The Significance of Stories
What Climate Justice Narratives Reveal About the UNFCCC

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Abstract

In the current world order, core countries maintain a dominance over periphery countries. When these actors have to work collaboratively to address climate change, the solutions, ideally, would follow principles of climate justice, the notion that countries most vulnerable to climate change are the least responsible for it. Using narrative as a tool to understand how climate justice is practiced in the UNFCCC, this study focuses in on the case study of Senegal to determine whether narratives of climate justice are reflected in the official documents of the UNFCCC. Narrative as a tool provides a different intellectual and emotional framework to describe different perspectives on reality. This study concludes that climate justice narratives of Senegal are reflected in the UNFCCC as long as they are already institutionalized within the UNFCCC. While the UNFCCC recognizes global inequality, its climate action only maintains the status quo.

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1. Background

In June 1992, the Intergovernmental Panel on Climate Change (IPCC) proclaimed in their first Working Group I Policymakers Summary that emissions resulting from human activity were increasing the Earth's greenhouse effect leading to the warming of Earth's surface ("Climate Change: The IPCC 1990 and 1992 Assessments" 1992). Since then, the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) has tried to use global treaties to solve the universal problem of climate change (*UNFCCC* 1992).

The treaty, established with the objective to stabilize greenhouse gas concentrations, aims to create cohesive action under this mutual interest and holds states accountable for their commitments ("Introduction to the Convention" n.d.). Climate has no discretion for political boundaries because any release of greenhouse gasses from any source has global ramifications, most notably increased global temperature (Rabe, 2004). Addressing the problem of anthropogenic emissions requires widespread engagement. The UNFCCC attempts to avoid a potential deterioration of international cooperation because climate change issues "could become both militarized and dominated by security risks," (Giddens 2011, 286).

This difficult task of creating and maintaining collective effort becomes even more difficult when developing countries and key industrialized countries fail to converge on a single equitable middle ground (Parks and Roberts, 2010). As perpetuated divergent view-points that originated from stark global inequality continue to disrupt climate negotiations, the UNFCCC becomes a political battleground.

Economic and political inequality are obstacles in multilateral cooperation, but both are firmly rooted in the current world order. Immanuel Wallerstein's world systems analysis claims that there is a hierarchy between core states and periphery states, which forms the framework of the world-economy (Straussfogel 1997). The chief difference between these two identifications are their roles in this economy. Core processes are characterized by monopolizing commodity chains and making the chains more capital-intensive, whereas peripheral processes require less skilled and more extensive labor. Core states have an advantage in the world-economy because the relations between core states and periphery states, then, "are based on unequal exchange and reinforced through imperialism, with the goal of exploitation of the periphery by the core in order to facilitate its processes of capital accumulation" (Straussfogel 1997, 120).

World systems analysis, although used by most of academia today to understand the world order, Wallerstein's original intent was for it to be used as a mode of understanding, rather than a description of reality. Wallerstein himself has critiqued his work, stating that it was too easily generalized, focused too much on the economy and not enough on culture, and did not include the concept of social class (Wallerstein, 2004). Despite these critiques, it is still arguable that world systems analysis is relevant today because of its broad-ranging and definitive statement. While there are definitely areas of the analysis that could be thicken to explain post-modern trends, there is no reason that Wallerstein's analysis and post-modern modes of thought are not compatible (el-Ojeili 2015).

Usually world systems analysis, it is understood that periphery nations, usually subjected to imperialism and colonialism, were set up with poorly developed mechanisms to participate in international competition (Lairson and Skidmore 2003). Whether these poorly developed mechanisms came to be because of capitalism, power disadvantages, or their own weaknesses as a society is still in question, but regardless these nations are at an extreme disadvantage in the current globalized and interdependent world order. This disadvantage is especially highlighted as relations has become increasingly focused on generating wealth and technology innovation. In this status quo, periphery nations are trying to succeed in "a global economy whose ground rules have been set historically by the industrialized [core countries]" (Hurrell and Sengupta 2012, 483). This inequality translates directly to climate change negotiations as these core and periphery identities have relative perspectives on approaches to combatting climate change issues.

Trying to find compromise is one reason that climate change negotiations are categorized by nations dragging their feet to commit to certain goals (Giddens 2011). Despite looming catastrophe predicted by the Intergovernmental Panel on Climate Change (IPCC), the scientific underpinning of the UNFCCC, in a business-as-usual-scenario, nations generally do not take action until the benefits of taking action outweigh the costs. More so than less, this situation becomes relevant after feeling some of the impacts of climate change.

Unfortunately, some places are experiencing the effects of climate change more harshly than others. While the discharge of greenhouse gasses from any place contributes to anthropogenic climate change, the effects and impacts are not proportionally distributed. Some regions will have greater changes to their climates, and some of the same regions do not have the capital necessary to adapt. Many of the latter fall into the Least Developed Countries (LDCs) categorization by the United Nations. The UN created LDCs in its resolution XXVI, and today LDCs comprise of 49 of the world's poorest countries (General Assembly 1971). These countries have contributed the least to greenhouse gases emissions, and they are the most vulnerable to the effects of climate change (Robinson 2015). This idea is fundamental to the concept of climate justice.

According to the Declaration of Climate Justice by the Mary Robinson Foundation, climate change both highlights and exacerbates global inequality leading to the need to support the poorest countries. Climate justice was introduced "as a coherent political approach in the wake of the failure of a more collaborative strategy between major environmental NGOs and the global capitalist managerial class," (Bond 2011, 1). As it became clear that climate change was not universal, climate justice began serving communities affected by climate change (Venturini et al. 2014).

Climate change could potentially be an opportunity to remedy historical wrongs, instead of a threat to all of humanity. Climate change will push humans to reevaluate how they understand nature and the economy (Klein 2014). In thinking of solutions to climate change, it is important to incorporate social, economic, or political development simply because there is an opportunity to change humans' mindsets. As the framework for international cooperation in combatting climate change, *are elements of climate justice effectively reflected in the UNFCCC?*

1.1 Using Narrative as a Tool

Least Developed Countries are currently at the front lines of climate change. Africa is home to 33 of the 49 LDCs, making it the continent most vulnerable to climate change (Niang et al. 2014). Unfortunately, it is difficult to fully understand climate projections in Africa because monitoring networks are insufficient and characterized by sparse coverage (Ibid.). Because of this, many adaption strategies in Africa depend on resilience in the face of uncertainty and that no single adaption strategy exists to meet the needs of all communities and contexts (Ibid.). Without scientific data to describe and predict impacts, the communities both national and international have to look for different indicators of reality.

When scientific and empirical evidence do not give the guidance and knowledge that have dominated climate change solution discussions, different modes of inquiry offer to fill in the gaps (Moezzi, Janda, and Rotmann 2017). There is an increasing need to integrate people and understand dynamic systems of place. Stories "belong as much to rhetoric and human discourse as to ecology and nature," (Cronon 1992, 1367). Narratives are a way to organize reality, and chronicles the consequences of a completed action (Ibid.). In a way, the IPCC is a series of narratives that just lack compelling drama and a protagonist (Ibid.). One drastic disadvantage of narrative, however, is that it never encompasses every perspective of an event (Ibid.). Stories offer a different type of evidence, one that is focused and centered on human relationships to things, and this invites a new type of intellectual and emotional framework beyond the conclusions of quantitative and quantifiable date (Moezzi, Janda, and Rotmann 2017).

To combat climate change in a comprehensive way, climate justice narratives from LDCs may be as valuable as scientific data collected by the IPCC. Considering this, that most African LDCs are setting up defenses in the face of unprecedented climate change, it would be optimal for institutions to listen to the climate change narratives told by people experiencing climate change. This information could inform policy and further action steps toward addressing climate change impacts. Narratives may be important product and driver of shifting rationalities (Kakonen et al. 2014).

1.2 Research Statement

Climate change actions are trying to find solutions to a collective but disproportionate problem. By looking at climate change as an opportunity rather than a threat, the practice and enforcement of climate justice can navigate collaboration between multiple unequal actors to find solutions to climate change. Narrative is used as a way to determine how well climate justice is conducted by the UNFCCC in the case study of Senegal. After synthesizing three predetermined narratives of climate justice, a narrative and content analysis was conducted on the official documents of the UNFCCC in order to see if climate justice was being practiced. The findings will convey that while the UNFCCC acknowledges global inequality, a framework does not exist to remedy it. By not acknowledging how climate effects culture, people and livelihoods, the UNFCCC only perpetuates the current power structure in the world order.

Taking a critical look at the framework of the UNFCCC by investigating narrative in the UNFCCC official document and submissions from Senegal, this study describes not only how

narrative can inform reality and intentions, but also how the institution of the UNFCCC will not be able to practice climate justice adequately until an addition to their framework is added.

2. Situated Context

An approach to environmental research and successfully addressing environmental issues uses a situated context to examine a range of processes. As the world is becoming more and more intimate, it becomes harder to define place because of differentiated situatedness. Looking at place as a gathering or intersection of processes and actors rather than land within political boundaries counteracts these geometries and leans into them (Massey 1990).

This research uses Senegal and its relationship with the UNFCCC as its situated context. Senegal's climate is complicated and volatile, and it has already felt the impact of climate change on its small nation. On top of this Senegal has a significant relationship with the international community, not including its participation in the UNFCCC.

2.1 Senegal Climatology

As mentioned before, 33 of the 54 LDCs are currently in Africa. Most economies of sub-Saharan African countries rely on climate-sensitive sectors like agriculture, foresty, and fishery, and these already weak economies will be severely undermined by climate change (Guillaumont and Simonet 2011). More specifically, the IPCC flags both the Sahel and West Africa as hot spots of climate change with unprecedented changes projected to occur around 2030-2040 in these regions (Niang et al. 2014). One country where these two regions overlap, and also holds a spot the list of top ten seemingly most vulnerable African countries according to the Physical Vulnerability to Climate Change Index, is Senegal.

Figure 1 The location of Senegal highlighted in red on a map of Africa

Senegal is a country located at the western most point of Africa with the area of 196,722 km^2 and lies between 15°N and 20°N (Dyoulgerov, Bucher, and Zermoglio 2011). The Gambia occupies the Gambia River, and divides Senegal's southern part of the country, the Casamance, from the rest of the country. The altitude is never greater than 130m, with the small exception of 581m in the southeast region of the country (Fall, Niyogi, and Semazzi 2006). Because of its flatness, with the exception of foothills in the southeast, winds blow freely over the terrain, largely characterizing Senegal's seasonal weather patterns.

The northern-most part of Senegal is part of the Sahel, an ecological transition zone between the Sahara Desert and the savanna (Dyoulgerov, Bucher, and Zermoglio 2011). Its climate is dry and arid. The rest of the country is savanna, excluding mangroves residing the southwest. This gradient from the north to the south of the country is very significant when discussing Senegalese climate.

Senegal has two seasons vary along this latitudinal gradient and are driven by the Inter-Tropical Convergence Zone (ITCZ). Figure 2 expresses the characteristics of these two seasons

Rainy Season	Dry Season
• The rainy season lasts from May-October, and is slightly shorter in the Sahel region. • Lowlands experience seasonal flooding. • The amount of precipitation occurring during this time directly correlates with periodic droughts ("The World Factbook 2017).	• This season occurs when the ITCZ migrates to the south, lasting around 6 months from November-April in southern Senegal, and is slightly longer in the Sahel region. • This season is characterized by the NW marine trade winds and the harmattan winds (Fall, Niyogi, and Semazzi 2006).

