

# **Climate Change and Small Island Developing States: Arguments for Accelerating Action**

A thesis  
submitted by

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## **Abstract**

Small island developing states (SIDS) are some of the most vulnerable nations to the future effects of climate change; some are even experiencing climate change effects already. Increased intensity of tropical storms, ocean acidification, sea-level rise, and other effects all challenge the physical, economic and social viability of these nations. Why is it that the developed nations have not rallied to mitigate climate change or help small nations adapt to its effects? This thesis examines this relationship between developed and developing nations and what motivates action by developed nations. It then explores arguments that the SIDS can make to defend their importance and accelerate action by developed nations in order to protect the SIDS from damage associated with climate change. Data on SIDS economies informs the assessment. An analysis of five arguments, economic, tourism, human rights, diversity and resiliency, reveals that all are compelling except economic. SIDS have exceptionally diverse biological and cultural resources that are far more valuable than the countries' contributions to the global economy. Anticipatory action on the part of developed countries is needed to protect this rich heritage for our collective wellbeing.

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## Table of Contents

<b>Chapter 1 : Introduction .....</b>	<b>2</b>
<b>Chapter 2 : Climate Change and the SIDS: Background, and Causes.....</b>	<b>3</b>
The SIDS, defined .....	5
Physical, Economic and Social effects of climate change on the SIDS .....	8
Climate Change Policy and Law History and the SIDS .....	13
Organizations associated with the SIDS .....	17
<b>Chapter 3 : Action.....</b>	<b>24</b>
What Has Been Done for the SIDS? .....	24
SIDS' Perspectives and Actions .....	29
Actions by SIDS for Climate Change .....	32
<b>Chapter 4 : The Problem.....</b>	<b>36</b>
Thesis Question.....	37
<b>Chapter 5 : Anticipatory v. Reactive Action by Developed Nations.....</b>	<b>38</b>
<b>Chapter 6 : Methodology.....</b>	<b>43</b>
<b>Chapter 7 : Possible Arguments for the SIDS .....</b>	<b>45</b>
<b>Economic Argument.....</b>	<b>45</b>
GDP .....	45
GDP by Region.....	46
Exports.....	47
Exports by Region .....	47
Imports.....	49
Imports by Region .....	49
Exports of top ranking SIDS .....	51
Imports of top ranking SIDS .....	52
Natural Resources and Export Economies .....	52
Colonial/Territorial SIDS .....	55
<b>Tourism Argument .....</b>	<b>57</b>
Tourism by Region .....	59
<b>Human Rights Argument.....</b>	<b>60</b>
<b>Diversity Argument .....</b>	<b>63</b>
<b>Resiliency Argument .....</b>	<b>65</b>
<b>Chapter 8 : Discussion .....</b>	<b>68</b>
Discussion of Arguments .....	69
<b>Chapter 9 : Research Limitations .....</b>	<b>73</b>
<b>Chapter 10 : Recommendations .....</b>	<b>75</b>
<b>Chapter 11 : Conclusion.....</b>	<b>81</b>
<b>Appendix A : List of the SIDS with Physical Description and Location .....</b>	<b>83</b>
<b>References.....</b>	<b>85</b>

## List of Tables

<b>Table 1: Transparency International Index for SIDS.....</b>	<b>7</b>
<b>Table 2: GDP Rankings of SIDS by Region .....</b>	<b>46</b>
<b>Table 3: Export Rankings for SIDS by Region .....</b>	<b>48</b>
<b>Table 4: Imports Ranking for SIDS by Region.....</b>	<b>49</b>
<b>Table 5: List of the SIDS that are Colonies .....</b>	<b>55</b>
<b>Table 6: SIDS' Territories by World GDP, Export and Import Ranking ....</b>	<b>56</b>
<b>Table 7: Tourism Economies of SIDS by Region.....</b>	<b>59</b>

# **Climate Change and Small Island Developing States: Arguments for Accelerating Action**

## **Chapter 1 : Introduction**

Tuvalu is a small island state in the Pacific and like many other Small Island Developing States (SIDS), Tuvalu faces many challenges as a result of climate change. In November 2000, the Honorable Teleke P. Lauti, Prime Minister of Tuvalu, painted a grim picture of his country's prospects during the United Nations Framework Convention on Climate Change (UNFCCC), 6<sup>th</sup> Convention of the Parties (COP). Lauti stated,

The sea is our very close neighbour. In fact, on the island where I live, Funafuti, it is possible to throw a stone from one side of the island to the other. Our islands are very low lying. When a cyclone hits us there is no place to escape. We cannot climb any mountains or move away to take refuge. It is hard to describe the effects of a cyclonic storm surge when it washes right across our islands. I would not want to wish this experience on anyone. The devastation is beyond description...The concern is so serious for our people, that the Cabinet, in which I am a member, has been exploring the possibility of buying land in a near-by country, in case we become refugees to the impacts of climate change (Barnett and Campbell 2010, 170).

The SIDS are forced to take extreme measures in order to survive. This is due to the inaction of large and powerful countries both in mitigating and adapting to the effects of climate change. These countries are not protecting the interests of the less powerful, small island states. This thesis explores the relationship between developed and developing countries including SIDS, and the possible arguments that they can make to illustrate their importance, thereby inspiring action from the larger, more powerful nations.

## **Chapter 2 : Climate Change and the SIDS: Background, and Causes.**

Climate change is a threat to all nations; however, when faced with the possible environmental, economic and social effects of climate change, the SIDS are considered to be some of the most threatened nations. For some SIDS, also known as “titanic” nations or sinking nations due to sea-level rise, it is a matter of life and death, and the effects of climate change, including sea-level rise, are already occurring.

For the purpose of this thesis, climate change is characterized by the increases in temperature caused from the increasing amounts of anthropogenic greenhouse gases (GHGs) in the atmosphere. These increases primarily caused by the growth of the current developed countries, began accumulating in the atmosphere during the period of industrialization, or since approximately 1850, and continue to increase. The effects of climate change result in disruption and change to the earth’s modern ecosystems including anthropological, biological, and ecological systems. Climate change will most certainly alter all aspects of the earth’s ecosystems. These include rising temperatures that lead to the melting of perennial ice such as glaciers, and ice sheets in Greenland and Antarctica. This in turn causes sea-level rise and an overall disruption in the earth’s distribution of water (Schneider et al. 2010).

In order for the majority of the SIDS to survive and avoid becoming inundated with seawater from sea-level rise, the global temperature increase will need to remain below 1.5°C. The Intergovernmental Panel on Climate Change (IPCC) expects temperatures to rise, assuming different increase scenarios from



1.1-6.4°C, with a more probable level, depending on the scenario, of 1.8-4.0°C (Solomon 2007). This warming of 1.8°C or higher could lead to dangerous threats from the effects of climate change for the SIDS. The global temperature increase that a nation can tolerate from the effects of climate change is referred to as the safe level. Most developed nations tend to advocate for an increase of 2°C, or 450ppm of CO<sub>2</sub> in the atmosphere, which is much higher than the safe level for the SIDS (Schneider et al. 2010).

The increase of GHGs, primarily CO<sub>2</sub>, causes more CO<sub>2</sub> absorption into the ocean increasing ocean acidification, which negatively affects the oceans and their marine life. This prohibits the survival of certain forms of marine life that depend on lower temperatures, and/or lower ocean acidification levels. Affected marine organisms include coral and other shell-making creatures. Coral reefs are valuable in their own right and act as nurseries for a variety of fish species. These fish species would be negatively affected by a decrease in or disappearance of coral reefs. Economically, these fish species are important for tourism as well as the fisheries' markets, which provide foods and jobs for local communities, such as those in the SIDS (Schneider et al. 2010).

Additionally, climate change increases the intensity of already violent hurricanes and cyclones often bringing inundating waves onto fragile ecosystems and coastlines (Ibid.). Many of the world's important cities, including those in both developed nations such as the United States, as well as developing nations are located on coastlines (Environmental & Energy Systems Institute's Shell Center for Sustainability et al. 2005). SIDS also have important cities and

infrastructure located on the coastlines; the increasing intensity of storms will add to their infrastructure's already vulnerable nature (Schneider et al. 2010).

Most importantly, climate change exacerbates the environmental issues that already threaten ecosystems and societies. This is also true in the SIDS. Already existing environmental challenges including deforestation, when coupled with climate change, can create further soil erosion and flooding due to more intense storms. These two forces acting together will also increase ocean acidification because of the absence of forests to function as carbon sinks. Also, due to the warming of the earth in specific areas, more GHGs can be released into the air from carbon sinks or from permafrost that has been frozen since the previous ice age. The thawing of this permafrost due to climate change releases GHGs that would otherwise not have been released had the permafrost remained frozen. Overall, the SIDS are facing many of these effects from climate change without the necessary means to adapt. Without funding and the power to make change, the SIDS are currently left to fend for themselves (Chasek et al. 2010).

### ***The SIDS, defined***

The SIDS were “politically” identified in 1992, at the Bridgetown, Barbados Inter-Regional Conference of Small Island Countries on Sustainable Development and Environment in Agriculture, Forestry and Fisheries. In 1994 the United Nations General Assembly convened the Global Conference on the Sustainable Development of Small Island Developing States in Barbados, which created Agenda 21 and sustainable goals for the SIDS (FAO 2004).

The SIDS are a group of 52 countries identified as developing nations that face similar physical, economic, and social development challenges. The SIDS also face vulnerabilities to the effects of climate change, although these effects vary from one nation to another. These nations can be characterized in three major location categories: the (1) Caribbean, (2) Africa, Indian Ocean, Mediterranean and South China Sea, and the (3) Pacific Ocean. A list of these nations, their physical descriptions and locations is included in Appendix A. The majority of these nations consist solely of islands. However, some are continental, including Belize and Guinea-Bissau but even these have significant islands and low-level coastlines contributing to their vulnerability to climate change effects (UN-OHRLLS 2010).

Although the SIDS face similar developmental challenges, they can also have varying physical, economic, and social characteristics. These varying characteristics will dictate how the SIDS can adapt and react to the effects of climate change, a subject that will be further explained in the following section with specific examples. However, economically, the primary sources of income generation within the SIDS rely heavily on tourism, fisheries and for some, the mining and exportation of natural resources. These economies are extremely vulnerable to the effects of climate change, which threatens the survival of the SIDS.

The SIDS, as developing nations, can also experience political corruption throughout their governments. This creates a barrier to development and to establishing climate change adaptation programs and policies throughout the

SIDS. Transparency International, an organization that fights global corruption, indexes countries based on their political corruption. The agency defines corruption as “the abuse of entrusted power for private gain” and gives each country a rating from 1-10, one being the worst, ten being the best (Transparency International 2010, 5). Although it only provides ratings for 24 of the SIDS, the majority of these SIDS show signs of corruption indicating that the others would also have similar characteristics. This information is presented in Table 1.

**Table 1: Transparency International Index for SIDS**

<b>Small Island Developing State</b>	<b>Transparency International Rating (1-10)</b>
Barbados	7.8
Puerto Rico	5.8
Mauritius	5.4
Dominica	5.2
Cape Verde	5.1
Bahrain	4.9
Seychelles	4.8
Samoa	4.1
Cuba	3.7
Trinidad and Tobago	3.6
Vanuatu	3.6
Jamaica	3.3
Kiribati	3.2
Dominican Republic	3
Sao Tome & Principe	3
Tonga	3
Solomon Islands	2.8
Guyana	2.7
Timor-Leste	2.5
Maldives	2.3
Haiti	2.2
Comoros	2.1
Guinea-Bissau	2.1
Papua New Guinea	2.1

\*Source: (Transparency International 2010)

## ***Physical, Economic and Social effects of climate change on the SIDS***

Physically, many of the SIDS are characterized by low elevations, and have proportionally large coastlines to land area. The nations' island classes vary, including plate boundary islands, intra-plate (oceanic) islands, volcanic high islands, atolls, and raised limestone islands. Although all of the SIDS face climate change threats, should sea level significantly rise, the atolls are more vulnerable due to their low elevation, small land areas, minimal soil, and minimal or non-existent fresh surface water. The SIDS are often geographically isolated. For example, Tuvalu, situated in the Pacific Ocean, has a very small interior land area, and low elevation. Tuvalu sits only five meters above sea level at its highest elevation and has mostly coastal settlements (Barnett and Campbell 2010). Fiji, on the other hand, is primarily a group of higher elevation volcanic islands, and because of its higher elevations, climate change will affect this nation's islands differently than Tuvalu. Not only are the SIDS affected by sea-level rise, but the severe weather that the SIDS already experience is intensifying due to climate change. These weather patterns include the El Niño, monsoons, cyclones and hurricanes (Sem and UNFCCC 2007). Clearly, just the physical characteristics of the islands and the intensifying weather patterns due to climate change make the SIDS particularly vulnerable. The different vulnerabilities throughout the SIDS will have to be carefully considered when evaluating the effects of climate change.

The IPCC provides different scenarios and case studies on specific nations for the effects of climate change within the SIDS. For example, some of the

IPCC scenarios predict that for a one-meter rise in sea level, approximately 100 coastal settlements in Cuba would be inundated with water, affecting over 50,000 people. The same sea-level rise of one meter would cause nations such as the Maldives or Tuvalu to completely disappear from ocean inundation. Many other SIDS' coastal infrastructure and beaches would be affected as well. The impact of a one-meter sea-level rise in Jamaica is estimated to cost USD 426 million to repair; a large portion of its already small GDP (Sem and UNFCCC 2007).

