temporary ones run only during the very scarce rainy seasons. Because it is situated in the sub-Saharan African climatic zone, Cabo Verde's climate is characterized as dry tropical weather comprising of two seasons, the dry season which extends for 9 months from November to July with minimal to no presence of rainfall, and the wet season which corresponds to the months of July through October with a very irregular rainfall pattern. The average monthly temperature varies between 68 F and 80 F and it is higher during the wet season.

Cabo Verde is a rising nation with a positive economic growth despite the lack of natural resources. Since its independence from Portuguese colonization in 1975, the country has experienced stability and good governance that implemented a successful development strategy

which has led the country to a substantial rise of income per capita (from $300 to $3400 per capita (INE-2015)), rise of access to education and health and also rise in life expectancy. All this socio-economic accomplishments has upgraded the country to being a Least Developed country (LDC) to a Medium Developed Country (MDC) in 2009 (NAPA-CV 2008). Unfortunately, the country relies massively on imports because of its lack of natural resources by reason of containing only 10% of arable land and so a very low level of primary sector. The economy of the country is essentially service-oriented with the tertiary sector representing 70% of the GDP (as indicated on figure 1) being that 30% of that number is of the tourism sector.

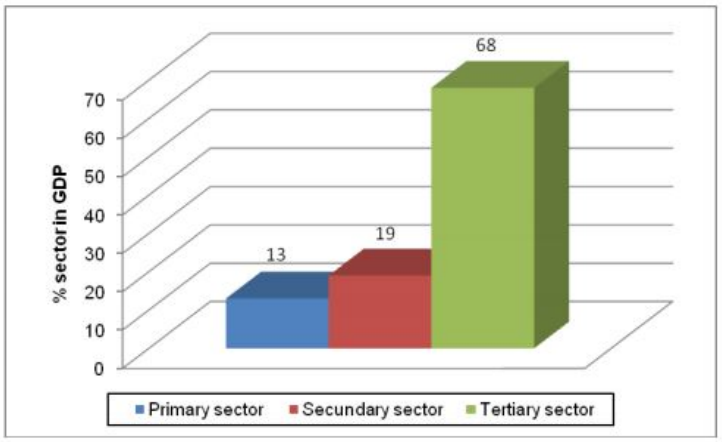

Figure 1. 2008 GDP structure
Source: INE - CWIQ, 2008

With half a million of tourists entering the country in 2013 and a predicted million tourists (double of its current population) per year from 2020 (NAPA-CV 2008), Cabo Verde plans to greatly invest on the tourism sector since it has become increasingly important.

5.2. Cabo Verde's vulnerabilities: Present and Future Consequences of Climate Change

Even though Cabo Verde's contribution to global warming is very insignificant, it is highly vulnerable to climate change. It's biggest vulnerability is derived from sea level rise,

characteristic of a Small Island Developing State (SIDS), and flooding. Currently, the most apparent signs of climatic changes impact in Cabo Verde are changes in rainfall patterns and in seasonal temperature. With the degeneration of already scarce natural resources the Cabo Verdean climatic variability will lead to more storms, extensive flooding and drought, and increasingly shorter rainfall seasons.

All phenomena that most affect the climate and environment in Cabo Verde are associated with the subtropical Azores and Santa Helena anticyclones, the low equatorial pressures, the Canary maritime current and the thermal depression over the African continent during the summer. These conditions result in smooth temperatures and influences the intensity and variability of the rainfall and frequent drought. A series of studies made of temporal evolution between the years of 1948 and 2009, in purpose of the preparation for the Second National Communication on Climate Change of Cabo Verde, demonstrates an increasing trend of the average monthly temperature decadal rainfall over the past 15 years (SNCCCCV 2010).

We've been trying, unsuccessfully, to find more current estimates of registered temperature and rainfall changes but our conversation with Engineer Francisco Correia indicates that the Cabo Verdean National Institute of Meteorology and Geophysics (INMG) has not been able to do such studies as of yet due to lack of resources It will be able to have access to such information for the purpose of the Third National Communication on Climate Change of Cabo Verde to be presented this year. Nonetheless, Engineer Francisco Correia updated us with 2015-2016 observed changes stating that December 2015 was registered as being the warmest month in Cabo Verde's history, that the beginning of April had lower temperatures than the usual

average and that the month of October 2015, which is usually the driest month of the rainy season, had a higher than average amount of rainfall.

In the next 10-20 years, the immediate foreseen climate change hazards will be seasonal water shortages (NAPA-CV 2008). Moreover, climate variability is predicted to increase, with decreased rainfall and duration of the rainy season, intense and prolonged droughts, changing microclimates, increased episodes of intense rainfall, increased frequency of tropical storms, floods and droughts and a shorter rainy season, increased solar radiation and potential evapotranspiration (ETP), frequent episodes of extreme temperature variations, increased sea level and more aggressive waves and extreme high tides, with high waves (SNCCCCV 2010). Studies of future climate change impacts indicates that temperature increase to 4°C and a decrease in rainfall by up to 20% will be expected by 2100 (SNCCCCV 2010). The coastal zones of Cabo Verde are an important asset to promote and develop the tourism industry and considering that 80% of the population resides on the coast, the reduction of coastline due to sea level rise and the impact of natural hazards are potential constraints to the country's development. But the country, presently, has a low capacity of climate change adaptation and is not resilient enough to withstand possible natural disaster damages or consequences from projected sea level rise.