Figure 2: A table describing the two seasons of Senegal, a hot and humid rainy season and a hot dry season.

Rainfall in Senegal is variable in both inter-annual and inter-decadal timescales. The northern arid zone usually receives less than 300mm of rain every year, while the savanna forests in the southwest get upwards of 1200mm a year (Dyoulgerov, Bucher, and Zermoglio 2011). The average temperature of Senegal is 28°Celsius for the period 1901-2015, according to data collected from the World Bank. Figure 3 demonstrates the patterns of rainfall and temperature in Senegal.
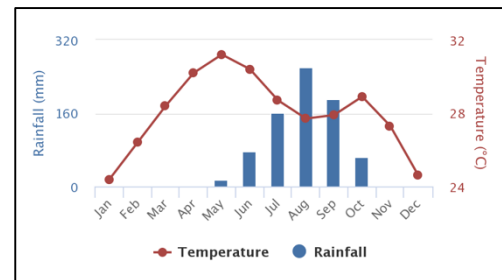

Figure 3 This graph expresses average monthly temperature and rainfall

2.2 Climate Change in Senegal

Over most parts of Africa, surface temperatures have increased 0.5 degrees Celsius during the last 50-100 years (Niang et al., 2014). More specifically, the temperature in Senegal has increased by 0.9°Celsius since 1960, as seen in Figure 4 (Dyoulgerov, Bucher, and Zermoglio 2011). These temperature increases have decreased the number of cold days and nights and increased the warm days and nights in West Africa and the Sahel (Niang et al., 2014).
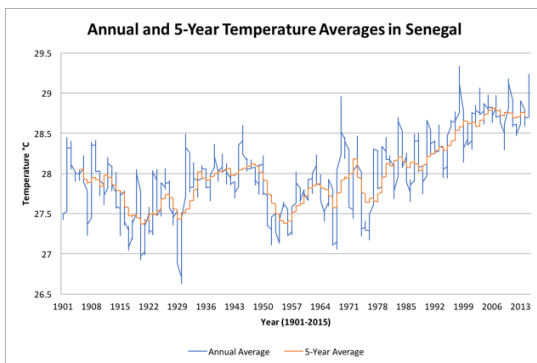
Figure 4 A graph displaying temperature in Senegal from 1901-2015, created using data form the World Bank. Temperature in Senegal shows a slight increase over the past 30 years.

In terms of rainfall, Senegal has experienced a decrease in the wet season, with rainfall patterns moving southward by about 100 km (Niang et al., 2014). Figure 5 observes that due to its high variability, finding long-term and general rainfall trends is difficult. It is notable that the Sahel had experienced an overall reduction of rainfall over the course of the 20th century, with a recovery from the 1980s onwards (Niang et al., 2014).

Climate projections in Senegal predict an increase in average temperature by 1.1-3.1°C by the 2060s, with interior rates rising faster than areas closer to the coast (Dyoulgerov, Bucher, and Zermoglio 2011). It is also predicted that the rainy season will be wetter and start later by the end of the 21st century (Niang et al. 2014). Also by the end of the century, sea level could rise by one meter, putting 110,000 people at the risk of coastal flooding.

Figure 5 The average annual and 5-year average rainfall in Senegal from 1901-2015 created by data collected from the World Bank.

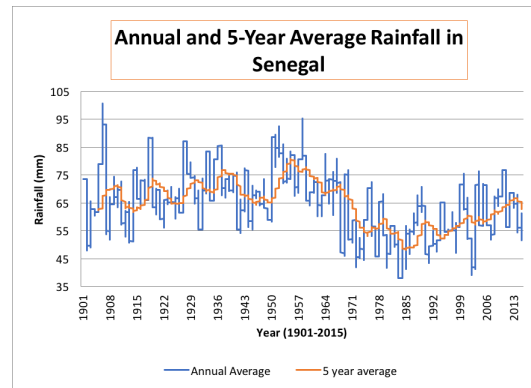Despite being a little smaller than the state of North Dakota, the country is experiencing complex consequences to climate change. Like many sub-Saharan African countries, Senegal's economy relies on agriculture, which is entirely rainfed. Although it contributes only 16.8% of the gross domestic product (GDP), agriculture remains the main source of income for the majority of Senegalese (Dyoulgerov, Bucher, and Zermoglio 2011). The agricultural sector employs 75% of the workforce, and family farms represent 95% of agricultural activity.

Increased and heavier rainfalls is associated with more frequent and longer cholera outbreaks. Heavier rains, insufficient drainage systems and occupations of lowlands leads to floods (Dyoulgerov, Bucher, and Zermoglio 2011). Coastal regions will experience increased flooding, coastal erosion, salinization of social, degradations of mangroves and changes in fishing regimes (Ibid.). Senegalese fisheries are some of the most vulnerable fisheries in Africa because of its close link to climate variability (Niang et al. 2014). Higher temperatures will aggravate Senegal's water deficit and lead to higher rates of erosion (Dyoulgerov, Bucher, and Zermoglio 2011). Irregular rain and irregular distribution of rain results in droughts that are exacerbated by climate change and urbanization.

Potential solutions to these climate change impacts include diversifying agricultural crops, improving water storage, establishing insurance mechanisms and social protections as a climate change precaution, improving management of rain water and river flows, developing and enforcing a restoration plan for housing projects, implementing protective measure for coastal areas, and diversifying fishing communities and exploring alternative species for the market (Dyoulgerov, Bucher, and Zermoglio 2011).

2.3 Senegalese History and Politics

Beyond a complicated relationship with climate, the country of Senegal has a complicated past along with many African countries. Senegal was France's oldest colony. Before it was colonized, Senegal was part of the Mali Empire, and the territory was mostly ruled by Wolof kingdoms, which had very rigid and interdependent social strata (Leymarie-Ortiz 1979). When France colonized Senegal, this social structure collapsed as France imposed its colonial government. After World War II, France kept a majority of its colonies in order to remain a world power, despite great pressure from the international community to decolonize (Chafer 2003). Senegal's transition from colonization to post-colonization was hailed as an example of "successful"

decolonization as it was a nonviolent transition of power from France to francophile African leaders, however the country has only transitioned to full-independence with the symbolic death of Léopold Sédar Senghor, the first president of independent Senegal.

Senghor's death sparked a national debate on the choices Senegal made after independence and its relationship with France (Chafer 2003). Before then, it maintained a very special relationship to France, who provided the newly independent country with political and monetary stability. Senegal has since sought to diversify their foreign relations away from a Francophone focus. Throughout all of this, Senegal is the only African country that has not fallen into civil war or experienced a coup, making it the backbone of democracy in Western Africa.

2.4 Relationship between Senegal and the UNFCCC

The UNFCCC is an international environmental treaty, adopted on May 9, 1992 (*UNFCCC* 1992, 20). It gets its legitimacy from almost universal membership, with 197 parties signing on to the treaty as of December 2015 (Schipper 2006). Parties meet annually to assess how to deal with climate change in conventions of the parties, abbreviated as "COP" followed by the number of the convention.

Parties are divided into five different categories, although it is possible for one party to be in multiple categories ("Parties & Observers" n.d.). Annex I classifies 43 industrialized and developed nations and "Economies in Transition" (i.e. the former Soviet economies of Russia and Eastern Europe). Annex II indicates 24 nations in Annex I that are required to provide financial and technical support to the EITs and developing countries to help them reduce their greenhouse gas emissions. Annex B parties are Annex I parties with first or second round Kyoto Protocol emissions targets. LDCs are 47 parties that are given special status under the treaty because of limited capacity to adapt to climate change. Finally, Non-Annex I parties are parties that are low-income developing countries, and these are all the parties not listed in Annex I.

Senegal entered into the Convention on January 15, 1995, although it signed onto the Convention in 1992 ("Senegal" n.d.). In the convention, Senegal is categorized as Non-Annex I Party and a LDC.

One of the implementations of the Convention to the Conference of the Parties is the submission of national reports (*UNFCCC* 1992, 4:1). The rules are different depending if a party is categorized in Annex I or Non-Annex I, which is in accordance with the principle "common but differentiated responsibilities" outlined in the Convention (*UNFCCC* 1992, 3:1). These reports provide accurate and consistent data that is essential for the international community to take appropriate action.

Annex I Parties must provide information and details of activities the party has undertaken to implement the Convention (*UNFCCC* 1992, 4:2(b)). Annex B Parties also need to demonstrate how they are meeting the goal made in the Kyoto Protocol commitments. These national communications have deadlines and happen more frequently (Lesnikowski et al. 2015). Non-Annex I Parties also provide emission inventories and describe measures they are taking to mitigate climate change. These Parties submit their first National Communications three years

upon entering the Convention and then every four years afterwards. LDCs submitted National Adaptation Programmes of Action (NAPAs) to identify and prioritize adaptation strategies for their immediate needs (Kato 2009).

2.5 Research Question

This study poses the question: *To what extent are climate justice narratives of Senegal being represented in the UNFCCC?*

One indication that the UNFCCC is starting to lean towards climate justice is a reflection of climate justice themes within their documents. Official documents of the UNFCCC are all available on its website, and collecting them for the following methodologies is possible. A narrative analysis will resolve the composition and description of the climate justice narratives of Senegal. A content analysis on three different levels (Senegal, LDC, international) will determine whether or not the climate justice narratives at the Senegal level make it to the international level. If these narratives are reflected, then this means that the UNFCCC is incorporating and acknowledging the themes that matter to Senegal and/or LDCs.

3. Methods

The following methodologies will determine whether or not Senegalese narrative is reflected in the UNFCCC. The methodologies will also give insight in the general narrative of Senegal. This will be achieved through a content analysis of UNFCCC documents and a narrative analysis of Senegal-authored documents. Reflection and general narrative are found in the content and narrative analysis through predetermined narratives of climate justice. These narratives are used to code and generalize themes, as a guide to appropriately process results. This offers a way to evaluate common universal climate justice narratives within official documents on the UNFCCC.

3.1 Three Narratives of Climate Justice

Content analysis methodologies have highly general application in contrast to the various approaches of narrative analysis. Both forms of analysis unearth and investigate thematic elements of texts. For both the content and narrative analysis, I will investigate whether predetermined climate justice narratives exist within a document or group of documents.

There have been many versions of the principles of climate justice published, from global platforms like the Mary Robinson Foundation to more local organizations like Coalition of Communities of Color in Portland, Oregon. Narratives can be distilled and plucked from a synthesis of multiple principles of climate justice, in order to understand what universal climate justice narratives already exist.

Narratives of Power
Core countries are responsible for human-induced climate change and the most vulnerable populations will suffer the greatest impacts.

Even the Convention itself speaks to common but differentiated responsibilities and understanding respective capabilities (*UNFCCC* 1992, 3:1). This narrative also establishes that historic responsibilities falls on the shoulders of core countries, and the impacts are felt disproportionally by marginalized communities ("Bali Principles of Climate Justice" 2002). Responsibility, a central theme of this narrative, is determined as capacity and "agency in having caused particular acts," (Cameron, Shine, and Bevins 2013). In contrast to responsibility of developed countries, LDCs are identified through a lack of capacity to address climate change, and part of the Convention was a commitment to support developing countries combat climate change (*UNFCCC* 1992, 3:2 and 4:3-5). This support comes mostly through funding adaptation and mitigation measurements in developing countries. This narrative suggests that climate change highlights are interdependence, and core countries need to support and help the poorest countries so that they become part of the combined effort

Narratives of Action and Policy
Because we have already committed some level of climate change, we can respond through mitigation and/or adaptation.