Climate change not only affects the physical features of the nations, but also their economies. Economically, these nations are considered to be developing, mostly characterized by low GDPs. The majority of the SIDS depend on tourism for at least some part of their economy. For some SIDS including the Seychelles, Maldives, Aruba, and the British Virgin Islands, tourism is the main driver of the economy. Other SIDS, including Cape Verde and Comoros, have nascent or small tourism sectors (CIA 2010). Some of the nations depend on natural resources such as mining and forestry; these include, but are not limited to, Papua New Guinea and the Solomon Islands.

Many of the SIDS's economies depend on fishing and tourism and climate change increases their economic vulnerability. For centuries, agriculture, forestry, and fisheries have been the main sources for the SIDS livelihoods. For example, fishing is a large part of the economies in the Pacific Ocean (Barnett and Campbell 2010) and SIDS rely on fisheries for both subsistence and commercial fishing profits (FAO 2004). In some of these island nations, fisheries account for approximately 50% of the total protein intake from animals. Variability of these

fisheries could negatively affect their survival (FAO 2008). Furthermore, economically, fisheries frequently contribute up to 10% of the SIDS' GDPs in a given small island nation. For example, American Samoa depends heavily on fisheries and 93% of its export revenue is from canned tuna (CIA 2010). The Food and Agriculture Organization of the United Nations (FAO) also states that most SIDS import more food than they produce, and the cost of importing this food could increase with the onset of higher transportation costs from increasing prices of fossil fuels. Here, the SIDS are affected from mitigating the effects of climate change (FAO 2004).

In 2006, none of the SIDS were included in the FAO's list of top ten marine life producers (FAO 2008). In this case, it appears that the fishing industry is more important as subsistence and income to the SIDS than it is to the rest of the world. Other nations, outside of the SIDS, may play a more important role in the global fishing economy because they often have highly mechanized and subsidized fishing industries. This allows them to travel further, and stay out on the oceans longer than the small fishing industries of the SIDS.

The fishing industry in general is threatened due to overfishing, and climate change will have different effects on different species. The increased temperatures may allow certain species of fish to thrive, and send others to their demise. These fluctuations are already witnessed with the El Niño and other weather pattern phenomena also negatively affecting the SIDS (FAO 2011a). With respect to fisheries, climate change and its effects of ocean acidification will

undoubtedly add further stress to an already threatened industry and this will be particularly detrimental to the SIDS.

Agriculture in the SIDS has been an important method for economic survival. However with the onset of globalization the SIDS have become more dependent on food imports. Some of the SIDS still rely on subsistence food production even in those with limited tillable land (Sem and UNFCCC 2007). Increased droughts and loss of soil fertility, which can be caused from changes in precipitation, as well as loss of coastal land used for agriculture will affect the agricultural production in the SIDS. Again, as in the fisheries, this affects a food source, and therefore the survival of the people living in the SIDS.

Tourism in the SIDS will be negatively affected in several ways due to climate change. Physically, the onset of more intense tropical storms, loss of coastlines, and coral reef bleaching will reduce the attractiveness of visiting the SIDS (Craigwell 2007). Likewise, the warmer northern climates brought about by the effects of climate change could attract tourists to other destinations given the risks of the increased intensity of storms in many of the SIDS. Other issues, including the shortage of resources such as water and the possibility of increased vector-borne illnesses such as malaria may also deter tourists from visiting the SIDS. Finally, the rising prices of fuel will impact the amount of visitors to the SIDS. The price of transportation to and within the SIDS will rise, as well as the price of other activities that depend on the use of fossil fuels within the SIDS making travel to the SIDS financially less desirable (Litman 2011). Increased regulation of fossil fuels due to possible climate change policy might create an



environmental tax on the price of fossil fuels increasing costs to a level that tourists cannot or might not want to pay (Sem and UNFCCC 2007). In this case, the SIDS are vulnerable to the negative effects of climate change on tourism as well as to some possible effects that may result from mitigating climate change.

Socially, many of the SIDS already experience negative environmental issues including pollution, and lack of potable water sources. The threat of climate change will most definitely exacerbate these problems. For example, atoll nations lack sources of fresh drinking water and rely on the Ghyben-Hertzberg lens to store water. This technology relies on the basic science that freshwater is lighter than salt water and compresses the salt water below the fresh water sources. This is a fragile process and extremely vulnerable to salinization, or salt-water intrusion, from inundating coastal waves and storm surges (Barnett and Campbell 2010). With the expectation of further intensifying cyclones and hurricanes from climate change, these necessary technologies are further threatened.

Many of the SIDS are unique due to their physically isolated nature, and have thus developed their own cultures and lifestyles. Individuals living in the SIDS face losing their homes and livelihoods from the effects of climate change including rising sea levels. These livelihoods are tied to inherent island cultures including fishing, and necessary survival mechanisms distinctive to their cultures. Worse, if the people that live in the SIDS lose their homes because the SIDS become uninhabitable from the effects of climate change, it can create “climate change refugees” (Barnett and Campbell 2010). Climate change refugees are

those that must be physically relocated to another nation or area within a nation due to climate change effects. This relocation has already begun in some nations, including Vanuatu due to storm surges on its volatile coastlines (Sem and UNFCCC 2007). Although this relocation seems necessary to avoid negative climate change effects, it can be detrimental to a society that lacks the skills needed to integrate into other societies.

### ***Climate Change Policy and Law History and the SIDS***

The first World Climate Conference was held in 1979 and was the first official global discussion of climate change and its consequences. The conference triggered many others, including the Brundtland-led World Commission on Environment and Development, which incorporated climate change into its goals of sustainable development, among other environmental issues (Gupta 2010).

In 1988, the United Nations Environmental Program (UNEP) and the World Meteorological Organization (WMO) created the IPCC, an organization to study the key science of climate change and to provide the world with a clear understanding of climate change and its effects (IPCC n.d.). Soon after, in 1989, small island states held their first meeting in the Maldives<sup>1</sup> to discuss their own unique vulnerability (Small States Conference Secretariat 1989). The discussions regarding the effects of climate change have been ongoing, to date, for over 20

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<sup>1</sup> Held in the capital of the Maldives, Malé, 14 small island nations from the Caribbean, Mediterranean and Indian Ocean regions and the Pacific Ocean including those of Cyprus and Malta which are not included in the SIDS today due to their developed status, attended to discuss the issues of small island states and climate change (Small States Conference Secretariat 1989)

years (Ibid.). In 1990 the WMO held its second World Climate Conference and the IPCC published its first report on the effects of climate change (Gupta 2010). This initial period was important in identifying the problem of climate change and opening discussions in order to begin discussing policy reactions to the issue.

Climate change soon became incorporated into other important, yet non-binding documents, including the 1992 Rio Declaration and Agenda 21. In the same year, the United Nations Conference on Environment and Development (UNCED) was the next international meeting that included discussions on climate change. Still, no policy was generated other than these recommended guiding principles providing ethical guidelines. Out of the UNCED, the UNFCCC, an international convention on climate change, was adopted, but with loose wording and vague measures to tackle climate change. Spawning from this convention, Convention of the Parties (COPs) took place, the most famous being that of Kyoto in 1997, in which some nations adopted the Kyoto Protocol (Gupta 2010). The Kyoto Protocol was the first international agreement with quantitative measures that aimed to reduce GHG emissions primarily from developed countries, or Annex I countries, that signed and were bound to the protocol. Annex II countries party to the protocol were not expected to reduce emissions because of their developing status and already low per capita emissions. One extremely large barrier to progress with the Kyoto Protocol was that the United States did not sign as a party, and at the time, was the largest producer of GHGs. The overall goal of the Kyoto Protocol not only aimed to reduce emissions but also had programs such as the Clean Development Mechanism (CDM). The CDM allowed Annex I

countries to fund programs in Annex II countries, which could be counted as reduction of emissions for the Annex I countries, allowing them to meet the goals of the Kyoto Protocol (UNFCCC n.d.(a)). However, without the participation of the United States, the lack of repercussions for not reaching the Kyoto Protocol goals, and lack of governance on the CDM projects, the goal of reducing emissions below 1990 emission levels by the year 2012 is not likely to be reached (International Institute for Sustainable Development 2010).

The IPCC published several other reports and finally established a basis that human influence and activity was affecting the climate. Hope for an international agreement on climate change was restored before the December 2008 UNFCCC climate change meetings in Copenhagen, and with a new presidency in the United States. President Barack Obama pledged to make change on the climate change front (Gupta 2010). However, Copenhagen left the international climate change world disjointed, with few results. The United States along with other high level representatives constructed the Copenhagen Accord, without including the knowledge or assistance from every nation at the meetings. The accord had no definitive measures to attack the real issues of climate change. With this distrust and lack of action and the Kyoto Protocol doomed to fall apart, there was very little progress to work with at the next UNFCCC meetings that were held in Cancun (International Institute for Sustainable Development 2010).

Cancun, compared to Copenhagen, was more of a success and most importantly kept the UNFCCC alive and hopeful with the next meeting to be held in December 2011 in South Africa. Specifically, the outcome established a

registry for Nationally Appropriate Mitigation Actions (NAMAs) by developing countries. NAMAs are a set of policies or plans that countries take to reduce GHGs. The Convention established a “Green Climate Fund,” which addresses how to fund climate change projects and policy in developing countries. Changes and agreements were made in relation to the United Nation’s Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+) program, a program aimed at reducing emissions that are caused from deforestation and forest degradation in developing nations. Also, a new Technology Mechanism to address technology transfer to developing nations, with a Technology Executive Committee, and Center and Network were established. Most importantly in terms of the SIDS, the Cancun Adaptation Framework was established to further actions on adaptation through international cooperation (Ibid.). This adaptation framework is relevant in assisting SIDS in adapting to the effects of climate change.

There have been several attempts to establish international climate change agreements. However, only pieces have been accomplished and there is still yet to be an agreement that will save the SIDS from having to adapt to the effects of climate change. Although a solid emissions reduction agreement has not been made, at least there has been some acknowledgement that it is important to develop adaptation plans for developing nations including the SIDS. The UNFCCC has finally made the first international policy that directly relates to the SIDS but more progress is needed in order to preserve the SIDS.

## ***Organizations associated with the SIDS***

It is important to examine organizations and intergovernmental bodies and their actions associated with the SIDS. These organizations vary, providing funding mechanisms, acting as voices, lobbyists and promoting cooperation between the SIDS. They recognize that the SIDS are in fact developing nations and often lack funding and authority to address the challenges they face.

The Cancun Adaptation Framework under the Cancun Agreements is the most recent funding mechanism and is subject to the UNFCCC. Nations party to this agreement recognize that adaptation is as high a priority as the mitigation of climate change. Primarily, the Adaptation Framework is directed to those developing nations most vulnerable to the threats of climate change (UNFCCC 2010). Countries classified in the SIDS are included in this category given their developing status and vulnerabilities to climate change. The Cancun Adaptation Framework consists of an implementation phase to assist countries in plans for adaptation measures. These can be new plans, or those that already exist such as National Adaptation Program of Action (NAPA) plans. The Framework also provides support such as funding from developed countries to developing countries, and institutions including the creation of a global adaptation committee to oversee the adaptation processes. The Framework also includes plans to strengthen regional and national plans, guiding principles, and lastly, the promotion of stakeholder engagement for those affected (UNFCCC 2011a). With the lack of climate change mitigation by powerful and developed countries,

adaptation policy is being created. The effects of climate change are inevitable and will be experienced in vulnerable areas such as the SIDS.

The Global Environment Facility Trust Fund (GEF) is the financial operating mechanism for the UNFCCC and other United Nations' agencies and conventions. Its main objective is to provide financial grants to developing nations and those in transition to assist with environmental issues including climate change. The organization helps fund NAPA plans for Least Developed Countries (LDCs) including those submitted by the SIDS. These plans will be discussed later in this document (GEF 2010).

The Alliance of Small Island States (AOSIS) is a non-governmental organization (NGO) that devotes its work to assisting SIDS in response to the effects of climate change. As previously mentioned, in 1992, the term SIDS was born out of the Inter-Regional Conference of Small Island Countries on Sustainable Development and Environment in Agriculture, Forestry and Fisheries, in Bridgetown, Barbados. This conference created the Barbados Declaration and started the collaboration between the SIDS, and led to their organization. This collaboration was further strengthened at the Earth Summit of the Convention on Climate. As a result, AOSIS formed as a group primarily devoted to the survival of the SIDS (FAO 2004).

The AOSIS is comprised of 42 nations and observers from all oceans and regions throughout the world. Its primary function is as an ad-hoc lobby and negotiating voice on the topic of small island states, primarily throughout the

United Nations' meetings on the adverse effects of climate change. The AOSIS is present at all UNFCCC meetings (AOSIS 2009a).

At the UNFCCC meeting in Copenhagen in 2009, AOSIS proposed an extension of the Kyoto Protocol after its expiration in 2012, calling for emissions to peak in 2015, and a 45% reduction of developed countries' emissions to pre-1990 levels by 2020 (AOSIS 2009c). These emissions reductions were far more stringent than those of the original protocol, and of other proposed drafts since the protocol. Environmentalists, including Bill McKibben voiced support for the proposal. McKibben stated, "It's one of the first proposals from this whole conference that takes note of the fact that we're in a crisis, and that scientific reality trumps political reality" (Jervey 2009). But much to the dismay of proponents of a signed policy for climate change emissions reductions, including AOSIS and the SIDS, a different, more "lenient" Copenhagen Accord was signed. Many parties, in addition to the SIDS, left Copenhagen with a feeling of dread that a substantive climate change agreement was not created (AOSIS 2009c).

In September 2009, Dessima Williams, Permanent Representative of Grenada and Chair of AOSIS, touted "1.5 to stay alive", before the Copenhagen meetings regarding the total allowance of only a 1.5°C increase for global temperature (AOSIS 2009b). Many of the SIDS believe that more than this allowed temperature increase would be the demise for nations that have extremely low elevations and other vulnerabilities to climate change effects.