5.3. Overall Presentation of Mitigation & Adaptation Projects

As a response to decisions made at the 21st climate change conference (COP 21) held in Paris in December of 2015, Cabo Verde's Ministry of Environment, Housing and Spatial Planning and Ministry of Foreign Affairs put together the "Intended Nationally Determined

Contribution of Cabo Verde" (INDC)[6]. The INDC indicates that most of the funding put in place to date were concentrated on mitigation and lowering green gases emission plans. It would make more sense to prioritize projects related to adaptation rather than mitigation since Cabo Verde's contribution to the global accumulation of CO2 is extremely minimal and that the lack of resources and resilient infrastructure amplifies the urgency of preparation for adaptation. We discussed the matter with Eng. Francisco Correia who stated that the fact that Cabo Verde is part of the Non-Annex 1 countries means that the country is highly dependent on international support and makes it difficult to negotiate funding for adaptation plans because of the interest of more powerful parties to sell their "mitigation technology" at Climatic Negotiation discussions.

5.4. Zooming in Adaptation: NAPA

The National Adaptation Programme of Action (NAPA) was a five year plan created in 2008 with the scope of identifying urgent and immediate needs and concerns of the least developed countries (LDCs), relating to adaptation to the adverse effects of climate change, based on the 7th Conference of the Parties (COP7) of the United Nations Framework Convention on Climate Change (UNFCCC). NAPA's adaptation programme framework for Cabo Verde identifies three main goals:

1) Promoting integrated water resources management in order to guarantee water for the people, for the production of food, for the ecosystems and for the tourism industry;

2) Developing the adaptability of the agro-silvo-pastoral production systems in order to ensure and improve national food production;

[6] INDC is a tool used to demonstrates at the United Nations Framework Convention on Climate Change (UNFCCC) the country's efforts to put together strategies, plans and actions towards a low greenhouse gases emission development and tackling challenges of mitigation and adaptation following the 2008 National Adaptation Programme of Action on Climate Change (NAPA) recommendations.

3) Protecting and preventing degradation of the coastal zones, caused by climatic aggressions and by tourism.

This plan prioritized Cabo Verde's adaptation needs and had the right solution strategies for all of Cabo Verde's climate change vulnerabilities identified. We were not able to find any follow-up document that could update us on whether or not the solution strategies were accomplished. When discussing the matter with Eng. Francisco Correia he told us that most of the projects put in place through NAPA were not accomplished due to lack of funding but that the first phase, which consists of water management in agriculture, was successfully completed and that the second phase is currently ongoing.

5.5. Impact of Climate Change and adaptation project related to tourism sector

Cabo Verde's coastal zones is a key commodity in regards to the tourism industry but the negative activities generated around its use, namely harmful effects of the high population density in certain centers, by tourist activities, by the occasional leak of hydrocarbons, by the abusive and uncontrolled extraction of inert materials (sands and stones) and by saline intrusion, are deteriorating it and things are going to worsen as the climate change intensifies. These impacts continue into marine areas, which in most cases are very scarped and vulnerable to the effects of tides, these problems are set to become increasingly intense.

The adaptation techniques and measures to coastal erosion effects done to date are the following: ban on extraction of aggregates by citizens for construction purposes, use of breakwater put in place around resorts to provide better swimming conditions for tourists, harmonization and integration of coastal management activities, law enforcement, and coastal

area integrated management and protection project.

We interviewed Dr. Antero Veiga who told us that diminishing these problems while working towards implementing adaptation plans have been a vicious cycle and a challenge since a lot of those harmful activities are a way for many citizens to provide for their families, namely the uncontrolled extraction of inert materials. There has been an effort into generating jobs for those people but their offsprings keeps up the activity. One way the ministry proposes to solve the problem is bringing in sand from the Sahara to add into the amount that was extracted in the past.

5.6. Tourism maladaptation case study : Breakwater alert

As tourism can be highly affected by the impacts of climate change in Cabo Verde, it can also be a threat to the country's environmental well being. This is the case in the island of Sal where the government was planning to approve Resort Tour Group proposal to build breakwaters in Algodoeiro in order to provide better swimming conditions for tourists who visit their three properties; Melia Tortuga, Dunas and Llana Beach. Turtle sos cabo verde association and many citizens have been protesting against this project because it is located in a protected area where turtles, an endangered species, comes to nest. This project will in fact promote tourism and generate jobs but it is affecting Cabo Verde's biodiversity and threatening an endangered species. Turtle SOS Cabo Verde suggests to develop low-impact, sustainable, environmentally conscious tourism such as kite-surfing or surfing instead of following mass-tourism model.

6. Conclusion

We clearly notice on our research that these small islands are greatly affected by the severe effects of climate change. Consequences, such as sea level rise, are a threat for both countries due to their location, their economy and their capability (political and economical) to respond to climate related events. We tried to use CRI as a mean of comparison for both island, but the difference in ranking was very noticeable. This is due to the fact that Dominican Republic vulnerability is so much higher because of the frequency of hurricanes, where Cabo Verde does not get affected by such phenomena as much.

What we did find interesting to compare on both countries was the impact of the effects of climate change in their tourism. Being that tourism plays a big part of both countries economy, we used this factor as our main mean of comparison.

After all the research and information provided by professionals who work in mitigating climate change in both our countries, we got to the conclusion that our initial hypothesis, on how drastic is the difference between our island's' vulnerability to climate change and the consequences they suffer in comparison to how little they contribute to global warming.

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