It is known that climate change is currently a reality worldwide, as a result of anthropogenic combustion of fossil fuels leading to higher greenhouse gas concentrations in the atmosphere. This increase in greenhouse gas concentrations has profound and unprecedented effects on temperature and rainfall (*UNFCCC* 1992). As stated before, climate change is being felt disproportionately by historically marginalized groups and communities, and immediate action needs to be taken ("Redefine Principles of Climate Justice" 2016). As many of these communities have been left out of policy design and implementation, it is important that they are involved and engaged in climate change solutions ("Principles for Climate Justice" 2014). On top of aiming to reduce greenhouse gases and other pollutants, climate justice calls to look for solutions, like adaptation and mitigation strategies ("Bali Principles of Climate Justice" 2002). Decision-making should be transparent and parties should be accountable for decisions and commitments they make (Cameron, Shine, and Bevins 2013). State agencies are responsible for policy implementation and impact monitoring, as well as making data, information, and updates publicly available ("Principles for Climate Justice" 2014)

Narratives of Scale
Local and indigenous communities most affected by climate change have inherent agency over how they respond climate change.

The model of development is currently dependent on fossil fuels, and the challenge LDCs face is how to develop out of poverty while also taking action on climate change (Cameron, Shine, and Bevins 2013). Climate justice affirms that local communities have the right to speak for themselves and to play a leading role in addressing climate change ("Bali Principles of Climate Justice" 2002). To expand on this, local communities have the right to participate in every level of decision-making, have the right to say "No," and the right to manage their own resources (Ibid.). On the other hand, this narrative also emphases that partnerships to find solution within and across political boundaries ("Redefine Principles for Climate Justice" 2016). While this narrative spends a lot of time giving agency to local communities, it also asserts global action to

address the threat of climate change, although this action needs to be equitable, as all countries have a responsibility to protect other humans (Cameron, Shine, and Bevins 2013).

3.2 Content Analysis

In order to assess the extent in which Senegal's climate justice narratives are represented in the UNFCCC, a content analysis was conducted on three different corpus levels. A corpus is a collection of documents. To conduct this methodology, Voyant Tools will be employed. This online application helps users discover themes and characteristics of a corpus. Although Voyant Tools has a great number of different analysis tools on the website, this methodology will focus on the Cirrus tool.

Cirrus is a tool used to create word clouds of corpuses using the most frequently expressed words in a given corpus. This tool also creates a list of the most frequently used words in a corpus. The 50 most frequently used words from the corpus of Senegal-authored documents, the corpus of LDC Expert Group-authored documents, and the corpus of international agreements and treaties will be inputted into an Excel spreadsheet. It should be noted that most of the documents authored by Senegal were originally in French, and were translated through Google Translate into English. The collection of documents that make up these corpuses is listed in Appendix A.

Some words were immediately excluded from the corpus, and are listed in Appendix B. Words like "et" or "pp" that referenced page numbers or citations were excluded, along with words that references visuals in the text, like "table" and "figure." Depending on context, some obvious words were excluded, like "climate" and "change." Lastly, I chose to exclude "Senegal" from the Senegal corpus. The top 50 most commonly used words were transferred to an Excel spreadsheet, where they were categorized into four themes: narratives of power, narratives of action and policy, narratives of scale, and other (Misc.). The justification for the categorization of each word can be found in Appendix B.

Words were categorized using the Contexts tool on Voyant Tools, which displays every occurrence of a selected work within a bit of surrounding text for context. This tool allows for a specific and justified categorization of every word. The same word may have different categorizations in different corpuses.

Depending on the corpus, sometimes a word changed categories. For instance, while "development" in the corpuses of Senegal and International Treaties and Agreements was usually used in the context of improvement, growth, and planning, in the corpus of LDCs it is used in this context, but also used to denote stimulation and specific development scenarios for LDCs. Because of this, "development" is categorized under Narratives of Action and Policy in the corpuses of Senegal and International Treaties and Agreements and Misc. in the corpus of LDCs.

It follows logically that words associated with "development" like "developing" and "developed" would be similarly categorized. This assumption, however, is false. These words were usually used to reference developing and developed countries and were categorized under Narratives of Power. Based on the world systems theory, the reason there are developed and

developing countries (core and periphery countries) is because of historical exploitation and marginalization.

This methodology will determine how the most frequently used words in each corpus supports the three different narratives of climate justice. Coding narrative gives empirical evidence of themes, the results will convey whether the themes of the corpus of Senegal are reflected on the international level. The corpus of LDCs is included to offer a middle tier between national and international, to understand the reach of the themes of the corpus of Senegal.

Coding the Top 50 words
While categorizing words depending on their contexts, I used the Context and Correlations tools in Voyant Tools in order to fully understand how words were used within these corpuses. The Context tool shows a selected word with a bit of surrounding text. The Correlations tool, which only worked on the small corpus of Senegal, shows words with the same relative frequencies as a selected word. Words with frequencies that rise and fall together would have very high correlations. To read the justification for every word in each corpus, please see Appendix B. Figure 6 displays the top 50 words of every corpus along with their categorizations.

If a word was not categorized, sometimes this meant that it simply did not fit into any predetermined narrative. More likely, these words were too broad or complicated to categorize into a single narrative. If a word equally supported two different narratives, then it was left uncategorized. Sometimes a word, like "information," was too general, and because of that it was too vague to categorize.

3.3 Narrative Analysis

Referencing Appendix A, the corpus of Senegal only has five documents. Small sample sizes are unrepresentative of a population, and are therefore unreliable. In order to counteract this, a narrative analysis has been completed on excerpts of the five documents. Conducting narrative analysis on official documents of the UNFCCC will reveal themes of the potential climate justice narratives of Senegal.

Narrative analysis has been used by social scientists as an extension of literary theory and ethnographies (Mitchell and Egudo 2003). Several authors argue that post-modern thinking serves as the basis for the application and understanding of narrative, as it is trying to understand the "objective truth." While most narrative analysis is conducted to understand cultural change, there is no singular methodology that can be conducted. What is shared with all forms of narrative analysis is that language is a medium that reflects singular meanings (Mitchell and Egudo 2003).

Because some of the documents were >100 pages long, excerpts were analyzed instead of the entire piece. Usually this excerpt was an executive summary, but if a document did not have an executive summary then the preface, introduction, and conclusion were combined to create a makeshift executive summary. Before reading the documents, a scale was created for each category of narrative. This scale ranges from 1, little to no presence of narrative, to 5, great to

strong presence of narrative. This scale was determined based on how I interpreted the excerpts of the documents, and therefore are biased to my perspective. Each document will be given scores in each category. In order to offer some context, notes illustrating themes, understandings, and insights will accompany scores.

The determination of the scoring of the narratives within these documents were as follows: a score of 1 meant that there was little to no presence of the narrative in the excerpt, a score of 2 meant that there was some presence of the narrative in the excerpt, a score of 3 meant that there was a moderate, but not overpowering, narrative in the excerpt, a score of 4 meant that a narrative was present and an important part of the excerpt, and a score of 5 meant that a narrative was crucial in the excerpt.

4. Results

As the methodology of this study is a little complicated, the results are very detailed and somewhat gritty. I begin with the visual result of my content analysis that displays the distributions of the Top 50 and Top 10 words in the three corpuses that were coded. I then describe the distributions, identifying what narratives are prioritized at each level. The distributions are then compared against each other to understand any overlap or difference. The main take-aways from the results of the content analysis is that narratives of Action and Policy consistently make up at least 40% of every distribution. Beyond, there is no significant similarities. It should be noted that Senegal is the only corpus not to include narratives of Power and it also has the most miscellaneous words, hinting at a different narrative.

The narrative analysis begins with a detailed chart on the findings of the experiment, followed by the descriptions of the presence of the predetermined narratives. As it turns out, these are technical papers so narratives of action and policy remain consistent in all official documents. Narratives of power are usually referring to the responsibility of core countries to finance periphery countries, and narratives of scale are usually referring to the transfer of money and technology from core countries to periphery countries. Afterwards, a description of a different narrative is given, explaining how climate change will adversely affect the Senegalese economy and society. The section is wrapped up by a detailed answer to the research question.

4.1 Findings from Content Analysis

To read the justification of each word that was coded, please see Appendix B.
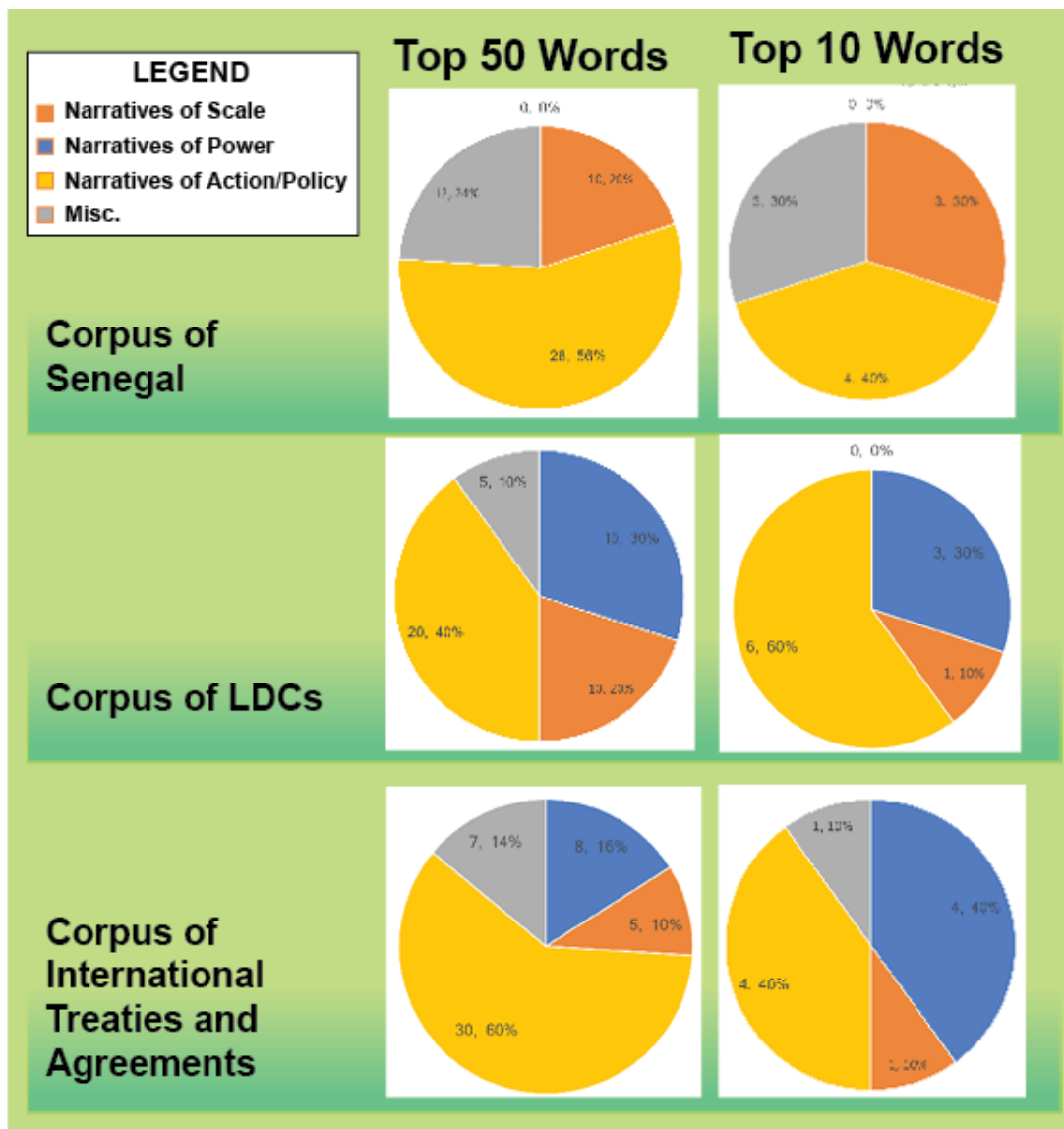
Figure 6: Compilation of pie charts visualizing the data in Fig. 6. In this result, narratives of Power are denoted in blue, narratives of Action and Policy are denoted in yellow, and narratives of Scale are denoted in orange. The totals of the Top 50 made pie charts generalizing the overall narrative reflected in the most frequently used words in each corpus. A second pie chart of the Top 10 words was created to see what narratives may have been prioritized, or if it also reflected the Top 50.