The feeling after Cancun was more hopeful, and AOSIS' proposal for emissions reduction received "overwhelming support" especially from the



president of the Cancun meetings, Patricia Espinosa. She approved the formation of a contact group, which allows for the continuation of climate change discussions after the meetings in Cancun. As stated previously, part of the Cancun Agreements, also addressed developing nations' adaptation strategies to climate change effects. AOSIS hopes that by including this provision, an international climate change agreement will have a better chance of resulting from the upcoming 2011 UNFCCC meetings in South Africa. This is one example of how organizations such as the AOSIS advocate for the creation of climate change policy in relation to the SIDS (Komai 2010).

The issue of protecting the SIDS from climate change and their importance is furthered by many NGOs around the world. The non-profit organization Many Strong Voices is committed to promoting

the well-being, security, and sustainability of coastal communities in the Arctic and Small Island Developing States (SIDS) by bringing these regions together to take action on climate change mitigation and adaptation, and to tell their stories to the world (Many Strong Voices 2010).

Many Strong Voices acts as a voice for the SIDS, lobbies for their well-being and promotes communication on the subject of climate change.

The Pacific Regional Environment Programme (SPREP) is an organization with 21 developing member nations, including many SIDS, and four developed nations (Australia, the United States, New Zealand and France) that maintain direct interests in the Pacific region. SPREP's first sentence on their website states, "People are the most important part of the Pacific Islands" (SPREP

2010a). This organization bases its vision and focus around this very statement, making sure to protect not only the islands, but also the people living there. SPREP believes the SIDS are important both in terms of the human societies and the biology of the islands. In order to assist in protecting and improving the islands' environments for sustainable development, the organization functions as a body that brings the nations together in cooperation (Ibid.). The program has two different approaches, the Island Ecosystems Program that focuses on managing and maintaining the islands' different ecosystems, and the Pacific Futures Program that focuses on sustainable development as a response to threats posed to the islands (SPREP 2010b).

The Caribbean Community (CARICOM) began in 1972 as a regional effort. The decision to come together came from the desire to transform the nations, many of which are SIDS, within the Caribbean Free Trade Association (CARIFTA) to establish the Caribbean Community with a Common Market. This included certain objectives

to improve standards of living and work; the full employment of labour and other factors of production; accelerated, coordinated and sustained economic development and convergence; expansion of trade and economic relations with third States; enhanced levels of international competitiveness; organisation for increased production and productivity; achievement of a greater measure of economic leverage and effectiveness of Member States in dealing with third States, groups of States and entities of any description and the enhanced co-ordination of Member States' foreign and foreign economic policies and enhanced functional co-operation (CARICOM 2011).

Since establishment, the treaty has been revised to incorporate other important issues including how climate change affects these objectives and the

nations (Ibid.). CARICOM has also established the Caribbean Climate Change Centre, which coordinates the response and adaptation to climate change (Caribbean Community Climate Change Centre n.d.).

The Indian Ocean Commission is an intergovernmental organization between the nations of Comoros, France (Reunion Island), Madagascar, Mauritius and Seychelles. Although Madagascar and France are not SIDS, as an island Madagascar does have a legitimate concern in terms of climate change, and France is concerned for Reunion Island in the same manner. The Commission is, like many of the other organizations, a voice for the islands and an opportunity to fight for sustainable development on the islands due to issues such as climate change (Coalition for the International Criminal Court n.d.).

Global Islands Network (GIN) is another non-profit organization that primarily aims to connect island nations, including SIDS, and coordinate “culturally appropriate, ecologically sound, economically sustainable and socially equitable development” for islands (Global Islands Network n.d.). Mostly a voice for island nations, most of GIN’s work is done electronically and creates a “mobile” network and forum in order to communicate ideas and join forces to fight the effects of climate change on island nations.

The Small Island Developing States Network (SIDSnet), like GIN, also operates primarily through the Internet and electronic communications. SIDSnet, however, was born out of the desire to assist SIDS in implementing the Barbados Programme of Action. The organization follows and updates any international meetings and intergovernmental processes involving the SIDS (SIDSnet 2011).

As noted before, there are many organizations that help either fund or assist the SIDS in climate change adaptation measures and sustainable livelihoods. The UNFCCC and the GEF have the ability to fund adaptation programs but these efforts have been insignificant and lacking. The other organizations function as voices for the SIDS and communication networks. Although many of the organizations described above have been successful as communication networks, they have been unable to create much action to help SIDS adapt to the effects of climate change.

## **Chapter 3 : Action**

### ***What Has Been Done for the SIDS?***

Policy interventions and actions that will allow the SIDS to cope with the effects of climate change vary greatly. These actions range from attempting to strengthen the overall climate change policy and institutional regime regarding climate change, to bottom-up procedures including water and food sustainability improvements for the SIDS (Sem and UNFCCC 2007). Some of the possible adaptation programs for the SIDS include the construction of physical structures such as sea barriers, buildings with storm proofing, and water storage facilities. Some policy approaches include legislative action that could revise land use and building codes or create technological options that could result in more resilient food crops (Ibid.). The likelihood of implementing these ideas is not great in the SIDS, due to lack of funding. Also, due to government capacity constraints and corruption, SIDS often lack the political infrastructure and stability to successfully implement necessary programs.

For example, The Mauritius Strategy for the further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States is primarily focused on the sustainable development of the SIDS, which includes the effects of climate change. The program identifies goals and principles that must be followed in order to achieve sustainable development among the SIDS at national, regional, and international levels. It recognizes all threats posed by climate change to the SIDS including food security, not just sea-level rise, and increased intensity of tropical storms and also realizes that some

nations are more threatened than others due to their topography and low elevations. Overall, the program recognizes the underlying issue of GHG emissions from developed countries and the necessity for the adoption of the UNFCCC's framework to ensure that GHG emissions are halted. Most importantly, it recognizes the need to "promote international cooperation on climate change" (United Nations 2005, 3). Although this document proposes guidelines on how the SIDS can develop sustainably and thus adapt to the effects of climate change, the document is non-binding and stands as proposed guidelines and lacks repercussions if not followed.

There has been bountiful research on the vulnerabilities of the SIDS by the IPCC, UNFCCC, and private organizations, most of which has been funded and managed by developed countries.

Barnett and Campbell call attention to the fact that most research organizations are primarily managed and run by scientists and delegates from developed countries. For example, they examine the Earth System Science Partnership, which is a cooperative partnership between existing research programs of, DIVERSITAS, the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environmental Change (IHDP), and the World Climate Research Programme (WCRP) (2010). Together, the four organizations aim for the "integrated study of the Earth System, the ways that it is changing, and the implications for global and regional sustainability" (ESSP n.d.).

There are very few actors from the SIDS involved in these existing programs. DIVERSITAS contains 26 members without any from the SIDS. The IGBP has a total of 47 developing nation members, four of which are from the SIDS but none are from the Pacific region. The IHDP is affiliated with a total of 62 countries, only two of which are from the SIDS, one being Fiji. Finally, the WCRP, which is the “oldest and most well funded” among the four partners and works closely with the IPCC, is managed by a committee in which none of its representatives come from one of the SIDS (Barnett and Campbell 2010, 55).

Barnett and Campbell propose three reasons as to why there may be a lack of representation from the SIDS. These include: 1) funding mostly comes from developed countries, or from sources within those countries and it therefore makes sense to maintain members from those countries; 2) scientists and researchers with well-established research careers, this being measured by research and publications as well as other criteria, tend to come from developed countries; and 3) the assumption that the “scientific supremacy in developed countries perpetuates itself in paternalistic patterns of collaboration (Barnett and Campbell 2010, 56).” In other words, regardless of fact, the developed countries tend to place the science world of the developing countries on lower rungs of the ladder (Barnett and Campbell 2010).

Some organizations are working to document the SIDS’ environmental vulnerabilities. For example, UNEP, the Asian Development Bank and regional environmental organizations have worked with the SIDS in order to assist in identifying environmental vulnerabilities. Also, the Pacific region countries have

collaborated with the South Pacific Applied Geoscience Commission (SOPAC) to develop a vulnerability index that uses indicators to assess the vulnerability of the environment regarding the entire country as opposed to only one area. This is due to the fact that decisions regarding these issues being made are large and often affect the country as a whole (Howorth et al. 2002). These programs are necessary to identify the issue, but the next step of action is still lacking.

There are many more agencies, organizations and networks that have been established to collect climate data, and monitor any effects on the SIDS (Sem and UNFCCC 2007). For example, the South Pacific Sea Level and Climate Monitoring Project which began in 1991, was the Australian Government's response to concerns regarding the sea-level rise from anthropogenic climate change on the Pacific countries, most of which today are referred to as the SIDS. Specifically, the project maintains 12 monitoring stations throughout the Pacific and hopes of acquiring an accurate record over a long period of time to assist the SIDS in preparation and adaptation to the effects of climate change (South Pacific Sea Level and Climate Monitoring Project n.d.). There are also similar programs throughout the world's regions that aim to do similar types of monitoring (Sem and UNFCCC 2007).

The World Bank Kiribati Adaptation Project began in 2003 and has been segmented into the "Preparation Phase," and the "Implementation Phase." The Preparation Phase's objective was "to assist the Republic of Kiribati in mainstreaming adaptation (to climate change, climate variability and sea level rise) into national economic planning, and preparing a pilot Adaptation Project"



(World Bank 2003, 3). To follow-up the Implementation Phase was then to “assist the Republic of Kiribati, over the long term, in adapting to climate change, climate variability, and sea level rise, by implementing priority adaptation measures” (Ibid.). This project was one of the World Bank’s first attempts in assisting the SIDS in adapting to the effects of climate change.

However, on August 10, 2009, already behind schedule, the World Bank was forced to make amendments to the initial plan and the project was delayed due to insufficient funding and an unrealistic original timeline for completion in 2008. Plans for a third phase of the project would focus on scaling up the investments that were supposed to be made in the second phase (World Bank 2009). However, as the second phase has been delayed due to funding, the outlook is bleak and seems out of reach for the third “scaling-up” phase.

Insurance companies are offering plans in relation to the effects of climate change. For example, United Insurance Company of Barbados offers financial incentives to homeowners should they put hurricane preventative measures in place. This includes seven sections within a Hurricane-Resistant Safeguard Compliance Checklist of retrofits to external sides, roofs, windows, doors, other apertures, solar water heaters and air conditioners as well as roof shapes. Should all seven measures be put in place, the company offers a discount. Originally the company discounted the insurance premium by 25% and further increased the discount up to 40%. This program was established in 1997, but has become more substantial with the increased severity of hurricanes due to climate change (United Insurance Company Limited 2011a and 2011b). Although not originally

created in response to climate change, these insurance policies are now very relevant to the climate change discussion.

### ***SIDS' Perspectives and Actions***

The SIDS have been vocal about their views on climate change and the lack of response to assist them and to address the climate change issues. For instance, the president of Mauritius is attempting to persuade the United Nations to designate the SIDS as their own formal category. Currently, the SIDS are formally designated and grouped with all developing nations. Although the vulnerabilities the SIDS face can be similar to those of developing nations, they are more drastic and dangerous due to their physical structures. Other categories such as the LDCs will face similar effects, but people might have the possibility to move inland within their territory should the coasts become inundated. While relocation is not an ideal option, it is one that the SIDS will not have should flooding inundate an entire nation (Soborun 2009). Designating an entirely new group for the SIDS might increase the possibility for funding through the United Nation's adaptation programs mentioned earlier.

Perhaps one of the most dramatic statements and actions made by one of the SIDS, occurred in 2001 when Tuvalu threatened to sue the developed countries of the United States and Australia because of their astronomical GHG emissions. Smaller nations, including Tuvalu, see the increased emissions by developed countries as a direct threat to the sovereignty and survival of their nations. The lawsuit would have been filed with the International Court of Justice

in The Hague. However, it was dropped when the Tuvalu prime minister was ousted (Warne 2004). Here, the GHG contribution by developed nations is interpreted as a literal act of violence against the SIDS.

After the disappointment of no definitive policy toward reducing the effects of climate change in Copenhagen, December 2009, the SIDS were eager to attend the UNFCCC Cancun meetings and have their voices heard. Bolivia passionately spoke up regarding its view on the fact that developed nations consistently put their own financial interests in front of the survival of the developing countries. Although Bolivia is not one of the SIDS, this is the same survival argument made by the SIDS as seen below.

Some of the SIDS also attended the UNFCCC Cancun meetings. Guyana<sup>2</sup> President Bharrat Jagdeo with less optimism than in Copenhagen. He noted the huge lack of trust between the developing and developed countries due to the lack of money that has been distributed to vulnerable countries. He noted that the international community's need to have as many people as possible put pressure on the "laggard" developed countries to make decisions to reduce emissions, in order to make a difference. Smaller countries, like the SIDS, have a harder time participating in the programs such as the Kyoto Protocol's CDM mechanisms. Many of these projects are geared toward the larger and more developed of the developing countries including Indonesia and Brazil (Third World Network 2010). These projects are distributed disproportionately and primarily directed

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<sup>2</sup> Guyana has a large amount of low-lying coastal land with an extreme threat to climate change effects of sea-level rise, and increased hurricane intensity. The economy suffers from a shortage of skilled labor and deficient infrastructure as well as high debt (CIA 2010).

toward China, India, Brazil and Korea. Very few are directed toward the SIDS (UNFCCC 2011b). Again, President Jagdeo believes that reducing emissions and tackling climate change is a matter of life and death for developing countries, especially the SIDS.