Insights from the Coding of Words

The corpuses of LDCs and International Treaties and Agreements very obviously used more language associated with Narratives of Power. The corpus of Senegal does not contain any words associated or supporting Narratives of Power. The most common narrative was that of Action and Policy, which is understandable considering that these are policy documents and formal updates. It is also interesting to look at the types of words that are making up the documents. The corpus of Senegal has many words that describe climate impacts or natural resources like "water," "forest," or more broadly, "area." These words are not repeated in the other corpuses. The corpus of LDCs has a concentration of words that illustrate the financial side of action and policy, like "funding" and "million." Interestingly, this corpus contains a lot of support or help language like "training," "needs," and "workshops." The corpus of International Treaties and Agreements contains many words illustrating institution, like "session" and "review."

Setting the corpuses side by side make it easier to compare them to each other. The corpus of Senegal and the corpus of International Treaties and Agreements both have multiple words highlighting GHG inventories and emissions. It is interesting to note that although both of them contain words illuminating a narrative of Scale, each tell a different part of the narrative. In the corpus of Senegal, narrative of Scale refers to Senegal organizing and deciding action for itself, localizing the impact and solutions. On the other hand, in the corpus of International Treaties and Agreements, the words categorized under narratives of Scale are "global" and "international" speaking to the universal pole of narratives of Scale. The corpus of the International Treaties and Agreements and the corpus of LDCs contain many words focusing on actual policy bodies and specific documents.

It is interesting to note that same words in different corpuses are not generally categorized in the same color. For instance, "provide" is in Narratives of Scale in the corpus of LDCs, whereas is it uncategorized in the corpus of International Treaties and Agreements. Or "national," which is categorized as Narratives of Scale in both the corpus of Senegal and the corpus of International Treaties and Agreements, but categorized as Narratives of Action/Policy in the corpus of LDCs.

4.1.1 Description of the Distributions

The pie charts in Fig. 6 offer a visual assessment of the distribution of narrative among the three corpuses. In the corpus of Senegal, there are no narratives of Power present and has the largest percentage of miscellaneous words (24%). Narratives of Action and Policy are heavily represented, composing 56% of the total narrative, whereas narratives of Scale only account for 20%. Looking at the top 10 words, the corpus uses more narratives of Scale and miscellaneous words, although narratives of Action and Policy still hold the majority at 40%. This describes that the corpus of Senegal is mostly focused on narratives of Scale and Action and Policy. Potentially, there is different narrative there that wasn't picked up by the predetermined narratives.

In the Top 50 words in the corpus of LDCs, narratives of Action and Policy made up 40%, narratives of Scale made up 20%, narratives of Power made up 30%, and miscellaneous words made up 10% of the corpus. While the Top 50 distribution exhibits an emphasis on narratives of Scale and Politics, the distribution of the Top 10 words of the LDCs' corpus showed an overwhelming presence of narratives of Action and Policy, making up 60%. Interestingly, narrative of Power maintains 30%, while only one of the ten words associated with narratives of Scale appears in the Top 10. This shows that narratives of Scale are not prioritized like narratives of Action and Policy. This is the only corpus when narratives of Action and Policy make up more of the distribution in the Top 10 pie chart than in the Top 50 pie chart.

In the Top 50 words in the corpus of International Treaties and Agreements, the corpus is made up of 60% by narratives of Action and Policy, 10% by narratives of Scale, 16% by narratives of Power, and 14% by miscellaneous words. It seems obvious that this corpus would put a lot of stress on narratives of Action and Policy. In the Top 10 words of the corpus, 40% of the words reflect narratives of Action and Policy, whereas 40% of the words reflect narratives of Policy. The other 20% reflect narratives of Scale and miscellaneous words. This means that the corpus

of International Treaties and Agreements prioritizes narratives of Power over narratives of Action and Policy.

4.1.2 Comparing the Distributions

The biggest contrast between the corpus of Senegal and the corpus of LDCs is the absence of narratives of Power in the corpus of Senegal. On top of that, LDCs have only have five words that were not coded into any category. When comparing distributions of words in the Top 50 charts, both corpuses reflect the same percentage of narratives of Scale. In the Top 10, however, the corpus of Senegal increases this emphasis on narratives of Scale, while the emphasis by the corpus of LDCs decreases.

When comparing the corpus of LDCs to the corpus of International Treaties and Agreements, it is interesting to note that the Top 50 distribution of the corpus of LDCs is more similar to the Top 10 distribution of the corpus of International Treaties and Agreements. The Top 50 distribution of the corpus of International Treaties and Agreements has a similar dispersal to the Top 10 word distribution of the corpus of LDCs. Putting aside this somewhat inverse relationship, it is notable that while the corpus of LDCs reflects a lesser emphasis on narratives of Action and Policy, narratives of Power and Scale make up 50% of the Top 50 words collectively. In contrast, narratives of Action and Policy make up large majority of the corpus of International Treaties and Agreements, while narratives of Power and Scale make up 26% collectively. Although narratives of Power maintain a steady 30% in both the Top 50 and Top 10 distribution of words in the corpus of LDCs, in the corpus of International Treaties and Agreements it jumps from 16% in the Top 50 to 40% in the Top 10.

One similarity between the corpuses of Senegal and International Treaties and Agreements is the reflect of narratives of Action and Policy. In both corpuses, narratives of Action and Policy are reflected in 56-60% of the words in the Top 50 and then decrease to 40% in the Top 10. A huge portion of the Top 10 words of the corpus of International Agreements and Treaties are associated with narratives of Power, which is completely absent in the corpus of Senegal. While 20% of the words in the Top 50 words of the corpus of Senegal reflect narratives of Scale, this narrative only accounts for 10% of the Top 50 words of the corpus of International Treaties and Agreements.

On top of this, the corpus of Senegal has the largest percentage of miscellaneous words out of the three corpuses, and this could be hinting at a narrative different than the predetermined narratives. Taking a deeper look into the content of the documents that made up the corpus of Senegal will give insight into what the narrative of Senegal is. Figure 8 describes the results of the narrative analysis of the Senegal-authored documents of the UNFCCC.

4.2 Findings from Narrative Analysis

Document (title and year)	Power	Action Policy	Scale	Composition of Excerpts	Summary
1st National Communication 1997	1	5	3	Preface, Foreword, and section conclusions.	Senegal is committed to combating climate change with the rest of the global community in order to avoid catastrophic results. Senegal signed onto the convention and this is their

					first inventory of Greenhouse Gas Emissions. There is a description of methodologies and data collection to obtain results. Most concern is dedicated to how economy and development will be impacted by climate change.
National Implementation Strategy (SNMO) 1999	1	5	2-3	Abstract	A National Implementation Strategy is not an obligatory document required by the UNFCCC, but rather a space for a country to voice their opinion on major development issues. Senegal voices their concern about the cause and effect relationship between the geo-climatic and socio-economic situation of the country, citing the water deficit and how this impacted their economy. It identifies three major problems within Senegal 1. Urbanization 2. High unemployment and poverty in both urban and rural areas 3. Weak industry and agro-forestry sectors. The document then goes on to detail how UNFCCC strategic measures will be implemented and details a list of projects that could promote development within the context of climate change
National Adaptation Programme for Action (NAPA) 2006	3	3	4	Preface and Introduction	The National Programme of Action was written in order to analyze the vulnerabilities of different regions of Senegal. This excerpt repeats that negative impacts of climate change are sources of economic and social disturbances, this statement is repeated three times throughout the excerpt. It is noted that there is a need to understand climate change better in Senegal. The narratives of Scale focus on poverty, economic struggles, and vulnerabilities of Senegal. There is also a great deal of highlighting different funding partners and sources in the last two paragraphs of the Preface. Still a policy document, however, there is another list of negative climate impacts and then a detailed description of Senegal's relationship to the UNFCCC in the Introduction.
2nd National Communication 2010	1	5	1	Executive Summary	The second National Communication of Senegal is an extremely technical paper, updating their greenhouse gas inventory and updating the status of different mitigation programs. In listing their GHG emissions, Senegal compares their emissions to the world average, African average, and the emissions of the EU, USA, and China. Their emissions when evaluated next to these other figures. The mitigation programs are very detailed and take up most of the excerpt, except for a small reference to a proposed

					adaptation program. This adaptation program briefly mentions that Senegal is suffering from adverse effects of climate change. In terms of finances, the programs are described as "saving up to 709 billion CFA Francs" or "carbon credit recovery estimated at 36 billion CFA Francs." There was no reference to the Senegalese economy or society.
3rd National Communication 2016	2	5	4	Executive Summary	The beginning of the third National Communication echoed the second National Communication. Again, there was an update on emissions (which were noted to be below all of the same international statistics as in the second national communication). In terms of updating projects, Senegal used a lot of prose to explain how much different scenarios that employed different mitigation strategies was going to cost, even stating that in order to implement these projects Senegal will need financial assistance from the international community. In this excerpt, Senegal is updating its eco-geographical zoning, as it has evolved over the last 30 years. There is a brief section that discusses reconsidering policies to take into account the real risks that could destroy the resilience of local populations. It mentions that socio-economic activities have not only seen various developments, but also interesting changes.

Figure 7: A table displaying the five documents making up the corpus of Senegal along with a description of the excerpt and scoring for narratives of Power, Action and Policy, and Scale. Alongside these scores is a summary of the content of the excerpt, which gives insight into the justification of the scores. Scoring was done on a scale of 1 to 5, with 1 meaning little to no presence of a narrative and 5 meaning crucial to the document.

Scoring Disclaimer

In scoring the excerpts, it was very difficult to differentiate between narratives of Action and Policy and narratives of Scale, as all of the theme of action and policy were specific to Senegal. Most of the prose was dedicated to explaining the impacts of climate change on Senegal, plans to respond to those impacts, and updating the status of adaptation and mitigation projects and plans. It could be argued that because most of the action and policy prose described Senegal's localized efforts, all of the excerpts could have scored a 5 in narratives of Scale. This overlap was difficult to navigate, and most of this prose was determined to be narratives of action and policy because the themes and rhetoric fit in better with the predetermined Action and Policy narrative than in the Scale narrative.

4.2.1 Descriptions of the Predetermined Climate Justice Narratives

Based on the scoring, narratives of Action and Policy maintained a consistent dominating presence in almost of the documents, scoring 5 in every excerpt except the NAPA of Senegal, when it scored a 3. As most of the excerpts spent ample amounts of time updating information about greenhouse gas emissions and response programs and projects, this narrative was a crucial part of almost every document. The exception, Senegal's NAPA, was a description of the climate

change reality within Senegal. Because it was explaining reality, it spent less time explaining and proposing solutions.

Almost in the opposite manner, narratives of Power had little presence in the excerpts except for the NAPA, when it also scored a 3, falling to a usual 1 again in the Second National Communication (NC), and rising to a 2 in the Third NC. The narratives of Power centered on how Senegal needed assistance and support from the international community. The spike in the NAPA excerpt is due to a repeated claim that Senegal is more vulnerable to climate change than many other countries. While this narrative skips the Second NC, which was an extremely technical paper, it resurfaces in the Third NC, claiming that Senegal is in great need of international support.

Narratives of Scale were a lot more volatile, starting at 3, then lowering slightly, then jumping up to a 4 in the NAPA. After the NAPA, narratives of Scale fall to a 1 in the Second NC and then bounce back to a 4 in the Third National Communication. In the First NC, Senegal seems eager to participate in the global effort to combat climate change, and most of the narratives of scale in that excerpt describe the common but differentiated interests of member parties working toward a common goal. Lowering slightly in the SNMO because there is a greater emphasis on a narrative different from the predetermined narratives. The description of the reality of Senegal spoke more to the narratives of scale, as Senegal detailed specific vulnerabilities and ways to respond. The Second NC was an extremely technical document, with no room to talk about the reality of Senegal. In the Third NC, however, Senegal describes redefining their eco-zones and reconsidering policies to make sure institutions are responding to climate impacts in Senegal adequately.

4.2.2 The Climate Justice Narrative of Senegal
In synthesizing these specific narratives, and then creating a temporal roadmap of Senegal's overarching narrative, it is understood why the predetermined narratives were so difficult to score. In the First NC, Senegal is eager to participate along with the rest of the international community to brainstorm and take action against climate change. Senegal's primary concern is how climate change impacts will affect their economy and society. The SNMO stands out for the other excerpts analyzed, because it identifies the cause and effect relationship between climate change and the socio-economic situation of the country. It also emphasizes the need to develop within the context of climate change and the challenge in navigating that. The excerpt of the NAPA blatantly describes the vulnerabilities of Senegal and it's need for international assistance. The same claim of the climate change impacts negatively affecting the economic and social development of Senegal are extremely emphasized, and this desperate need to understand and predict climate change impacts.

The Second NC is a technical paper, void of emotion, and a very stark contrast from the desperation in the NAPA preceding it. In this excerpt, there is no mention of the economy or society of Senegal. Instead, the excerpt is a detailed and mechanical account of the GHG inventory and response strategies of Senegal, which seem to not only be under control financially, but also making and saving Senegal money. The Third NC begins like the Second NC, but admits that some response strategies are more expensive than a business-as-usual scenario. Another claim that international assistance is needed. Interestingly, the excerpt states

that climate has changed in the last 30 years and Senegal needs to reevaluate their bio-zones, as well as policies that may actually make impacts worse. It provides a small assertion that economic and social development has seen interesting changes, both good and bad.

One theme that stands out in this overview is the assertion that climate change impacts will affect the economy, society, and development in Senegal. While this is very explicit in the SNMO and the NAPA, it is somewhat stifled in the NCs, with only a slight presence in the First and Third NCs. Therefore, this theme is strongly pre-2010, whereas a theme of financial aid and climate change information and predictions dominated excerpts written in and after 2010.

4.3 Answering the Research Question

After compiling these results, let us revisit the research question: to what extent are climate justice narratives of Senegal being represented in the official documents of the UNFCCC?

It is very clear that the official documents of the UNFCCC are technical papers, and focus on solutions and actions. As seen in the Narrative Analysis, when documents are not updating and evaluating current and future response projects and programs, they are chronicling the impacts and inventories of GHG emissions. And through the Content Analysis, the narratives of Action and Policy within Senegal are reflected on the LDC level and the international level. The UNFCCC is an institution with the purpose to stabilized GHG concentrations in the atmosphere and focuses on technical updates in order to achieve this goal, making it inflexible to goals and narratives outside of action and policy.

The narrative of Scale in Senegal is represented somewhat at the LDCs, but not reflected as well at the international level. Beyond the assumption of common but differentiated responsibility, the international level focuses mostly on collective action (a global solution to a global problem), while Senegal and LDCs highlight the complications of the individual countries. This being said, there is not a lot of room in the restraints of submitted documents to localize impact or introduce potential influencers not relevant to the information that the UNFCCC needs. On top of this, the agency to participate in every level of decision-making and play a leading role in negotiations is never addressed. It does not give space to establish regional or global collaboration outside of the transfer of money or technology, usually between core and periphery countries.

The narrative of Power in Senegal is centered around this interaction, which is detailed in the actual Convention itself. While Senegal does not focus a lot of energy on power, it is something that the international community stresses, even more so than LDCs. Because developing countries do not have the capacity to adapt, it is up to historically responsible core countries to provide aide. Trying to economically and socially develop within the constraints of climate change, has created this need to ask assistance from the international community. What is interesting is that while this interaction of money and technology to aid and help developing countries is very prominent at the international level, the other part of the narrative, where core countries take responsibility for climate change, is lost. This narrative is used to reinforce the global inequality between core and periphery countries because narrative of power emphasized the responsibility for funding projects in developing countries rather than responsibility to mitigate GHG emissions.

Besides this, the content analysis described almost 1/3 of the words from Senegal as miscellaneous, which may be speaking to the claim that climate change will affect the economy, society, and development of Senegal discovered in the narrative analysis. This assertion was mentioned repeated in the first three documents, ultimately peaking in Senegal's NAPA, and then was somewhat excluded from the fourth and fifth. Potentially, these concerns were addressed and did not need further discussion, but based on the update in the Third NC relating the effects that climate change had made onto the economy and society of Senegal, it is unlikely. Based on this waning and waxing of this theme that was not part of the predetermined universal climate justice narratives, one could conclude that the framework of the UNFCCC has very little room to analyze and evaluate impacts of climate change on local economies and societies. This theme, however, is a pillar in submitted Senegalese documents, and if Senegal's narrative were being reflected in the UNFCCC, then this theme would also be reflected.

In conclusion, Senegal's climate justice narratives are reflected in the UNFCCC if they are already established within the UNFCCC, whereas other narratives are barely reflected on the level of LDCs. When the designated narrative is already established by the UNFCCC, it then becomes challenging to determine whether the UNFCCC is reflecting the narratives of Senegal or imprinting its own narrative onto Senegal.

5. Comparison and Generalization

Studying narrative through the context of UNFCCC documents is not a new phenomenon. For example, some studies use documents to understand political perspectives and divisions on an international level (Blaxekjær and Nielsen 2015), and others use it to describe rhetoric of climate change negotiations (Venturini et al. 2014). Using narrative analysis and content analysis on National Communications has been used to identify and analyze adaptation initiatives of member parties (Lesnikowski et al. 2015), but also understand how non-state actors can get involved (Hermwille 2016). On top of this, national communications have been used in the past to highlight the narrative of particular countries (Methmann, Rothe, and Stephan 2013).

Studies beforehand have described the inflexible and restrictive nature of the UNFCCC documents, highlighting the barriers of integrated participation in climate action (Hermwille 2016). What is interesting is that National Communications of individual countries are able to dynamically express localized narrative, even if it is not reflected universally (Methmann, Rothe, and Stephan 2013, Kakonen et al. 2014). Although, it is normal and common for universal rhetoric to leachate down to the localized narratives of a party (Venturini et al. 2014).

While the politics and geography of Senegal make it unique, two other countries in West Africa, Mali and Burkina Faso, share a common volatile climate, former colonizer, and status as LDCs. In both countries, climate change is unprecedented and they have called for further scientific analysis of climate change projections in the region (West C. T., Roncoli C., and Ouattara F. 2008). More specifically, Sahelian farmers in the Burkina Faso have started to adapt to drought conditions that do not seem to be going away, and have in fact accepted it as a new reality despite lack of scientific evidence.

Unlike Senegal that has never fallen to a civil war or coup, Mali has fallen to rebellion and war repeatedly. Notably, conflict in Mali has been linked to drought, and this pattern of environmental degradation as a driver of civil violence can be seen around the world (Benjaminsen 2008). The appeal for institutional support is also common among the narratives of these countries (Fraser et al. 2011). Interestingly though, studies of general narratives of the sub-Saharan region lack the economic desperation of Senegal, and in fact evidences great economic growth in Africa (Devarajan and Fengler 2013). This study indicates that grouping narrative generalizes reality and sometimes omits or softens specific realities.

While Senegal's position and story are unique, its experience of being overlooked by not just the international community, but also regional community, is shared among many LDCs.

6. Broader Claims about Climate Justice in the UNFCCC

This study explained how climate justice narratives of Senegal are reflected or not reflected in the documents of the UNFCCC. Based on the results, the international community reflects narratives of Action and Policy described in the documents submitted by Senegal. This includes a commitment from core countries to finance adaptation strategies for periphery countries. This part of the narrative, however, has been integrated into the Framework of the Convention (*UNFCCC* 1992). This begs the explanation to whether the UNFCCC influenced narratives of Senegal, or the narratives of Senegal were taken into great consideration by the UNFCCC. Besides this murky direction of influence, this reflection, according to the framework of these methodologies is an action of climate justice. The justice takes on a form of financial aid.

Besides funding adaptation and mitigation strategies and technologies, all of the climate justice action from the UNFCCC have been in a retroactive nature. The establishment of the LDC Expert Group in 2001 and the NAPAs in 2008 was aimed to support LDCs developing within climate change (CP.7 Decision 5, "Least Developed Countries Expert Group" n.d.). While these actions have created some voice for marginalized communities being effected by climate change, the effort to accommodate for climate justice is not the goal of the UNFCCC.

Spelling out in the Framework of the Convention is that UNFCCC's desire to stabilize GHG concentrations in the atmosphere, and adaptation and mitigation goals will be informed by scientific data (*UNFCCC* 1992). This goal, however, does not acknowledge that some countries' economies and societies are extremely dependent on natural resources (Thomas and Twyman 2005). Therefore, climate change becomes not just a discussion of mitigation and adaptation, but one of economic and social development. There is a need to centrally engage stakeholders in order to create sustainable development, but the UNFCCC does not have the space or capacity to do this. Climate justice depends on community voices and sovereignty, and unfortunately these are not scientific data, so they are largely ignored in the international community (Schlosberg and Collins 2014).