The Nauru<sup>3</sup> President Marcus Stephen advocates for no more than a 1.5°C temperature increase, not the 2°C rise that many developed countries promote as the safe temperature rise. He says that the science supports a lower acceptable rise in temperature and that we cannot ignore the science. He also views the climate change situation in terms of survival for the SIDS (Third World Network 2010).

Kiribati<sup>4</sup> President Anote Tong sees the primary problem is that all countries consider themselves vulnerable to climate change. He believes that there needs to be a way to determine different levels of vulnerability for the SIDS. Historically, related to climate change, Kiribati asked for funding to build seawalls anticipating sea-level rise. It did not receive the funding and was unable to build the seawalls. Furthermore, for a country like Kiribati, even an increase of 1.5°C is too high a temperature rise. In this case, seawalls might be the best possible adaptation measure to allow citizens to remain on Kiribati's islands (Ibid.). Without the funding, however, the nation will not be able to adapt.

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<sup>3</sup> Nauru is an island approximately the size of Washington, DC. Nauru's natural resources of phosphate have been depleted and the nation risks bankruptcy due to exploited trust funds invested from the phosphate income. The country joined the United Nations as the smallest independent republic (CIA 2010).

<sup>4</sup> Kiribati is a country of 33 low lying coral atolls in the Pacific Ocean. Kiribati is one of the least developed Pacific island nations with few natural resources and is dependent on exports including copra and fish (CIA 2010).

Samoa<sup>5</sup> Prime Minister Tuilaepa Lupesoliai Sailele Maliegaoui calls for an increase in the CDM funds to the Adaptation Fund. Like President Bharrat Jagdeo of Guyana, he sees the CDM funds as an opportunity to address both the social and environmental issues of climate change in the SIDS. However, he adds that for the CDM mechanism to succeed, technologies must be appropriate for the receiving countries in terms of cost, and population sizes, and not just a dumping of untested or obsolete technologies (Ibid.).

All of these SIDS leaders agree that the lack of action from the developed nations can be seen as an act of violence and a human rights issue.

### ***Actions by SIDS for Climate Change***

The SIDS actions toward climate change shows their desire to preserve their unique cultures and their belief that they deserve to live normal, healthy lives in their own countries. The SIDS have begun to organize adaptation programs with the help of agencies including the World Bank and the United Nations. However, as stated before, the lack of funding continues to slow action against the effects of climate change. Already facing the effects of climate change and with so many imminent catastrophic effects, nations are forced to take action. Nations have already implemented adaptation programs primarily focusing on the issue of water shortages through NAPAs (UNFCCC n.d. (b)).

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<sup>5</sup> Samoa is a group of island nations that has a history of depending on foreign aid, family remittances from overseas, fishing and agriculture. The country suffers from intense storms and has suffered from volcanic activity in the past (CIA 2010)

NAPAs came out of the UNFCCC Conference of the Parties in Marrakech, Morocco in 2001, and “provide a process for LDCs to identify priority activities that respond to their urgent and immediate needs to adapt to climate change – those for which further delay would increase vulnerability and/or costs at a later stage” (Ibid.). Only LDCs can automatically receive funding for their proposals through the NAPA program, but any other developing countries can submit NAPAs. For those countries that are not LDCs, the funding has to be acquired by the country and from other sources. Only 11 of the 52 SIDS have submitted NAPAs to the UNFCCC, all ten of which are LDCs. These include: Comoros, Sao Tome and Principe, Guinea-Bissau, Kiribati, Samoa, Solomon Islands, Tuvalu, Vanuatu and Haiti. After the NAPA proposal is developed and submitted by a national team within the country applying, the NAPA will be funded from the LDC Fund and other financial sources if approved. Although the NAPA proposals for LDCs are funded by the United Nations, the nation still has to create the proposal. The proposal is constructed either by the government within the LDC, or with help from a private source (Ibid.). This process shows initiative by the nation, and in this case, the small island developing nation believes it is important, and adaptation is necessary for survival.

One example includes Samoa that has submitted a 66 page NAPA, which identifies nine sectors that are highly vulnerable to climate change including agriculture, water, health, and tourism, with its highest identified vulnerability as water resources. The country was able to identify and prioritize its gravest

concerns in relation to climate change effects, as well as submit a proposal in order to gain funding to prepare for the effects of climate change (Samoa National Climate Change Country Team 2005).

In a May 2010 press conference on the vulnerabilities of SIDS, Amjad Abdullah, Director-General of the Ministry of Housing, Transport and Environment of the Maldives stated, that “We [SIDS] should not allow countries to sink for the progress of others (United Nations 2010).” He also stated that many of the SIDS, along with their NAPAs, have developed plans to meet the commitments under the Agenda 21, as well as the Barbados and the Mauritius Agreements. Developed countries, those that emit the most GHGs, are not addressing climate change in the same manner as the SIDS, both in terms of mitigation and adaptation to climate change. The efforts to reduce emissions by the SIDS do not make up for the lack of effort on part of the developed world, due to the relatively miniscule amount of total emissions released by the SIDS. In response to a question regarding signing the Copenhagen Accord to climate change, Lotoala Metia, Minister of Finance and Economic Planning of Tuvalu, responded that it would be like signing a “death certificate” and would continue to resist any pressure to sign the document because of its weakness. Metia also stated they would also further resist migration from their homelands and stressed that they had just as much right as anyone else to live in their homelands (Ibid.).

Although these climate change solutions are met with resistance, some adaptation measures have begun in assisting the SIDS. With the help of the Canadian government, SPREP has successfully moved settlements in the country

of Vanuatu from low coastal elevations to higher elevations because frequent flooding has made the residences uninhabitable. Furthermore, farmers on Timor have begun to develop their own strain of crops to address the erratic cyclones and changing weather patterns from climate change. This has helped to establish better food security for the country (AOSIS and UN 2008).

These local and community driven efforts are important; however, they are only temporary solutions and often met with resistance from the people that live in the SIDS. These solutions do not target the underlying issue of increased GHGs and the rising sea-level. Without assistance from the developed countries, these adaptation measures will be moot against the effects of climate change for some of the SIDS.



## **Chapter 4 : The Problem**

The primary underlying issue of climate change arises because economic development primarily revolves around fossil fuels. Fossil fuels are the source of the increased anthropogenic GHG emissions. As nations collectively developed during the Industrial Revolution, more and more anthropogenic GHGs, primarily CO<sub>2</sub>, have been released into the atmosphere. The earth's carbon sinks have not been able to keep the pre-industrial equilibrium (Solomon et al. 2007). This issue is worsening due to the fact that, now, developing nations including China and India, are also increasing their fossil fuel use to achieve the same levels of development as the developed nations. As the standard of living increases for more of the world's population, GHG emissions increase, which further exacerbate the effects of climate change (Flavin 2006). In addition, the world's population has burgeoned and continues to do so, further contributing to the increase in GHGs (Chasek et al. 2010). The developed nations have created an equity issue. The SIDS and other developing nations are the most vulnerable and negatively affected, but have contributed very little to the underlying problem of increasing emissions. Climate change will affect the entire world, so why are developed nations not taking serious action against climate change, and saving the SIDS?

Predominantly, mitigation actions have been, to date, too modest to prevent consequences of climate change for SIDS. Even in cases where adaptation measures have been identified, they have not been implemented due to

the lack of funding. This leaves the SIDS as vulnerable or more vulnerable now than they were in 1979 at the first World Climate Conference.

### ***Thesis Question***

***What arguments can the SIDS make regarding their importance, to spark action that will protect SIDS from damage associated with climate change?***

One example as to why the SIDS are ignored in terms of climate change is that they are “not important” to developed nations and their individuals. With this, in terms of funding and policy action to mitigate and/or adapt to climate change, the SIDS appear insignificant and of less priority. It is possible that the disproportionate affect that climate change has on the SIDS is not prioritized because the SIDS do not play a large role in the export and import trade world, and their global role in providing natural resources is minimal. However, SIDS are important because they provide unique tourism experiences to the developed world. The SIDS are also important because of their biological diversity, including coral reefs and other wildlife, especially marine life. Socially and culturally, SIDS are unique because of their wide array of cultural diversity. Do the SIDS have relevant arguments to motivate powerful countries into taking action against climate change for their sake?

## **Chapter 5 : Anticipatory v. Reactive Action by Developed Nations**

The balance of this thesis examines arguments SIDS can make to inspire anticipatory action, not only reactive action, to climate change among powerful developed countries.

Developed countries react generously after disaster strikes, especially after natural disasters. For example, after both the 2006 tsunami and earthquake in Asia, and the 2010 earthquake in Haiti, many countries sent aid in the forms of funding and goods. Both of these events catastrophically affected developing nations, as well as Haiti, which is one of the SIDS. In this case, a natural disaster sparked action in the developed world.

Developed countries will take anticipatory action when strategic interests are threatened. Examples include protecting natural resources, and providing national and foreign security. The United States has engaged in military conflict in the Middle East since the 1990s. First, with the Gulf War in Kuwait, the United States militarily intervened due to their strategic resource interest in oil in Kuwait (Gay 1996). The United States feared that should Iraq acquire Kuwait's oil reserves, it would threaten the United States' fossil fuel security not only in Kuwait, but also the Middle East. As previously stated, fossil fuels are what drives the economy of the United States. Regarding the United States' involvement in this conflict, Lovins et al. observe,

Historians will long debate whether the United States would have sent a half-million troops to liberate Kuwait in 1991 if Kuwait just grew broccoli and the United States didn't need it. Decades hence, historians may be

better able to say whether an odious tyrant would have been overthrown with such alacrity in 2003 if he didn't control the world's second-largest oil reserves (2004, 17, 19).

The United States still holds a large presence in the Gulf, as it did in the Iraq War by toppling Saddam Hussein's dictatorship. The United States clearly intervened again in 2003 because of their strategic interests in the fossil fuel reserves (Gay 1996).

In 2011, the volatility of the political situation in the Middle East was furthered by unrest in Egypt inspired by a successful revolution in neighboring Tunisia. Protests began against the corrupt and autocratic governance of Egyptian President Hosni Mubarak, and they have sparked other revolutions throughout the Middle East including Libya. The United States and other developed nations have a strategic interest in these revolutions not only because of the possibility of decreased fossil fuel production, but the unrest in the region also causes oil prices to fluctuate and increases the probability of revolutions in neighboring Middle Eastern countries (Huffington Post 2011a, 2011b).

President Obama directly stated on March 28, 2011, that the government is reluctant to use force in the world, "but when our interests and values are at stake, we have a responsibility to act. That is what happened in Libya over the course of these last six weeks" (Obama 2011). In this same speech, President Obama condemned the massacres and killings and agreed that the limited military action of the United States was necessary to stop the killings in Libya. He recognized intervention into the Bosnian massacres in the 1990s, took over a year. This is important because the unrest in Bosnia did not represent a strategic interest

to the US like the unrest in Libya. The fear of unrest throughout the Middle East affecting the fossil fuel industry represented a strategic interest on the part of the United States (Obama 2011). President Obama touts the reason for the US intervention primarily as the mass killings and violence by the Libyan government. However, because Libya is an OPEC member and the 17<sup>th</sup> largest oil producer in the world, like in the previous Gulf Wars, the United States' dependence on foreign oil appears to be the primary reason for intervention. The United States has failed to intervene in past genocide conflicts in countries lacking strategic value such as Rwanda and Sudan, which only serves to further this point (Reuters 2011).

The United States has also intervened on behalf of national security with their involvement in World War I and II, and most recently in the War on Terror in Afghanistan. Although not directly related to natural resources including oil, the developed nations, or allied nations, came together to ensure world peace and stability in the two world wars. The survival of democratic peace was at stake; the demise of which would have directly affected any financial survival of countries like the United States, Britain, and France. The countries decided military action was necessary and intervened with force (Brocklehurst et al. 2007). A more recent military invasion due to the War on Terror was that of the United States invasion into Afghanistan. Afghanistan presents no strategic interests to developed nations other than it was/is thought to house the Al-Qaida terrorist leader and the organization that took credit for the World Trade Center

bombings in 2001 in the United States (Fiscus 2004). This direct threat to the security of the United States was enough to prompt military action.

The developed countries, however, have been slow to act when their strategic interests are not threatened. In 1994, approximately 800,000 citizens of Rwanda were murdered and the United States chose not to intervene. Although the Clinton administration was aware of the acts of genocide at the time that they occurred, The Guardian states,

The administration did not want to repeat the fiasco of US intervention in Somalia, where US troops became sucked into fighting. It also felt the US had no interests in Rwanda, a small central African country with no minerals or strategic value (Carroll 2004).

Rwanda like many of the SIDS has no strategic minerals or significant financial value in the global economy and was thus deemed not strategically important enough for the US military to intervene. Furthermore, the Clinton Administration waited almost a year to intervene in the Bosnian conflict. When the US did intervene it was due to a fear of Serbia rising as another Nazi Germany. This could have led to another world war and a domino effect of unrest throughout the region (Carpenter 1996). Although the Clinton Administration did intervene, it did so after the loss of countless lives, and only when it became clear that the situation became of strategic interest to the United States.

The situation in Sudan is different, although the initial reasons for non-intervention in the genocide still supports that the United States did not take action because there was no strategic interest. In 2003, Sudan's genocide problem became apparent to the rest of the world. Sudan's discovery and marketing of oil and natural gas are relatively recent with the first sale of oil made in 1999.

However, Sudan did not recognize the government of the United States and most of the exploration funding and tapping of resources has been financed by China (Fatal Transactions 2008). It was not in the United States strategic interest to militarily intervene in Sudan because it had nothing directly at stake. However, the United States government did pressure the United Nations and lobbied for more sanctions because even with no direct investment in the oil fields, the United States still benefits economically from more discovery and production of oil (Gidley 2005). With the Obama administration and the 2005 Peace Agreement, there have been more attempts at fostering a new relationship with Sudan and addressing the genocidal issues in the country. But, again, no action was initially taken to stop the genocide in Sudan and efforts remain lacking.