Almost paradoxically, there is a defined and strict definition between developed and developing countries within the UNFCCC, but there is little done to remedy the inequity felt between them

(Chatterton, Featherstone, and Routledge 2013). While responsibilities for the two groups of countries are different, there is no action to resolve the distribution of agency between the haves and the have nots. It is possible to conclude that the UNFCCC reinforces power structures that maintain global inequality. Financial aid given to periphery countries from core countries, while a form of climate justice, upholds global inequality. The periphery countries become dependent on core countries to adapt and combat against climate change (Miller 2014). This reliance not only creates a dependency complex, but also inhibits economic growth and innovation in periphery countries (Miller 2014).

It is possible that the UNFCCC is incapable of addressing structural inequities. By not acknowledging the intrinsic relationship between humans, livelihoods, climate, and culture, that cannot be determined through scientific data, the UNFCCC actively maintains a power structure and dependency on core countries. Adaptation projects and programs in vulnerable countries are quick fixes for short term solutions because of the omission of understanding the economy and society of a given place. An integrated assessment needs to be undertaken in order to respond appropriately to climate change impacts, and currently the UNFCCC evaluation process and framework do not account for that (Fløttum and Gjerstad 2017).

The question that frames this study still remains, *how are elements of climate justice reflected in the UNFCCC*? The logic that creates the foundation for climate justice is recognized in the UNFCCC, that some countries are more responsible for GHG emissions and other countries are facing the consequences. This this extent, the UNFCCC recognizes the same reality as climate justice, however the solutions rarely try to change this reality.

7. Next Steps

In order for the UNFCCC to be able to address structural inequalities and therefore move towards climate justice, the first step needs to be a move toward distributive ideals of justice in contrast to climate justice through financial aid (Ciplet and Roberts 2017). Distributive justice focuses on outcomes of the distribution of good among a society. In the UNFCCC, this would look like active dismantling of integrated power structure to distribute power equally among parties. Another addition needed to the UNFCCC is the incorporation of multiple logics and legitimacy, meaning incorporating and understanding economy, society, and development as part of addressing climate change too (Ibid.).

On top of this, build a framework around procedural justice and inclusive decision-making (Ibid.). Procedural justice would entail hearing all stakeholders in transparent and open meetings before making a decision. This framework should also promote policy and institutional space for climate change action to also incorporate social development (Richards 2003).

Once this restructuring of framework is complete, it may be important for the UNFCCC to use narrative as another avenue of research outside of the scientific conclusions collected and published by the IPCC. Stories have the power to shape opinion and preferences, and have the ability to persuade and describe different perspectives (Fløttum and Gjerstad 2017). With an

increase of the analysis of narrative in the UNFCCC, we will be able to create a comprehensive and diverse knowledge of climate change and its impacts.

While it is important for the UNFCCC to restructure their frameworks in these ways, there is a chance these actions will not happen, or if they do, will not happen perfectly. The harsh reality is that large institutions rarely have the capacity to fully implement solutions that fit a local context perfectly. In this case, the only way Senegal will be able to address climate change impacts is through the intensification, coordination and scaling up or place-based social movements, that fight for climate justice, agency, and appropriate and immediate action (Klein 2014).

A total restructure of global governance is idealistic and unrealistic, but potentially if a framework was created in the UNFCCC, that instead of financing projects in periphery countries, core countries invested in local economies and innovation (Wilde, Defraigne, and Defraigne 2012). This system would need to have a built-in mechanism for core countries to wean off their support of periphery countries.

8. Further Research

The larger purpose of this study was to see whether climate justice in the UNFCCC could be fleshed out using narrative as a tool. While the UNFCCC has an immense data base of all of the policy documents, one limitation of this study was the availability of COP transcripts. In the future, attending a COP conference or analyzing media from COP could provide great insight into the rhetoric of the conferences. It would be interesting to compare the narrative of the conference debates to the narrative international treaties and agreements.

The corpus of documents authored by Senegal was such a small sample size that they are unrepresentative of the population. If anyone were to continue this study, interviewing the authors of the Senegal documents would provide insight into what they were thinking as they created the documents. Speaking to officials of the UNFCCC Secretariat may also yield more clues into the perspective of submitted documents from the institution.

To confirm that Senegal's experience is shared, comparing Senegal NCs to the NCs of Mali and Burkina Faso could examine any idiosyncrasies within Senegal. Because of similar characteristics, these countries could have very similar perspectives on climate justice. It woud be interesting if someone did a study with the intention of studying West-African adaptation, with the potential outcome giving information to the UNFCCC.

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Appendix A

Appendix A details the compositions of the corpus of Senegal, the corpus of LDCs, and the corpus of International Treaties and Agreements.

Corpus of Senegal Documents
• First National Communication of Senegal
• Second National Communication of Senegal
• Third National Communication of Senegal
• Senegal's National Adaptation Programme for Action
• National Implementation Strategy of Senegal

Corpus of LDC Documents

FCCC/SBI/2001/7
FCCC/SBI/2001/MISC.1
FCCC/SBI/2002/5
FCCC/SBI/2002/MISC.1 and Add.1
FCCC/SBI/2003/INF.6
FCC/SBI/2003/MISC.4 and Add.1
FCCC/SBI/2002/6
FCCC/SBI/2003/16
FCCC/SBI/2004/3
FCCC/SBI/2004/17
FCCC/TP/2005/5
FCCC/TP/2005/4
FCCC/TP/2005/3
FCCC/TP/2005/2
FCCC/SBI/2005/20
FCCC/SBI/2005/12
FCCC/SBI/2006/9
FCCC/SBI/2006/23
FCCC/SBI/2007/12
FCCC/SBI/2007/32
FCCC/SBI/2007/31
FCCC/SBI/2008/6
FCCC/SBI/2008/Misc.8
FCCC/SBI/2008/14
FCCC/SBI/2009/6
FCCC/SBI/2009/13
FCCC/SBI/2010/5
FCCC/SBI/2010/26

FCCC/SBI/2010/Misc.10
FCCC/SBI/2010/Misc.9
FCCC/SBI/2010/12
FCCC/SBI/2010/15
FCCC/CP/2010/5
FCCC/TP/2011/7
FCCC/SBI/2011/4
FCCC/CP/2011/7
FCCC/SBI/2011/11
FCCC/SBI/2012/7
FCCC/SBI/2012/27
FCCC/SBI/2012/MISC.12 and Add.1
FCCC/SBI/2012/INF.13
FCCC/SBI/2013/8
FCCC/SBI/2013/16
FCCC/SBI/2013/15
FCCC/SBI/2014/4
FCCC/SBI/2014/13
FCCC/SBI/2015/8
FCCC/SBI/2015/7
FCCC/SBI/2015/6
FCCC/SBI/2015/INF.6
FCCC/SBI/2015/19 and Corr.1
FCCC/SBI/2016/7
FCCC/SBI/2016/18
FCCC/SBI/2017/6
FCCC/SBI/2017/14 and Add.1

Corpus of International Treaties and Agreements

FCCC/AWGLCA/2012/MISC.8
FCCC/AWGLCA/2010/MISC.9/Add.1
FCCC/AWGLCA/2010/MISC.9
FCCC/AWGLCA/2010/MISC.7
FCCC/AWGLCA/2010/MISC.5
FCCC/AWGLCA/2010/MISC.4
FCCC/AWGLCA/2009/MISC.8
FCCC/AWGLCA/2009/MISC.9
FCCC/AWGLCA/2009/MISC.6/Add.1
FCCC/AWGLCA/2009/MISC.7/Add.1
FCCC/AWGLCA/2009/MISC.7
FCCC/AWGLCA/2009/MISC.6

FCCC/AWGLCA/2009/MISC.5/Add.1
FCCC/AWGLCA/2009/MISC.4/Add.3
FCCC/AWGLCA/2009/MISC.4/Add.2
FCCC/AWGLCA/2009/MISC.5
FCCC/AWGLCA/2009/MISC.4/Add.1
FCCC/AWGLCA/2009/MISC.4 (Part I)
FCCC/AWGLCA/2009/MISC.4 (Part II)
FCCC/AWGLCA/2009/MISC.1/Add.4/Corr.1
FCCC/CP/2014/L.14
FCCC/CP/2001/13/Add.1/Corr.1
FCCC/CP/2001/13/Add.3/Corr.1
FCCC/CP/2001/13/Add.4/Corr.1

FCCC/CP/2001/13
FCCC/CP/2001/13/Add.1
FCCC/CP/2001/13/Add.2
FCCC/CP/2001/13/Add.3
FCCC/CP/2001/13/Add.4
SB48.Informal.1
SBSTA48.Informal.2
FCCC/APA/2017/L.4
FCCC/APA/2017/L.4/Add.1
FCCC/SBI/2017/L.20
FCCC/CP/2017/INF.2
FCCC/APA/2017/2
FCCC/SBSTA/2017/L.15
FCCC/SBSTA/2017/L.16
FCCC/CP/2016/L.2
FCCC/APA/2016/INF.3/Add.2
FCCC/SBSTA/2016/MISC.3
FCCC/SBTA/2016/INF.9
FCCC/APA/2016/INF.3/Add.1
FCCC/APA/2016/INF.3
FCCC/CP/2015/10/Add.1
FCCC/CP/2015/L.9/Rev.1
FCCC/AWGLCA/2008/L.7
FCCC/AWGLCA/2008/MISC.2/Add.1
FCCC/AWGLCA/2008/MISC.3
FCCC/AWGLCA/2008/MISC.2
FCCC/AWGLCA/2008/L.5
FCCC/AWGLCA/2008/6
FCCC/AWGLCA/2008/INF.1
FCCC/AWGLCA/2008/L.2
FCCC/AWGLCA/2009/MISC.1/Add.4
FCCC/AWGLCA/2009/MISC.1/Add.3
FCCC/AWGLCA/2009/MISC.1/Add.2
FCCC/AWGLCA/2009/MISC.1/Add.1
FCCC/AWGLCA/2009/MISC.2
FCCC/AWGLCA/2009/4 (Part I)
FCCC/AWGLCA/2009/4 (Part II)
FCCC/AWGLCA/2009/MISC.1
FCCC/AWGLCA/2008/16/Rev.1
FCCC/AWGLCA/2008/MISC.5/Add.2 (Part II)/Corr.1
FCCC/CP/2008/L.4
FCCC/AWGLCA/2008/MISC.5/Add.2 (Part I)
FCCC/AWGLCA/2008/MISC.5/Add.2 (Part II)
FCCC/AWGLCA/2008/MISC.6/Add.2
FCCC/AWGLCA/2008/MISC.6/Add.1
FCCC/AWGLCA/2008/MISC.5/Add.1/Corr.1
FCCC/AWGLCA/2008/MISC.5/Add.1
FCCC/AWGLCA/2008/MISC.6
FCCC/AWGLCA/2008/MISC.5
FCCC/AWGLCA/2008/MISC.3/Add.1
FCCC/AWGLCA/2012/MISC.8
FCCC/AWGLCA/2010/MISC.9/Add.1
FCCC/AWGLCA/2010/MISC.9
FCCC/AWGLCA/2010/MISC.7
FCCC/AWGLCA/2010/MISC.5

FCCC/AWGLCA/2010/MISC.4
FCCC/AWGLCA/2009/MISC.8
FCCC/AWGLCA/2009/MISC.9
FCCC/AWGLCA/2009/MISC.6/Add.1
FCCC/AWGLCA/2009/MISC.7/Add.1
FCCC/AWGLCA/2009/MISC.7
FCCC/AWGLCA/2009/MISC.6
FCCC/AWGLCA/2009/MISC.5/Add.1
FCCC/AWGLCA/2009/MISC.4/Add.3
FCCC/AWGLCA/2009/MISC.4/Add.2
FCCC/AWGLCA/2009/MISC.5
FCCC/AWGLCA/2009/MISC.4/Add.1
FCCC/AWGLCA/2009/MISC.4 (Part I)
FCCC/AWGLCA/2009/MISC.4 (Part II)
FCCC/AWGLCA/2009/MISC.1/Add.4/Corr.1
FCCC/SNSTA/2015/L.21
FCCC/SNSTA/2015/L.21/Add.1
FCCC/SNSTA/2015/INF.9
FCCC/KP/CMP/2014/L.6
FCCC/SBSTA/2014/INF.17
FCCC/TP/2014/4
FCCC/KP/CMP/2014/3
FCCC/KP/CMP/2013/9
FCCC/SBI/2013/9/Add.1
FCCC/SBI/2013/L.13
FCCC/SBI/2013/L.14
FCCC/SBI/2013/L.14/Add.1
FCCC/SBSTA/2013/L.31
FCCC/KP/CMP/2012/13/Add.2/Corr.1
FCCC/KP/CMP/2012/13/Add.1
FCCC/KP/CMP/2012/13/Add.2
FCCC/KP/CMP/2011/10
FCCC/KP/CMP/2011/10/Add.1
FCCC/KP/CMP/2011/10/Add.2
FCCC/KP/CMP/2011/L.9
FCCC/KP/AWG/2011/CRP.2/Rev.1
FCCC/KP/CMP/2010/12
A/RES/65/159
FCCC/KP/AWG/2010/L.8
FCCC/KP/AWG/2010/L.8/Add.1
FCCC/KP/AWG/2010/L.8/Add.2
FCCC/KP/CMP/2010/L.3
FCCC/KP/CMP/2010/17
FCCC/KP/AWG/2010/CRP.3
FCCC/KP/AWG/2010/CRP.2
FCCC/KP/AWG/2010/MISC.5/Add.1
FCCC/KP/CMP/2010/4
FCCC/KP/AWG/2010/MISC.5
FCCC/KP/AWG/2010/L.4
FCCC/SBI/2010/L.6
FCCC/KP/CMP/2010/3
FCCC/KP/AWG/2010/6
FCCC/KP/AWG/2010/6/Add.1
FCCC/KP/AWG/2010/6/Add.2
FCCC/KP/AWG/2010/6/Add.3
FCCC/KP/AWG/2010/6/Add.4

FCCC/KP/AWG/2010/6/Add.5
FCCC/SBI/2010/6
FCCC/KP/CMP/2009/L.3
FCCC/KP/AWG/2009/10/Add.1/Rev.2
FCCC/KP/AWG/2009/10/Add.3/Rev.3
FCCC/KP/AWG/2009/10/Rev.3
FCCC/KP/AWG/2009/10/Add.4/Rev.2
FCCC/KP/AWG/2009/10/Add.2
FCCC/KP/CMP/2009/11
FCCC/KP/CMP/2009/12
FCCC/KP/CMP/2009/13
FCCC/KP/CMP/2009/7
FCCC/KP/CMP/2009/8
FCCC/KP/CMP/2009/10
FCCC/KP/CMP/2009/3
FCCC/KP/CMP/2009/4
FCCC/KP/CMP/2009/5
FCCC/KP/CMP/2009/6
FCCC/KP/AWG/2009/L.10
FCCC/KP/CMP/2009/2
FCCC/KP/AWG/2009/7
FCCC/KP/AWG/2009/8
FCCC/KP/AWG/2009/L.5
FCCC/KP/AWG/2009/MISC.7
FCCC/KP/AWG/2009/CRP.3
FCCC/KP/AWG/2009/MISC.6/Add.2
FCCC/KP/AWG/2009/MISC.6/Add.1
FCCC/KP/AWG/2009/MISC.6
FCCC/KP/AWG/2009/3
FCCC/KP/AWG/2008/6
FCCC/SBI/2008/L.14
FCCC/SBI/2008/MISC.2/Add.3
FCCC/TP/2008/1
FCCC/SBI/2008/INF.5
FCCC/SBI/2008/MISC.2/Add.2
FCCC/SBI/2008/INF.1
FCCC/SBI/2008/MISC.2/Add.1
FCCC/SBI/2008/MISC.2
FCCC/KP/CMP/2007/L.9
FCCC/KP/CMP/2007/L.8
FCCC/KP/CMP/2007/L.5
FCCC/KP/CMP/2007/INF.1
FCCC/KP/CMP/2007/7
FCCC/KP/CMP/2006/9
FCCC/KP/CMP/2006/L.7
FCCC/KP/CMP/2006/MISC.3/Add.2
FCCC/KP/CMP/2006/MISC.3/Add.1
FCCC/KP/AWG/2006/MISC.2
FCCC/KP/CMP/2006/MISC.3
FCCC/KP/AWG/2006/L.2/Rev.1
FCCC/SBI/2006/L.11/Rev.1
FCCC/KP/AWG/2006/L.1
FCCC/SBI/2006/MISC.10
FCCC/KP/AWG/2006/MISC.1/Add.1
FCCC/SBI/2006/INF.2
FCCC/KP/AWG/2006/MISC.1

FCCC/KP/CMP/2006/2
FCCC/KP/CMP/2005/L.3
FCCC/CP/2005/INF.1; FCCC/KP/CMP/2005/INF.1
FCCC/KP/CMP/2005/2
FCCC/CP/2004/9
FCCC/SBSTA/2003/10/Add.2
FCCC/CP/2002/INF.1
FCCC/CP/2001/INF.3
FCCC/CP/2001/L.6
FCCC/CP/2001/INF.1
FCCC/TP/2000/2
FCCC/SBSTA/2000/CRP.17/Corr.1
FCCC/SB/2000/CRP.19
FCCC/SB/2000/CRP.20
FCCC/SB/2000/CRP.21
FCCC/SB/2000/CRP.22
FCCC/SBSTA/2000/CRP.16
FCCC/SBSTA/2000/CRP.17
FCCC/CP/2000/INF.1
FCCC/SBSTA/2000/10/Add.1 (Part I)
FCCC/SBI/2000/10/Add.2
FCCC/SBSTA/2000/L.7/Add.1
FCCC/SBSTA/2000/L.7
FCCC/SBSTA/2000/L.7/Add.3
FCCC/SB/2000/CRP.4
FCCC/SBSTA/2000/L.2
FCCC/1999/CRP.6
FCCC/CP/1999/INF.2
FCCC/SB/1999/CRP.4
FCCC/CP/1998/INF.5
FCCC/AGBM/1997/INF.2
FCCC/AGBM/1997/Misc.3/Add.3
FCCC/AGBM/1997/Misc.4/Add.2
FCCC/CP/1997/2/Add.1
FCCC/AGBM/1997/Misc.3/Add.1
FCCC/AGBM/1997/Misc.4/Add.1
FCCC/AGBM/1997/Misc.3/Add.2
FCCC/AGBM/1997/Misc.3
FCCC/AGBM/1997/Misc.4
FCCC/AGBM/1997/Misc.1/Add.10
FCCC/CP/1997/2
FCCC/AGBM/1997/CRP.1/Rev.1/Add.1
FCCC/AGBM/1997/CRP.4
FCCC/AGBM/1997/CRP.1/Rev.1
FCCC/AGBM/1997/Misc.1/Add.8
FCCC/AGBM/1997/Misc.1/Add.9
FCCC/AGBM/1997/Misc.1/Add.7
FCCC/AGBM/1997/Misc.1/Add.6
FCCC/AGBM/1997/7
FCCC/AGBM/1997/Misc.1/Add.5
FCCC/AGBM/1997/Misc.2/Add.2
FCCC/AGBM/1997/Misc.2/Add.1
FCCC/AGBM/1997/Misc.1/Add.4
FCCC/AGBM/1997/Misc.1/Add.3
FCCC/AGBM/1997/Misc.1/Add.2
FCCC/AGBM/1997/2/Add.1

FCCC/AGBM/1997/Misc.1/Add.1
FCCC/AGBM/1997/Misc.2
FCCC/AGBM/1997/Misc.1
FCCC/AGBM/1997/2
FCCC/AGBM/1996/Misc.1/Add.4
FCCC/AGBM/1996/Misc.2/Add.3
FCCC/AGBM/1996/10
FCCC/AGBM/1996/Misc.2/Add.2
FCCC/AGBM/1996/Misc.1/Add.3
FCCC/AGBM/1996/Misc.2/Add.1
FCCC/AGBM/1996/Misc.1/Add.2
FCCC/AGBM/1996/Misc.1/Add.1
FCCC/AGBM/1996/6
FCCC/AGBM/1996/Misc.2
FCCC/AGBM/1996/Misc.1
FCCC/AGBM/1996/4
FCCC/AGBM/1996/3
FCCC/AGBM/1995/Misc.1/Add.4
FCCC/AGBM/1995/Misc.1/Add.3
FCCC/AGBM/1995/Misc.1/Add.2
FCCC/AGBM/1995/4
FCCC/AGBM/1995/Misc.1/Add.1
FCCC/AGBM/1995/L.1/Add.1
FCCC/AGBM/1995/Misc.1
• 1992 Convention Text

APPENDIX B

Appendix B details the justification for each word in the Content Analysis methodology of this study.

Senegal's Corpus			LDCs' Corpus			International Corpus	
Word	Count		word	Count		Word	Count
emissions	1121		Adaptation	3414		Parties	20437
national	734		gef	3043		Annex	9697
sector	686		national	2463		Article	9443
energy	643		implementatio	2382		emissions	8608
production	572		countries	2287		countries	7195
developmen	571		support	2038		information	6256
water	560		ldcs	1720		convention	6130
year	481		napa	1703		national	5966
co2	465		projects	1619		developing	5942
areas	448		process	1616		party	5899
managemen	440		information	1551		adaptation	5688
project	427		sbi	1495		development	5431
ghg	426		work	1487		mitigation	5020
total	414		project	1480		country	4884
resources	376		programme	1368		fccc	4763
level	363		developed	1357		review	4650
forest	362		activities	1292		action	4466
area	336		development	1287		implementatio	4449
coastal	334		nap	1218		including	4349
framework	320		parties	1132		support	4317
agriculture	318		fccc	1109		decision	4301
environmen	317		regional	1069		technology	4184
data	308		preparation	1067		period	4148
ha	299		technical	1042		emission	4010
agricultural	298		ldc	971		developed	3924
scenario	297		including	938		international	3798
communicat	293		meeting	921		actions	3684
convention	286		capacity	875		carbon	3493
mitigation	283		ldcf	802		use	3428
emission	282		funding	798		commitment	3387
carbon	279		agencies	767		included	3319
land	270		million	739		cmp	3294
gas	268		needs	708		commitments	3279
enonomic	261		training	698		cp	3255
use	260		action	690		activities	3226
rice	257		decision	675		financial	3158
implementat	256		fund	653		reduction	3090
zone	253		relevant	638		conference	3085
biomass	250		convention	621		new	3056
increase	244		expert	593		report	3047
rainfall	244		report	589		add	2905
waste	244		cop	578		global	2878
adaptation	241		planning	560		measures	2869
average	231		completed	554		session	2846
second	231		developing	554		accordance	2845
dakar	230		organizations	554		meeting	2796
program	221		workshops	554		greenhouse	2765
annual	213		secretariat	551		provide	2732
rural	211		undp	549		capacity	2622
used	210		provide	544		based	2586

Top 50 most frequently used words in the corpus of Senegal, LDCs, and International Treaties and Agreements. Each word is accompanied a number that is the frequency of the usage of that word in the corpus. Orange coloring reflects words associated with and/or supporting Narratives of Power. Blue coloring reflects words associated with and/or supporting Narratives of Action and Policy. Green coloring reflects words associated with and/or supporting Narratives of Scale.