As shown above, developed countries, especially the United States, respond to conflict and world order issues when and if it is in their strategic interest, financially or politically. Although the developed nations have demonstrated they will reactively provide assistance in the event of natural disasters, this reactive action will not be enough to save the SIDS. The rest of this thesis examines the methodology and arguments the SIDS can make to achieve the preventative action needed to either mitigate or adapt to the effects of climate change.

## **Chapter 6 : Methodology**

The preliminary and background research for this thesis began with examining literature on climate change and the SIDS. Background information was gathered on the SIDS, and how climate change affects them economically, physically, and socially, from sources including the United Nations and climate change literature. After obtaining the background information on climate change and the SIDS, it was important to examine what has been done for the SIDS in terms of climate change; for example, any policy or programs and the involved actors including governments, and organizations. Information was gathered to examine the SIDS' action toward climate change. Then a more in depth examination looked into how the SIDS view actions on climate change in relation to their vulnerabilities in order to unveil any common themes among the SIDS. Finally, this paper examined the literature on ways developed countries take action.

For the economic analysis, financial and trade information was gathered from the CIA Factbook database. The CIA has basic financial data for all countries. It was important to use a source that had data for every country, and presented this data in a similar format. GDP, export, and import rankings for each of the 52 SIDS were then examined and analyzed to present the SIDS rankings using Microsoft Excel. Information was collected for the SIDS' natural resources or exports that account for a large part of the economy and GDP. Literature and information was gathered for the remaining arguments: tourism, human rights,



biological and cultural diversity, and resiliency. These data do have limitations and the discussion section of this paper discusses these limitations.

## **Chapter 7 : Possible Arguments for the SIDS**

This section examines the possible arguments the SIDS can make in order to accelerate action from the developed countries regarding climate change.

Specifically, it looks at the following arguments and questions:

- Economic: Are the SIDS' economies globally significant?
- Tourism: Are the majority of the SIDS tourism economies?
- Human rights: Do the SIDS have a human rights argument?
- Diversity: Do they have a biological and cultural preservation argument?
- Resiliency: Do they show resiliency?

### ***Economic Argument***

This section analyzes the world rankings of the SIDS' GDPs, exports and imports to examine the role of the SIDS in the global economy. It also examines the SIDS' natural resources and large export economies to address their relevance in relation to the global economy.

### **GDP**

Out of a total of 228 countries, only six of the SIDS (Singapore, Cuba, Dominican Republic, Puerto Rico, Bahrain and Trinidad and Tobago) have GDPs in the top half relative to all 228 countries. Relative to their GDPs, this means that 88% of the SIDS have GDPs in the bottom half. Furthermore, 67% of the

SIDS have GDPs in the bottom quartile. In relation to GDP, this shows that the majority of the SIDS are not financially competitive in relation to the rest of the world's nations' GDP totals. This information is presented below in Table 2.

## GDP by Region

The analysis in Table 2 also shows, in red and by region, the distribution of SIDS with the highest GDPs. Two of the SIDS (Singapore and Bahrain) are located in the African, Indian Ocean, Mediterranean and South China Sea region, four (Cuba, Dominican Republic, Puerto Rico and Trinidad and Tobago) are located in the Caribbean region, and none are located in the Pacific region.

**Table 2: GDP Rankings of SIDS by Region**

SIDS	Location	World GDP Rank (Out of 228 Countries)
Singapore	Afr., IO, Med., SCS	41
Bahrain	Afr., IO, Med., SCS	108
Mauritius	Afr., IO, Med., SCS	130
Timor-Leste	Afr., IO, Med., SCS	176
Seychelles	Afr., IO, Med., SCS	185
Cape Verde	Afr., IO, Med., SCS	186
Guinea-Bissau	Afr., IO, Med., SCS	188
Maldives	Afr., IO, Med., SCS	189
Comoros	Afr., IO, Med., SCS	207
Sao Tome and Principe	Afr., IO, Med., SCS	213
Cuba	Caribbean	67
Dominican Republic	Caribbean	76
Puerto Rico	Caribbean	83
Trinidad and Tobago	Caribbean	111
Jamaica	Caribbean	116
Haiti	Caribbean	145
Bahamas	Caribbean	151
Barbados	Caribbean	154
Guyana	Caribbean	160
Suriname	Caribbean	162
Netherlands Antilles	Caribbean	178
Belize	Caribbean	180
Aruba	Caribbean	181
St. Lucia	Caribbean	187
U.S. Virgin Islands	Caribbean	193
Antigua and Barbuda	Caribbean	195
Grenada	Caribbean	197
St. Vincent and the Grenadines	Caribbean	198
British Virgin Islands	Caribbean	205
Dominica	Caribbean	209

St. Kitts and Nevis	Caribbean	210
Anguilla	Caribbean	217
Montserrat	Caribbean	224
Papua New Guinea	Pacific	136
French Polynesia	Pacific	163
New Caledonia	Pacific	175
Solomon Islands	Pacific	194
Vanuatu	Pacific	196
Samoa	Pacific	200
Commonwealth of Northern Marianas	Pacific	203
Tonga	Pacific	208
American Samoa	Pacific	212
Federated States of Micronesia	Pacific	214
Cook Islands	Pacific	216
Palau	Pacific	218
Marshall Islands	Pacific	219
Nauru	Pacific	221
Tuvalu	Pacific	226
Niue	Pacific	227
Guam	Pacific	n/a
Fiji	Pacific	169
Kiribati	Pacific	211

\* Afr., IO, Med., SCS: abbreviation for African, Indian Ocean, Mediterranean and South China Sea region

\* n/a: Data not given from source

\* Source: CIA World Factbook 2010

## Exports

Relative to the SIDS' exports, approximately 85% of the SIDS rank in the bottom half relative to a total of 224 countries. Furthermore, 65% of the SIDS have export rankings in the bottom quartile. The SIDS have low involvement in the world export economy. Even Papua New Guinea, a nation with significant natural resources in the SIDS, ranks only 107<sup>th</sup> out of the 224 countries. It is also the only country in the Pacific region that ranks in the top half. This information is presented below in Table 3.

## Exports by Region

Table 3 also presents the analysis by region, those shown in red. Two of the SIDS (Singapore and Bahrain) are located within the African, Indian Ocean,

Mediterranean and South China Sea region, four (Puerto Rico, Trinidad and Tobago, Dominican Republic, and the US Virgin Islands) are located within the Caribbean region, and one (Papua New Guinea) is located within the Pacific region.

**Table 3: Export Rankings for SIDS by Region**

SIDS	Location	World Export Rank (out of 224 Countries)
Singapore	Afr., IO, Med., SCS	14
Bahrain	Afr., IO, Med., SCS	76
Mauritius	Afr., IO, Med., SCS	129
Seychelles	Afr., IO, Med., SCS	171
Guinea-Bissau	Afr., IO, Med., SCS	186
Cape Verde	Afr., IO, Med., SCS	191
Maldives	Afr., IO, Med., SCS	196
Comoros	Afr., IO, Med., SCS	203
Timor-Leste	Afr., IO, Med., SCS	212
Sao Tome and Principe	Afr., IO, Med., SCS	213
Puerto Rico	Caribbean	47
Trinidad and Tobago	Caribbean	82
Dominican Republic	Caribbean	101
U.S. Virgin Islands	Caribbean	108
Netherlands Antilles	Caribbean	114
Cuba	Caribbean	125
Jamaica	Caribbean	135
Suriname	Caribbean	138
Guyana	Caribbean	162
Bahamas	Caribbean	163
Haiti	Caribbean	164
Barbados	Caribbean	172
Belize	Caribbean	173
St. Lucia	Caribbean	176
St. Vincent and the Grenadines	Caribbean	181
Aruba	Caribbean	189
Anguilla	Caribbean	190
Dominica	Caribbean	194
Antigua and Barbuda	Caribbean	198
St. Kitts and Nevis	Caribbean	199
Grenada	Caribbean	202
British Virgin Islands	Caribbean	204
Montserrat	Caribbean	220
Papua New Guinea	Pacific	107
New Caledonia	Pacific	140
American Samoa	Pacific	169
Solomon Islands	Pacific	178
French Polynesia	Pacific	180
Samoa	Pacific	187
Commonwealth of Northern Marianas	Pacific	193
Vanuatu	Pacific	201
Tonga	Pacific	205
Marshall Islands	Pacific	206
Federated States of Micronesia	Pacific	210

Palau	Pacific	215
Cook Islands	Pacific	217
Tuvalu	Pacific	219
Niue	Pacific	221
Nauru	Pacific	222
Guam	Pacific	n/a
Fiji	Pacific	143
Kiribati	Pacific	209

\* Afr., IO, Med., SCS: abbreviation for African, Indian Ocean, Mediterranean and South China Sea Region

\* n/a: Data not given from source

\* Source: CIA World Factbook 2010

## Imports

Of 221 total countries, noting that three of the economies of the SIDS are not ranked, 83% of the SIDS have import rankings in the bottom half.

Furthermore, 62% of the SIDS have import rankings in the bottom quartile.

Similar to the export analysis, the SIDS' imports play an insignificant role in the global trade economy. This information is presented below in Table 4.

## Imports by Region

Table 4 also presents the SIDS' imports by region, with those highlighted in red. Two of the SIDS, similar to the exports analysis (Singapore and Bahrain) are located within the African, Indian Ocean, Mediterranean and South China Sea region, six (Puerto Rico, Netherlands Antilles, US Virgin Islands, Dominican Republic, Cuba, and Trinidad and Tobago) have import rankings in the top half and are located within the Caribbean region, and none that have import rankings in the top are located in the Pacific region.

**Table 4: Imports Ranking for SIDS by Region**

SIDS	Location	World Import Rank (Out of 221 Countries)
Singapore	Afr., IO, Med., SCS	16
Bahrain	Afr., IO, Med., SCS	83
Mauritius	Afr., IO, Med., SCS	131

Cape Verde	Afr., IO, Med., SCS	176
Maldives	Afr., IO, Med., SCS	180
Seychelles	Afr., IO, Med., SCS	181
Timor-Leste	Afr., IO, Med., SCS	201
Guinea-Bissau	Afr., IO, Med., SCS	202
Comoros	Afr., IO, Med., SCS	206
Sao Tome and Principe	Afr., IO, Med., SCS	211
Puerto Rico	Caribbean	57
Netherlands Antilles	Caribbean	77
Dominican Republic	Caribbean	81
Cuba	Caribbean	90
Trinidad and Tobago	Caribbean	100
U.S. Virgin Islands	Caribbean	111
Jamaica	Caribbean	112
Bahamas	Caribbean	146
Haiti	Caribbean	151
Barbados	Caribbean	159
Suriname	Caribbean	165
Aruba	Caribbean	169
Guyana	Caribbean	170
St. Lucia	Caribbean	179
Belize	Caribbean	184
St. Vincent and the Grenadines	Caribbean	186
Antigua and Barbuda	Caribbean	189
St. Kitts and Nevis	Caribbean	190
Grenada	Caribbean	191
Dominica	Caribbean	195
Anguilla	Caribbean	205
British Virgin Islands	Caribbean	n/a
Montserrat	Caribbean	n/a
Papua New Guinea	Pacific	140
New Caledonia	Pacific	153
French Polynesia	Pacific	156
Samoa	Pacific	193
American Samoa	Pacific	194
Solomon Islands	Pacific	198
Commonwealth of Northern Marianas	Pacific	200
Vanuatu	Pacific	204
Tonga	Pacific	207
Federated States of Micronesia	Pacific	208
Palau	Pacific	209
Cook Islands	Pacific	212
Marshall Islands	Pacific	213
Nauru	Pacific	218
Tuvalu	Pacific	219
Niue	Pacific	220
Guam	Pacific	n/a
Fiji	Pacific	136
Kiribati	Pacific	215

\* Afr., IO, Med., SCS: abbreviation for African, Indian Ocean, Mediterranean and South China Sea Region

\* n/a: Data not given from source

\* Source: CIA World Factbook 2010

## **Exports of top ranking SIDS**

The SIDS that have export rankings in the top 50% are: Singapore, Puerto Rico, Bahrain, Trinidad and Tobago, Dominican Republic and the US Virgin Islands. This is noting that the Dominican Republic barely makes the top half with a ranking of 101. Singapore has a large manufacturing sector and Bahrain's primary export is petroleum, accounting for 70% of its economy (CIA 2010). Likewise, the US Virgin Islands and the Dominican Republic both have strong ties geographically and economically with the US. The Dominican Republic maintains a strong export tie with the US and the US receives 54.08% of the country's exports, which are primarily coffee, tobacco, and sugar (Ibid.). The US Virgin Islands primarily rely on tourism for the mainstay of their economy and the close proximity to the US is an important consideration as to why their export industry might be higher than other SIDS.

This analysis, however, does not account for those nations, including Haiti, that are doing poorly, both economically and socially. These nations all have turbulent histories that still impede their success to some degree. The SIDS have had different colonial occupations by other nations, mostly developed nations, and some are still considered territories. These occupations included actions such as slavery, resource pillaging, and military base establishment. Haiti is located on the same island of Hispaniola as the Dominican Republic, but is doing far worse. By looking at the GDP rankings, Haiti ranks 145<sup>th</sup> and the Dominican Republic ranks 76<sup>th</sup> (Ibid.). Some reasons for this discrepancy may include Haiti's violent past, and the fact that its topography makes agriculture



difficult. Haiti also lacks natural resources (Silver 2010). Certainly some of the SIDS' current ties with developed nations, including those of the Dominican Republic with the United States, contribute to their successes. However, the SIDS' past relationships with developed nations also play a role in their success, as well.

### **Imports of top ranking SIDS**

The eight SIDS that are in the top half of the import rankings are Singapore, Puerto Rico, Netherland Antilles, Dominican Republic, Bahrain, Cuba, Trinidad and Tobago and the US Virgin Islands. Many of these countries are the same that rank highly in the export ranking analysis.

### **Natural Resources and Export Economies**

It is also important to examine whether or not the value that SIDS that do have export or natural resource markets bring to the global economy, could be made up for by other non-SIDS that produce the same export, should the effects of climate change halt the production in the SIDS. For example, Grenada is one of the world's biggest nutmeg producers, holding 20% of the world's production. However, 75% of the world's nutmeg is produced in Indonesia (Spice Trade n.d). This suggests that if Grenada were to halt production of nutmeg due to the effects of climate change, buyers might still be able to buy the spice elsewhere. Nutmeg is also not necessary for survival suggesting that alternative spices, or no spice at all could be used instead.

Likewise, Bahrain's petroleum industry accounted for approximately 70% of the country's GDP, but ranks 63<sup>rd</sup> in global petroleum production (CIA 2010). Other industries, including aluminum production, in Bahrain also account for a significant portion of the economy, but rank low in overall global production. In 2009, Bahrain ranked 11<sup>th</sup> in aluminum production with China producing nearly 15 times the amount of Bahrain (USGS 2011a). Bahrain ranked highly in the previous analyses regarding GDP, exports and imports, but still ranks low on its more important exports in relation to the rest of the world. Even though Bahrain is more significant in the global economy than other SIDS, in relation to the rest of the world, its products and exports are relatively small and insignificant.

The Dominican Republic is also a country that highly depended on its exports and production of nickel. Recently this production has decreased and the Dominican Republic did not produce any nickel in 2009 due to the decrease in market prices (USGS 2011b). The country has turned to tourism as its primary economy and continues to look for new investments in the sector.

Other countries in the South Pacific depend on the production of copra products, which are derived from coconuts, for their economy. However, none of these countries, such as the Federated States of Micronesia, Cook Islands, and Kiribati, come close to the amount of copra produced by the leading countries of Philippines, Indonesia, India, Vietnam and Mexico. These leading countries are located in the same regions of Asia and the Caribbean but they are not as isolated as the SIDS, especially those in the Pacific (CIA 2010; Agrostats 2009). Again, this provides an example of how other, more accessible, and less vulnerable

countries which already have large production sectors for the product, copra, will stand in for the SIDS' production should it halt from the effects of climate change.

Furthermore, Jamaica, as of 2009, was the sixth leading producer of bauxite in the world, but still falls short compared to other larger, less vulnerable countries including Australia, China and Brazil. The United States did however import almost 35% of its bauxite from Jamaica, (USGS 2011c) but the point is that it could also import from Brazil, as well as China and Australia, should it be necessary.

Finally, one of the most resource intensive of the SIDS, Papua New Guinea, also ranks low in relation to the rest of the world. In 2008, its forests contributed 3.8% of the total GDP and economy (UNDP 2010). In 2010, Papua New Guinea ranked 9<sup>th</sup> out of the countries with the largest area of primary forest. Although it ranks 9<sup>th</sup> here, 8 other countries including Canada and the United States trump Papua New Guinea's production (FAO 2010). Papua New Guinea also ranks 10<sup>th</sup> in global gold production, but again it is trumped by countries including China, the USA and Australia (USGS 2011d). This is a country that has significant amount of natural resources, the most of the 52 SIDS, and still barely ranks in the top ten for forest and gold production.

The SIDS viewed by their natural resource production or export economies appear insignificant to the global economy, especially to developed nations. They are however, important for many other reasons and should not be viewed only as a financial strategic interest.

## Colonial/Territorial SIDS

Fourteen of the SIDS are not considered independent nations but are territories or colonies of various developed nations. These are listed below in Table 5.

**Table 5: List of the SIDS that are Colonies**

Colonies that are SIDS	Parent Country
American Samoa	United States
Anguilla	United Kingdom
Aruba	Netherlands
British Virgin Islands	United Kingdom
Commonwealth of Northern Marianas	United States
Cook Islands	New Zealand
French Polynesia	France
Guam	United States
Montserrat	United Kingdom
Netherlands Antilles	Netherlands
New Caledonia	France
Niue	New Zealand
Puerto Rico	United States
U.S. Virgin Islands	United States

\* Source: CIA World Factbook 2010, UN-OHRLLS 2010

None of these 14 nations are considered to be LDCs. For this paper, it is important to examine whether or not these 14 nations rank highly as a group, as well as individually for the GDP, export and import ranking analyses. These results are presented below in Table 6.

Puerto Rico, a United States territory, has the highest GDP, export and import rankings out of all the 14 territories. The other two that are close to the 50% median mark are the U.S. Virgin Islands and the Netherlands Antilles. Aside from these three SIDS, the others still have GDP, export, and import rankings in the bottom half in relation to the rest of the countries. It is important to note that the CIA did not provide GDP, export and import information regarding Guam.

There is no definite trend among these 14 territories that suggests they are financially or economically better off than the rest of the SIDS. Puerto Rico, however, is clearly better off than most of the SIDS, as well as the remaining 13 territories. In this case, this success is most likely due to its strong political, economic, and geographical ties to the United States.

**Table 6: SIDS' Territories by World GDP, Export and Import Ranking**

SIDS by World GDP Ranking		SIDS by World Export Ranking		SIDS by World Import Ranking	
Singapore	41	Singapore	14	Singapore	14
Cuba	67	Puerto Rico	47	Puerto Rico	47
Dominican Republic	76	Bahrain	76	Bahrain	76
Puerto Rico	83	Trinidad and Tobago	82	Trinidad and Tobago	82
Bahrain	108	Dominican Republic	101	Dominican Republic	101
Trinidad and Tobago	111	Papua New Guinea	107	Papua New Guinea	107
Jamaica	116	U.S. Virgin Islands	108	U.S. Virgin Islands	108
Mauritius	130	Netherlands Antilles	114	Netherlands Antilles	114
Papua New Guinea	136	Cuba	125	Cuba	125
Haiti	145	Mauritius	129	Mauritius	129
Bahamas	151	Jamaica	135	Jamaica	135
Barbados	154	Suriname	138	Suriname	138
Guyana	160	New Caledonia	140	New Caledonia	140
Suriname	162	Fiji	143	Fiji	143
French Polynesia	163	Guyana	162	Guyana	162
Fiji	169	Bahamas	163	Bahamas	163
New Caledonia	175	Haiti	164	Haiti	164
Timor-Leste	176	American Samoa	169	American Samoa	169
Netherlands Antilles	178	Seychelles	171	Seychelles	171
Belize	180	Barbados	172	Barbados	172
Aruba	181	Belize	173	Belize	173
Seychelles	185	St. Lucia	176	St. Lucia	176
Cape Verde	186	Solomon Islands	178	Solomon Islands	178
St. Lucia	187	French Polynesia	180	French Polynesia	180
Guinea-Bissau	188	St. Vincent and the Grenadines	181	St. Vincent and the Grenadines	181
Maldives	189	Guinea-Bissau	186	Guinea-Bissau	186
U.S. Virgin Islands	193	Samoa	187	Samoa	187
Solomon Islands	194	Aruba	189	Aruba	189
Antigua and Barbuda	195	Anguilla	190	Anguilla	190
Vanuatu	196	Cape Verde	191	Cape Verde	191
Grenada	197	Commonwealth of Northern Marianas	193	Commonwealth of Northern Marianas	193
St. Vincent and the Grenadines	198	Dominica	194	Dominica	194
Samoa	200	Maldives	196	Maldives	196
Commonwealth of Northern Marianas	203	Antigua and Barbuda	198	Antigua and Barbuda	198

British Virgin Islands	205		St. Kitts and Nevis	199		St. Kitts and Nevis	199
Comoros	207		Vanuatu	201		Vanuatu	201
Tonga	208		Grenada	202		Grenada	202
Dominica	209		Comoros	203		Comoros	203
St. Kitts and Nevis	210		British Virgin Islands	204		British Virgin Islands	204
Kiribati	211		Tonga	205		Tonga	205
American Samoa	212		Marshall Islands	206		Marshall Islands	206
Sao Tome and Principe	213		Kiribati	209		Kiribati	209
Federated States of Micronesia	214		Federated States of Micronesia	210		Federated States of Micronesia	210
Cook Islands	216		Timor-Leste	212		Timor-Leste	212
Anguilla	217		Sao Tome and Principe	213		Sao Tome and Principe	213
Palau	218		Palau	215		Palau	215
Marshall Islands	219		Cook Islands	217		Cook Islands	217
Nauru	221		Tuvalu	219		Tuvalu	219
Montserrat	224		Montserrat	220		Montserrat	220
Tuvalu	226		Niue	221		Niue	221
Niue	227		Nauru	222		Nauru	222
Guam	n/a		Guam	n/a		Guam	n/a

\* Source: CIA World Factbook 2010

\* n/a: Data not given from source

### ***Tourism Argument***

Previously mentioned, the SIDS can be viewed as “Gardens of Eden”, or luxurious vacation spots, which directly translates to tourism. Tourism is a large part of their economic well-being and is the leading segment in the service industries within the SIDS (Craigwell 2007). Some of the most luxurious resorts are in the SIDS. To name a few, those in the Seychelles, French Polynesia and the Maldives rival those around the world. One resort in the Maldives markets itself at over \$1000 per night making it one of the most luxurious and expensive resorts in the world (Coco Palm Dhuni Kolhu Resort 2011). The “over-water bungalow” resort concept was born in the South Pacific islands. Other nations, not the SIDS, have attempted to replicate these bungalows but without the same coral atolls and lagoons, they are not as aesthetically pleasing. The majority of these bungalow resorts remain in the SIDS and Pacific region (Wade 2008).

By using the CIA Factbook economic profiles to determine whether or not the countries have tourism economies or not, it was concluded that 35, or 67% of the SIDS' economies depend on tourism in some part. The CIA does not define how it makes a judgment on the amount needed to constitute a relevant portion of the economy. One way to calculate this would be to look at the percentage GDP. However, eight of these nations, in addition to the 35 defined above, have the potential for tourism economies, given certain infrastructure and physical feature characteristics. If these nations were also included in this percentage, 83% of the SIDS' economies would depend on the tourism industry in some part. One example of a small island developing state with potential for a tourism economy is Comoros. While the coasts and climate of Comoros would be ideal for beach vacations, the lack of transportation infrastructure, including airports, and the political instability of the nation create a barrier to investments and trade and prevent a burgeoning tourism sector. Additionally, many of the islands in the Pacific, including Tuvalu, have the type of sought after beaches that tourists desire; however, they are physically isolated, and lack the finances to build up the sector. Some, however, cannot depend at all on tourism economies due to their developing, impoverished status and physical location, including Haiti, Suriname, and Guinea-Bissau. On the other hand nations including Bahrain, are not built with the tourism infrastructure but have other industries that drive their economies. Nine remaining countries within the SIDS do not have tourism at all.

## Tourism by Region

In terms of the SIDS' geographical areas, as shown below in Table 7, it is relevant to examine the tourism economies in each region. According to the CIA, in the African, Indian Ocean, Mediterranean, and South China Sea region, seven of the ten or 70% of the SIDS either depend on tourism, or have the potential for a tourism economy. The Caribbean region is by far the SIDS region that most depends on tourism for their primary economies. Nineteen of the twenty-three economies, or 83%, depend on tourism for a portion of their economies. Finally, in the Pacific region, seventeen of the nineteen or 89% of the nations depend on tourism, or have the potential for tourism economies.

**Table 7: Tourism Economies of SIDS by Region**

SIDS	Location	Tourism: yes/no/potential
Singapore	Afr., IO, Med., SCS	yes
Mauritius	Afr., IO, Med., SCS	yes
Cape Verde	Afr., IO, Med., SCS	yes
Maldives	Afr., IO, Med., SCS	yes
Seychelles	Afr., IO, Med., SCS	yes
Timor-Leste	Afr., IO, Med., SCS	potential
Comoros	Afr., IO, Med., SCS	potential
Bahrain	Afr., IO, Med., SCS	no
Guinea-Bissau	Afr., IO, Med., SCS	no
Sao Tome and Principe	Afr., IO, Med., SCS	no
Puerto Rico	Caribbean	yes
Netherlands Antilles	Caribbean	yes
Dominican Republic	Caribbean	yes
Cuba	Caribbean	yes
Trinidad and Tobago	Caribbean	yes
U.S. Virgin Islands	Caribbean	yes
Jamaica	Caribbean	yes
Bahamas	Caribbean	yes
Barbados	Caribbean	yes
Aruba	Caribbean	yes
St. Lucia	Caribbean	yes
Belize	Caribbean	yes
St. Vincent and the Grenadines	Caribbean	yes
Antigua and Barbuda	Caribbean	yes
St. Kitts and Nevis	Caribbean	yes



Grenada	Caribbean	yes
Dominica	Caribbean	yes
Anguilla	Caribbean	yes
British Virgin Islands	Caribbean	yes
Haiti	Caribbean	no
Suriname	Caribbean	no
Guyana	Caribbean	no
Montserrat	Caribbean	no
New Caledonia	Pacific	yes
French Polynesia	Pacific	yes
Samoa	Pacific	yes
Commonwealth of Northern Marianas	Pacific	yes
Vanuatu	Pacific	yes
Tonga	Pacific	yes
Palau	Pacific	yes
Cook Islands	Pacific	yes
Guam	Pacific	yes
Fiji	Pacific	yes
Kiribati	Pacific	yes
Papua New Guinea	Pacific	potential
American Samoa	Pacific	potential
Solomon Islands	Pacific	potential
Federated States of Micronesia	Pacific	potential
Marshall Islands	Pacific	potential
Tuvalu	Pacific	potential
Nauru	Pacific	no
Niue	Pacific	no

\* Afr., IO, Med., SCS: abbreviation for African, Indian Ocean, Mediterranean and South China Sea Region

\* Source: CIA World Factbook 2010

These data do represent that the SIDS do play a significant role in the global tourism economy and that this argument is relevant to the SIDS importance.

### ***Human Rights Argument***

The term climate justice has been coined to embrace the social justice and environmental issues caused by climate change. The issue is a human rights issue if people are forced to relocate due to the inaction of the developed world. For example, climate change refugee status is not ethical, especially to those nations

with populations that will have to be relocated due to increasing sea level rise. Many of the nations in the Pacific region are so physically isolated that their cultures and techniques for survival differ greatly from other nations. Although New Zealand has offered a safe haven to nations including Tuvalu should they need to flee their islands, it would be difficult and unfair for Tuvalu natives to adapt to an entirely new culture and lifestyle. The people living in the SIDS have just as much right to stay in their homeland as any other nation that does not face the same circumstances. To ask an individual who has lived a specific, isolated lifestyle, to relocate to a foreign country, is indeed setting them up for failure. Not only will the language be different, creating communication issues and difficulties finding a job, but the skills required to succeed in a new society will also be foreign (Barnett and Campbell 2010).

Increased internationalization of the climate change issues the SIDS face, could help to alleviate the situation. Many individuals in developed nations lack general climate change knowledge including specific knowledge regarding the SIDS and their vulnerability. An increase in the general awareness of the SIDS and their vulnerability to climate change would help. Unfortunately, at the international level, the SIDS have the tendency to lose their identity and become plots of land that are at risk of “sinking” and becoming inundated with seawater. The perception of these islands that revolves around only the environmental or physical disappearance of the islands does not include the importance of the societies and unique cultures that occupy the SIDS. The loss of the people that live within the SIDS constitutes a human rights argument. This failure to identify

with the actual people that inhabit the islands is an argument that the SIDS can make regarding human rights. If the world believes the climate change issue for the SIDS revolves around only losing plots of land, this is a dehumanization effect that makes it easier for the world to ignore the SIDS (Ibid.).

National, state and local actors and NGOs have a better ability to voice the local perspective and the opinions of the communities and individuals that live in the various SIDS. These voices are important because they often know what is best for their society as opposed to a representative in a developed nation who has only seen it from afar and from a financial perspective (Kelman 2010).

There is a human rights issue regarding the way the international climate change policy community allocates funds or allows projects to be funded. For example, the CDM projects, as described before, have a tendency to be directed at those developing nations with emerging markets such as Korea, China and Brazil. These nations although still considered developing, are more developed than many of the SIDS. CDM projects are directed toward these more developed nations because people in the developed nations funding the projects see the opportunities as profitable as opposed as humanitarian. The SIDS, especially those in the LDC category, are in need of funding for projects but are not receiving them with the fervor as those more developed nations. This in itself is a direct act of not helping those nations that need it most.

Furthermore, through the “existence values” principle, just knowing these nations exist, some with pristine beaches, turquoise waters and distant cultures is enough for individuals even if they never visit (Common 1997). People in the

rest of the world want to know the SIDS are there, even if they never physically visit.

Finally, the developing nations view the lack of action and continued exorbitant release of GHGs by developed nations as an act of violence against those nations most vulnerable to the effects of climate change. The developed nations have the ability to provide funding and assist the SIDS in adaptation projects. They also have the ability to aggressively reduce their GHG emissions. The blatant decision to not do this can be seen as a human rights violation because of the imminent threat to the SIDS.

### ***Diversity Argument***

SIDS contain numerous examples of both biological and cultural diversity. Not only do island nations such as Papua New Guinea have hundreds of different languages between the different cultures throughout the islands, but many are treasured for being just what they are: Gardens of Eden (Barnett and Campbell 2010). As explained earlier, many of the SIDS are blessed with miles of beaches, fisheries, biological and ecological uniqueness, and cultures unlike any other parts of the world.

Many of the SIDS have coral reefs in or around their nations. Coral reefs are both biologically and economically important for the SIDS. They provide a physical barrier for the SIDS by protecting susceptible coastlines from inundating waves. The reefs also provide important nurseries and serve as a home for many species of fish. These fishes are important to the economic well-being of the

SIDS both as a food source and economic driver. For many of the SIDS that depend on tourism, the coral reefs also attract many tourists and scientists for research (NOAA 2008).

The SIDS also have a diverse amount of species endemic to their nations. In 2004, for example, The FAO reported that the Dominican Republic, Fiji, Haiti, Jamaica and Mauritius all include over 30% of endemic plant life in their countries. Furthermore, Fiji and the Solomon Islands have 24% and 20%, respectively, of birdlife endemic to the islands. Many of the mammals found on the islands are found nowhere else in the world, including 50% of the mammal species on Mauritius (FAO 2004). Conservation of this biological diversity is important and makes the SIDS unique and valuable.

The argument for biological diversity has been made previously for the conservation and preservation of the rainforests all over the world. Not only are rainforests important for medical research and ecological balance, they are important carbon sinks. The rainforests help mitigate the effects of climate change (Monagbay.com 2010). This argument can also be made for the SIDS in terms of their biological diversity.

All 52 SIDS are different and have unique cultures from the rest of the world. The islands in the Pacific region have been geographically isolated from one another and the rest of the world and as a result have developed unique cultures and lifestyles, even within the same countries. Globalization has not had as far-reaching of an effect on these countries and some have been able to preserve their traditions and cultures. As Barnett and Campbell discuss, “there

are believed to be some 800 languages in Papua New Guinea, and over 100 languages are spoken among Vanuatu's 233,000 people" (2010, 7). This is just one specific example showcasing the great amount of diversity, even in the smallest of islands or populations, and the extraordinary difference from the developed nations. The effects of climate change threaten many of these cultures and traditions that give each one of the SIDS a cultural and sociological value.

### ***Resiliency Argument***

The SIDS are also unique and significant nations that have been highly resilient and adaptive for many years before anthropogenic climate change was even an issue and there is much to learn from them.

The Happy Planet Index rates the well-being of countries, but is one of the few of its kind that does not factor in GDP. "It is the first ever index to combine environmental impact with well-being to measure the environmental efficiency with which country by country, people live long and happy lives" (Happy Planet Index 2009). Two out of the top three countries rated by this index are SIDS: Dominican Republic and Jamaica, although many of the SIDS are not considered by the HPI (Abdallah 2009). Part of resilient island cultures have been based on the awareness of their limited resources and space on the island, which could be a factor that makes some of them more environmentally friendly. However, recent globalization has taken a toll on some of the island nations and they are unable to adapt to the barrage of new environmental issues such as accumulation of non-biodegradable plastics and other waste. The people of Tuvalu, for example, have

landfills sitting directly next to its coastline, making them susceptible to coastal flooding, pollution and contaminated drinking water (Barnett and Campbell 2010).

Furthermore, the SIDS have always been exposed to natural disasters including intense storms causing surges on coastlines, droughts and other disasters. The SIDS have a long history of adapting to these disasters. The SIDS' historical ability to survive with their local adaptation strategies and traditions, for this long, proves their resilience. This unique resilience to catastrophic events like the intense storms in Tuvalu, represents resiliency strategies and perspectives to offer that will improve plans to adapt to the effects of climate change (Barnett and Campbell 2010). The Prime Minister of the Republic of Fiji, in his opening address in the Fifth Meeting of FAO South West Pacific Ministers for Agriculture in April 2003 highlighted the resilience of the SIDS, as well as the effort to fight for survival:

Well before the arrival of western civilization, we had evolved efficient systems of agricultural production and fisheries that were appropriate for our needs and circumstances. But as our contact and involvement with the larger world increased, we found that the traditional ways were not enough. Development and the cash economy came. There were the challenges of population growth, urbanization, over-exploitation of land and lagoons and threats to the environment. Trade brought imported processed food and produce. These began to replace more wholesome diets, which had sustained us for thousands of years (FAO 2004).

This quote clearly shows that due to the strains brought about by globalization and contact with the developed world, their situation has become worse than before, and it is more difficult to depend only on traditional methods of survival given the modern societal and environmental challenges. Using this

resilience knowledge will assist climate change adaptation policy and planning greatly not only in the SIDS, but for the rest of the world.



## **Chapter 8 : Discussion**

Climate change will undoubtedly affect every nation in one way or another; if not directly, then indirectly. With globalization, nations are inextricably linked. Some nations, such as Tuvalu will be physically, economically, and socially affected just by sea-level rise. This analysis does not account for all of the other issues including but not limited to, ocean acidification. Presently, developed nations have the ability to mitigate the effects of climate change through policy decisions that shift away from fossil fuels and introduce efficiency improvements to reduce GHGs. For that reason, they have a moral and ethical duty to do so. However, because the shift from fossil fuels to other less carbon intensive fuels is viewed by some as increasing the cost of economic development, it has been impossible, to date, to secure international agreement on aggressive mitigation actions.

Should the world's economies continue business as usual, the SIDS, unique nations with indigenous cultures and societies, could cease to exist. However, the SIDS have just as much right to their livelihoods as developed nations. These cultures are not found in any other part of the world. The SIDS also support ecosystems and biological diversity not found elsewhere. The loss of these nations would indeed be tragic as well as unethical.

## *Discussion of Arguments*

Although the SIDS make a modest contribution to the global economy, they do have other relevant arguments including tourism, human rights, biological and cultural diversity, and resiliency that should spark action in the developed nations.

In the economic argument, for all of the ranking analyses, GDP, exports and imports, 88%, 85%, and 83%, respectively, of the 52 SIDS globally rank in the bottom half relative to all countries. Furthermore, for the same analysis, out of the 52 SIDS, 67%, 65%, and 62%, respectively, globally rank in the bottom quartile relative to all countries. This shows that the majority of the SIDS are not financially important to the global financial and trade economy and does not support the economic argument for the SIDS.

There is a common theme that the SIDS in the Pacific region are doing worse than the other regions. For example, for the GDP ranking analysis, none of the Pacific region SIDS have GDPs in the top 50%. For the export ranking analysis only one of the Pacific region SIDS has an export ranking in the top 50%, which is Papua New Guinea. This difference can be explained by the country's vast amount of natural resources, including minerals and timber, and its physical size in relation to the rest of the SIDS. Both its natural resources and its size explain its larger role in the global economy. However, it only ranks 107<sup>th</sup> out of a total of 224 countries. Also, as explained in the analysis section, Papua New Guinea only ranks 9<sup>th</sup> in the timber industry globally, and 10<sup>th</sup> in the gold mining production globally making its exports replaceable by producers not in the SIDS.

For the import ranking analysis, like the GDP ranking analysis, none of the SIDS in the Pacific region have import rankings in the top 50% of the 221 countries.

Some of these Pacific region countries are the most vulnerable to the effects of climate change, including Tuvalu, which has at its highest point, only a five-meter elevation. Even these SIDS with the highest level of vulnerabilities are not receiving needed resources and policy-driven action from the developed world. Again the developed nations are looking past the most important reasons as to why these nations are important: tourism, culture, social and biological values.

The SIDS ranked in the top 50% for GDP, export and import ranking analyses, are similar for all three analyses. Some of these nations have strong economic ties with developed nations, such as Puerto Rico's relationship with the United States. Even though all of these are still considered developing nations, they can be considered top-tier developing nations as shown in the analysis. For example, the Dominican Republic is not only close in proximity to the United States, which might help its economic ties, but the US remains a strong export partner for the Dominican Republic (CIA 2010). Puerto Rico also ranks high in the analyses, which can be explained in part by the fact that it is a US territory (Ibid.). These data consistently show SIDS' relative financial insignificance in the global economy and build a case that the primary importance of the SIDS' economies is tourism.

In relation to the tourism argument, 83% of the SIDS can be considered to depend on tourism when evaluating the CIA's data for those that depend on

tourism for part of their economy and those with potential tourism economies. As discussed before, tourism is an industry threatened by the effects of climate change. These data make it plausible to report that the majority of the SIDS depend on tourism for some part of their economies, and may face serious economic consequences due to climate change. Regionally, the Pacific region will again be hit the hardest in regards to tourism because only two of the 19 SIDS in the Pacific region do not depend on tourism, but 17 or 89% of them do. The Caribbean region's tourism industries will also be hit hard from the effects of climate change because 19 of the 23 economies depend on tourism. The developed nations do have an interest in the SIDS because of the tourism they provide. Nations such as the Maldives, Seychelles, French Polynesia and others offer some of the most luxurious vacation resorts and destinations in the world. These spots are treasured for their resorts and are not duplicated elsewhere. Although vacations and resorts are not necessary for survival, many people from developed nations travel to these SIDS and would not want to see them perish.

The human rights argument has unfortunately not gained momentum enough to save the SIDS. Although it is a relevant argument, it has been addressed in the realm of climate change and has not accelerated action thus far. The arguments of biological and cultural diversity also have not sparked action. However, the example of rainforest conservation shows that the world has previously taken action in order to save a specific portion of land area, in relation to biological diversity, or cultures within the rainforests. The rainforest has also been framed as an important part of mitigating the effects of climate change. This

example of the rainforest is a way to frame the issue of climate change and the SIDS and has potential.

Although some of the local SIDS' governments have been outspoken, voicing what they need to adapt, they have been unsuccessful in achieving mitigation climate change policy or adaptation aid from the international community. This can be partly attributed to the fact that nations, such as the SIDS, lacking support from trustworthy organizations can seem as extremists and notorious for blowing the facts out of proportion in order to gain attention and funding (Barnett and Campbell 2010). This is why international cooperation with the SIDS and for the SIDS is important in order to forward effective climate change policy.

The SIDS have been faced with environmental issues from the beginning of their existence, and their resilient characteristics have saved them thus far. This resiliency argument is important and must be used in terms of shaping and forming climate change policy not only for the SIDS, but also for the rest of the world. Because the rest of the world will be affected by climate change, the SIDS as resilient nations can be used as models.

## **Chapter 9 : Research Limitations**

Gathering consistent and complete financial and economic data for this paper was difficult. For example, the World Trade Organization compiles data only for its members. For those SIDS that are non-members, the WTO does not have data, making the data difficult to use in analyzing the SIDS relative to one another or against all of the world's countries. Likewise, other data collection agencies for financial and economic data have the same flaw. Furthermore, the CIA data was flawed in that it lacked specific data regarding some of the SIDS due to the difficulty in maintaining and gathering data from these countries given their developing status and geographically isolated location. Other organizations have data only on specific regions or groups of countries, such as CARICOM in the Caribbean region. This makes it possible to analyze the Caribbean nations against each other, but not against the entirety of the SIDS.

The CIA does not provide specific and detailed data about the tourism sectors for the SIDS. The CIA does not define how it determines whether or not an economy is supported by tourism, or how much tourism within the economy it requires for the CIA to judge if it “depends on” tourism, or “depends heavily” on tourism (CIA 2010). The World Travel and Tourism Council does collect data on tourism for some countries, but ignores some of the SIDS, especially those in the Pacific region (WTTC 2007). Tourism is one of the primary sources of income for the SIDS and the lack of information on the tourism sector could make the advancement of adaptation measures to climate change difficult.

Data are also a problem for the fisheries sector, another primary source of income for some of the SIDS. Fishery data are not available for all 52 SIDS. The data are available for some SIDS or regions including Oceania, but not consistently (FAO 2008). The FAO provides country profiles on its website but it contains limited information, including the amount of fish production reported by tons. These profiles are mostly for the larger SIDS, including Fiji (FAO 2011b).

These data inconsistencies could be remedied if one organization maintained and collected data on all 52 of the SIDS. This will be further discussed in the Recommendations section below.

## **Chapter 10 : Recommendations**

The first and most obvious recommendation to assist the SIDS with the effects of climate change is to reduce the amount of GHGs, primarily CO<sub>2</sub>, in the atmosphere to thus halt the effects of climate change. Specifically for the SIDS, however, more than this reduction in GHGs needs to happen. Even if a comprehensive climate change policy were passed today, it would not be able to prevent some inevitable temperature and sea-level rise. This is because CO<sub>2</sub> can remain in the atmosphere for hundreds of years and the amount of time it takes to be withdrawn from the atmosphere by carbon sinks is too long to save the SIDS (Schneider et al. 2010). The SIDS will need less than a 2°C temperature increase, which is the proposed safe level by many nations. The SIDS will undoubtedly need to adapt to changes and the developed nations are the catalysts that can move this adaptation process along. This does not mean that policy should only be focused on adaptation measures. The policy should be focused on reducing CO<sub>2</sub> to the level before industrial times, and on helping the SIDS to adjust to the effects already occurring those yet to come.

Most importantly, climate change will also affect developed nations, including flooding coastlines and the increasing intensity of hurricanes and other forms of extreme weather. Mitigating the effects of climate change and reducing emissions is a solution that is necessary for the well-being of all nations. Other nations, developed or developing, might be able to adequately adapt to this rise in temperature because they are not characterized by low elevation and small land mass. The SIDS will not be able to similarly adapt.



In this case, the SIDS will need funding and aid from the developed nations. One type of funding or aid is the transfer of knowledge and technology to developing nations. Technology transfer is promoted in the Mauritius document, which touts it as one of the best ways to help SIDS adapt to climate change effects (United Nations 2005). Transforming the technology within the SIDS provides and assists the nations with the knowledge to help themselves so to not always have to depend on developed nations.

Negotiations or decisions should not only be made by developed nations. National and local governments of the SIDS should be included in any decisions and negotiations because they will often know what is best for their nation. This also includes the involvement of NGOs that are invested in climate change and its effects on the SIDS. Because the SIDS often have small land area, susceptible coastlines, and a lack of natural resources, their societies have learned to adapt since their establishment on the islands. The SIDS have historically been faced with severe storms, and lack of freshwater, but they have managed to survive by using the available resources, including the ocean and fisheries. These creative, indigenous survival techniques have allowed them to subsist, and would be useful in shaping climate change adaptation policies for each nation.

Within the SIDS, the environmental issues need to be addressed from the bottom up. If the SIDS are resilient and prepared for basic environmental issues including pollution sites, and lack of potable water sources, then they will be more prepared to address the climate change effects. Many of the SIDS consist of coral atoll islands, which are low in elevation and lack fresh water sources. The

water sources that they have are often inundated by seawater during intense storms. By addressing this issue and providing a better storage system for water before the effects of climate change worsen, the SIDS could better adapt.

Similarly, the climate change world needs to discontinue treating the SIDS like one nation even though they do have similar characteristics. The SIDS are all different, equipped with different physical, economic, and social characteristics.

As Howorth et al. state,

For SIDS to address these challenges and thereby manage their environmental vulnerability, they will first need to fully identify its components and establish suitable measures of those components. The environmental vulnerabilities of SIDS vary from country to country. Clearly, the approaches and instruments for dealing with these different vulnerabilities will vary, and will include a combination of measurement and assessment, management within the country, building internal resilience, using multilateral environmental agreements (MEAs), and international assistance (2002, 5).

The nations should still be referred to as the SIDS, but when it comes down to climate change adaptation, it is important to remember that the same remedy will not work for them all.

Furthermore, the SIDS are not formally designated within the United Nations in terms of funding. Although they are referred to as the SIDS, this is an informal label. They are considered developing, and some are Least Developed Countries. In order to address the vulnerabilities of the SIDS, they need to be a designated as a United Nations' SIDS group. This will help collect the same data on all SIDS and not just piecemeal data for regions that often leave out the most vulnerable countries such as Tuvalu. Organizing the 52 SIDS into this official group would help to alleviate this lack of consistent data, and assist in distributing

funding.

There needs to be a plan to address governmental corruption, as this exists in many nations, including the SIDS. For example, Comoros has been known to have very unstable governments and has experienced more than 20 coups since its independence from France in 1975. It also scores very low with a 2.2 out of a possible 10, on Transparency's International 2010 Corruption Perception Index (Transparency International 2010). Providing funding to a politically corrupt government would not be an effective way to ensure its use for climate change adaptation measures (BBC 2010). An organization within the United Nations should maintain implementation assistance and oversight. For example, in the NAPA projects, the government is still left to create the proposal. Instead of only relying on the governments, the United Nations should have a program that provides assistance throughout the entire process.

This issue of climate change and the SIDS, since its discovery, has been framed in a way that individuals in developed nations apparently cannot relate to. For example, with the United States, anticipatory action happens because the nation feels at threat to national security, as in the recent war in Afghanistan, or resources are at stake. Even U.S. President Obama admits that when the United States intervenes it does so out of strategic interest. In the case of climate change and the SIDS, the United States is not at a threat of loss for natural resources should the SIDS cease to exist. There is no immediate national security threat, (although there will eventually be should sea-level rise enough to inundate the coasts of the United States), and although not an ethical solution, if the SIDS

should be subject to rising sea levels, the people can always relocate to other parts of the islands, or to other less affected nations. Setting aside the serious ethical concerns that are inherent in the problem, developed nations potentially lose very little from the demise of the SIDS.

However, framed in a way that the SIDS are Gardens of Eden that people treasure to escape the lifestyles of the overworked, materialistic and exhausting developed nations, without these nations, people will be forced to vacation elsewhere and maybe not in such tropical, luxurious destinations. In addition to the loss of these islands it is important to recognize that these are not the only vacation destinations that will be affected by climate change. Other popular destinations will also be negatively affected, so there may not be comparable alternatives.

Lastly, the SIDS are developing nations and have some similar characteristics of developing nations including poverty, pollution and lack of potable water sources. Tackling these issues is key to preparedness and adaptation to the effects of climate change. Sustainable development is important because the mitigation of emissions from fossil fuels might make some of the most prominent economies such as tourism dwindle from lack of air travel due to increased fuel prices. For some SIDS, eco-tourism and incorporating renewable energy sources is a way to address the rising costs of fossil fuels which already cost so much for some, especially those in the Pacific Region because of their isolated location. Sustainable initiatives should also address food shortages in the SIDS should the fishing industry be negatively affected by climate change and if

agricultural crops cannot survive. The Mauritius document supports all of this and states in their motto,

Supporting the small island developing States Universities Consortium, small island developing States regional organizations and NGO networks in order to improve the use of small island developing States intellectual resources and to provide the cadre of expertise that is needed in small island developing States at the national and regional levels, in particular in the areas of climate change, energy, integrated island management, trade and sustainable development, sustainable tourism development, international law, intellectual property rights, and negotiating skills (United Nations 2005, 24).

Although this sustainable development initiative in these SIDS will not stop the onset of climate change, it will assist them in dealing with the effects.

## Chapter 11 : Conclusion

“From where I stand, I do not see the lost people of the South Seas, the defeated and the despairing, shrunken shadows of those who went before. What I observe are the proud descendents of some of the most remarkable explorers and settlers who ever lived. We carry the cultural and historical inheritance of ocean navigators of peerless skill and their courageous kin who crossed vast distances before the tribes of Europe had ventured forth from their small part of the earth. Our forebears populated islands scattered over the world’s greatest stretch of water, covering a fifth of the planet’s surface. It was one of the most amazing migrations in history, a triumphant testimony to human endurance, fortitude and achievement (Barnett and Campbell 2010, 48).” --Ratu Sir Kamisese Mara, Prime Minister of Fiji, July 1999

The people of the SIDS have been resilient since their time of settlement, often confronting the lack of natural resources, isolation, destructive storms, environmental threats, and poverty. Now combined with these issues, they face a severe threat from the effects of climate change. The SIDS are not weak nor do they lack the fervor needed to tackle the issue between life and death, but as developing nations, they lack the funding needed for adaptation to climate change. It is the duty of the developed nations to assist the SIDS because they are important and they have failed to so yet.

The literature and analyses conclude that from a financial perspective the SIDS are unimportant to the rest of the developed world in relation to mitigating or adapting the effects of climate change. This should not be the perspective that decides whether or not to save the SIDS. Many of the SIDS are “happy nations” regardless of their low GDPs, and small contribution to the global trade economy. Other factors contribute to the success of the SIDS including tourism, biological and cultural diversity, and the ethical right to live a happy life. The SIDS are

culturally and socially unique and many have managed to uphold their traditional ways of life. Many organizations recognize the importance of the SIDS but do not have the financial ability to assist them substantially.

The fact that developed countries know that the issue of the effects of climate change on the SIDS exists and do nothing raises the human rights issue. This has the potential to be one of the biggest failures of non-interventionism in the history of man-kind should the developed nations fail in saving the societies, cultures and biological diversity of the SIDS.

## Appendix A : List of the SIDS with Physical Description and Location

SIDS	Physical Description	Location
American Samoa	Island	Pacific
Anguilla	Island	Caribbean
Antigua and Barbuda	Islands	Caribbean
Aruba	Island	Caribbean
Bahamas	Islands	Caribbean
Bahrain	Island	Afr., IO, Med., SCS
Barbados	Island	Caribbean
Belize	Coastal Country	Caribbean
British Virgin Islands	Islands	Caribbean
Cape Verde	Islands	Afr., IO, Med., SCS
Commonwealth of Northern Marianas	Islands	Pacific
Comoros	Islands	Afr., IO, Med., SCS
Cook Islands	Islands	Pacific
Cuba	Island	Caribbean
Dominica	Island	Caribbean
Dominican Republic	Island	Caribbean
Federated States of Micronesia	Islands	Pacific
Fiji	Islands	Pacific
French Polynesia	Islands	Pacific
Grenada	Island	Caribbean
Guam	Island	Pacific
Guinea-Bissau	Coastal Country	Afr., IO, Med., SCS
Guyana	Coastal Country	Caribbean
Haiti	Island	Caribbean
Jamaica	Island	Caribbean
Kiribati	Islands	Pacific
Maldives	Islands	Afr., IO, Med., SCS
Marshall Islands		Pacific
Mauritius	Islands	Afr., IO, Med., SCS
Montserrat	Island	Caribbean
Nauru	Island	Pacific
Netherlands Antilles	Islands	Caribbean
New Caledonia	Islands	Pacific
Niue	Island	Pacific
Palau	Islands	Pacific
Papua New Guinea	Islands	Pacific



Puerto Rico	Island	Caribbean
Samoa	Islands	Pacific
Sao Tome and Principe	Islands	Afr., IO, Med., SCS
Seychelles	Islands	Afr., IO, Med., SCS
Singapore	Islands	Afr., IO, Med., SCS
Solomon Islands	Islands	Pacific
St. Kitts and Nevis	Islands	Caribbean
St. Lucia	Island	Caribbean
St. Vincent and the Grenadines	Islands	Caribbean
Suriname	Coastal Country	Caribbean
Timor-Leste	Islands	Afr., IO, Med., SCS
Tonga	Islands	Pacific
Trinidad and Tobago	Islands	Caribbean
Tuvalu	Islands	Pacific
U.S. Virgin Islands	Islands	Caribbean
Vanuatu	Islands	Pacific

\* Afr., IO, Med., SCS: abbreviation for African, Indian Ocean, Mediterranean and South China Sea Region

\* Source: CIA World Factbook 2010

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