Senegal 50 words

Word	Count	Category	Justification
emissions	1121	Action/Policy	"Emissions" is used to describe carbon and other GHG discharges, which is the reason there is a problem that needs an action and/or policy reaction.
national	734	Scale	Strongest correlations with "network," "product," and "program." Categorized as scale because specifies processes and actors within Senegal (localized).
sector	686		Highest correlation with used, yields, increased. Usually in the context of "Water resources sector" or "Agriculture sector" the word is used to denote a piece that is distinct from others.
energy	643		Highest correlation with general, industrial, needs. Usually used in terms of consumption of energy, types of energy, or energy needs. Too broad to categorize.
production	572	Scale	Highest correlation with fires, industries, hand. Usually in the context of manufacturing something (i.e. energy production or agricultural production). Categorized as Scale because it used to talk about manufacturing processes within Senegal (localized).
development	571	Action/Policy	Highest correlation with rural, training, and level. Development is used in the context of improvement, growth, or expansion. Categorized as Action/Policy because it is, in this context, a plan and a goal.
water	560		Strongest correlation with protected, vulnerable, affected. Usually used in the context of water management and climate change impacts. Loosely fits into Power, but not strong enough reasoning.
year	481	Action/Policy	Usually used as a tool for evaluation (i.e. base year, per year, in the year of). Categorized as Action/Policy because it tracks progress.
co2	465	Action/Policy	Usually used in the context of co2 emissions, or co2 equivalent when discussing GHG emissions. Categorized as Action/Policy because it is what policy and action are addressing.
areas	448	Scale	Usually in the context of rural, urban, or coastal areas, highlighting their impacts or plans. Categorized as Scale because of emphasis on specific communities (localized)
management	440	Action/Policy	Usually in the context of natural resource of energy management. Categorized as Action/Policy because of part of solutions.

project	427	Action/Policy	Strongest correlations with implemented, sequestration, transport. Usually used in the context as an action to create a solution. Categorized as Action/Policy because it is a plan.
ghg	426	Action/Policy	GHG = Greenhouse gases. Strongest correlation with increased. This word is used in evaluations of current emissions like inventories. Categorized in Action/Policy because ghg represents that problem that the UNFCCC is trying to address.
total	414	Action/Policy	Usually used in the context of fractions and figures (i.e. 25-30% of total emissions, total population, total quantity). Also associated with finances (total CFA, US $). Categorized as Action/Policy because it is used for evaluation.
resources	376	Scale	Strongest correlations with cities, vulnerable, activities, vulnerability. Usually described as natural resources or human resources, something that it finite and potentially distributed. Categorized under scale because it describes resources of Senegal and Senegal decides what they choose to do with their resources (localized).
level	363		Strongest correlations with coast, ecosystems, Senegal, order. Usually used as a position or point of reality (i.e. level of consumption, At the level of…) Also used to in sea-level rise. Not categorized because it is just a description of reality.
forest	362		Strongest correlation with needs. This word describes land covered in forest and usually used in the context of forest management and land-use. Not enough reason to categorize in Action/Policy or Scale
area	336	Scale	Denotes a specific place (i.e. the area of forest). Categorized as Scale (localized).
coastal	334		Strongest correlations with flows, north, river. Usually in the context of coastal zones and coastal erosion. Impacts are not being included in Scale categories, so it is too complicated to categorize this word into Scale
framework	320	Action/Policy	Strongest correlations with convention and product. Usually referring to the UN framework and structure. The Convention embodies international action toward the objective of stabilizing GHG concentrations. Abstractly, these can be thought of as rules. Because it is an international treaty, it has been categorized as Action/Policy.
agriculture	318		Strongest correlations with table and IPCC. Usually in the context of the agricultural sector and issues stemming from it. Not enough reason to be categorized under Scale.
environment	317		Strongest correlations with living, maritime, deficit, context, global. Environment is used in titles and agencies, as well as a synonym for place and processes. Too broad of a word to categorize.
data	308	Action/Policy	Usually in the context of results from scientific studies or collection of information. Categorized as Action/Policy because it is used to evaluate and analyze progress.

ha	299	Action/Policy	Strongest correlation with analysis. Unit used in data collection, represents hectare. Usually part of a data phrase. Categorized in Action/Policy for its analytical properties.
agricultural	298		Strongest correlation with potential and wood. Usually in the context of agricultural productivity, policy, activity, residues, or sector. Not categorized because of the breadth.
scenario	297	Action/Policy	Strongest correlation in analysis. Scenario is usually used as a potential outcome to a plan (a baseline scenario vs. mitigation scenario), or to describe different realities (in the case of a dry scenario). These are important steps in creating plans, so this word is categorized as Action/Policy.
communication	293	Scale	Strongest correlation with second and program. If this word is not referring to National Communications, it is usually suggesting developing a communication plan. Because it was a communication between a Party and the UNFCCC, this is categorized as Scale even though it is an official document.
convention	286	Action/Policy	Strongest correlation with framework. Usually referring to the United Nations Framework Convention on Climate Change. As an international treaty, it is categorized in Action/Policy
mitigation	283	Action/Policy	Strongest correlation with temperature. Usually referring to mitigation measures, mitigation projects, and mitigation strategies. Categorized in Action/Policy
emission	282	Action/Policy	Strongest correlation with yields and used. Usually in the context of emission reports and emission scenarios. Emphasis on evaluation and projections categorizes this word in Action/Policy.
carbon	279	Action/Policy	Usually used in the context of carbon emissions. As it is identified as part of the problem, it is categorized in Action/Policy
land	270	Scale	Strongest correlation with services. Used in the context of land use and land management. Also used along with an identifier to describe place (i.e. forest land, wooded land). Categorized in Scale because of specificity to place (locality) and also because of choice of usage.
gas	268	Action/Policy	Usually referring to greenhouse gas emissions to gas a fuel (natural gas, butane gas). Because this topic is so integral to mitigation, this word is categorized as Action/Policy
economic	261		Strongest correlations with reduce, objectives, government, planning. Used in terms of economic development and growth, also used in economic incentive and economic situation. Word is too broad to categorize.
use	260		Usually used as a noun, denoting the action of using something. In most cases this is technology or resources. Term is too broad to categorize.
rice	257	Action/Policy	Strongest correlations with analysis and scenario. Usually talking about climate change impacts and solution strategies on the rice sector

			of Senegal. This is categorized in Action/Policy because it is a subject of action.
implementation	256	Action/Policy	Strongest correlations with contribute, case, order, point. Usually means implementing plans or strategies. Also refers to Joint-Implementation. Categorized in Action/Policy
zone	253	Scale	Usually used with an identifier to describe a place (i.e. Sudanese zone, Sahelian zone, Guinean zone, coastal zone). Zones in these documents are usually defined and have borders. Because it is referring to specific places, this is categorized in Scale.
biomass	250	Action/Policy	Strongest correlations with food, IPCC, oil, industries. Usually used in describing the productivity of the land and "biomass emissions." Categorized in Action/Policy
increase	244	Action/Policy	Strongly correlated with households. This is used in predictions or results, an evaluative word.
rainfall	244	Action/Policy	Strongly correlated with decline, certain, promotion, Dakar. Talking about the rainfall impacts/predictions of climate change. Source of action.
waste	244	Action/Policy	Strongly correlated with distribution and capacity. Talking about types of waste, waste management, and waste sector. Categorized under Action/Policy
adaptation	241	Action/Policy	Strongly correlated with fight, resource, risk. A response to climate change impacts. In the context of cost/benefit analysis and strategies. Categorized in Action/Policy
average	231	Action/Policy	This term is usually used when describing results from scientific studies or generalities. Categorized in Action/Policy because it is an expression of data.
second	231	Action/Policy	Correlates strongly with communication and change. Usually refers to the Second National Communication of Senegal. As it is a policy document, it is categorized in Action/Policy
dakar	230	Scale	Strongly correlates with climatic and decline. Dakar is the largest city and political capital of Senegal.
program	221	Action/Policy	Correlates strongly with communication. Usually referring to structure or a plan to address a problem.
annual	213	Action/Policy	Temporal scale of process and data collection.
rural	211	Scale	Strongly correlates with training, development, conservation, drought. Usually talking about issues in rural Senegal.
used	210		See "use."

Words excluded from corpus: climate (924), senegal (915), change (727), table (552), gg (446), 000 (405), page (392), figure (320), united (235), nations (234)

LDCs 50 Words

Word	Count	Category	Justification
Adaptation	3414	Action/Policy	A response to climate change. Used in adaptation programmes, adaptation activities, adaptation guidelines and needs, etc.
gef	3043	Power	GEF stands for Global Environmental Facility. According to their website they are a financial mechanism for the UNFCCC. LDCs submit projects to the GEF to obtain funding. Categorized as Power because LDCs need to seek funding elsewhere to respond to climate change.
national	2463	Action/Policy	Usually phrased as national communications or national adaptation programmes. It also is used to reference individual nations priorities and goals. While this fits into Scale and Action/Policy, it is categorized as Action/Policy because it is mostly used referencing official documents.
implementation	2382	Action/Policy	Usually used in the context of implementing plans, strategies, and/phases.
countries	2287	Scale	Some of the time used in Least Developed Countries. Also used to group countries up by impact, shared resources, or similar circumstances. Because it highlights the contexts, it is categorized in Scale.
support	2038	Power	Mostly seen in the versions of the following phrase: Financial, technical, urgent support for implementation and LDCs. LDCs need external support, there this is categorized as a narrative of Power.
ldcs	1720	Power	Acronym for Least Developed Countries. This is a UN categorization of low-income countries confronting severe structural impediments to sustainable development, highly vulnerable. Based on the qualification for this category, this word is categorized as Power
napa	1703	Action/Policy	Acronym for National Adaptation Programme of Action. A type of plan submitted to the UNFCCC
projects	1619	Action/Policy	Part of NAPA, projects are potential solutions.
process	1616	Action/Policy	Usually referring to the NAP (National Adaptation Plans), NAPA, or adaptation process.
information	1551		Usually in the context of knowledge provided or learned. Too vague to categorize
sbi	1495	Action/Policy	Acronym for the Subsidiary Body for Implementation. This is usually in reference to an official document by this body. (i.e. fccc/sbi/2001/MISC.1). It is also an actor and authoritative body.
work	1487	Action/Policy	Usually used in the phrase "work programme." Usually used in the context of engagement or engaging in something. It also is used as action or effort.

project	1480	Scale	Projects are usually referring to a project proposal or design. It also denotes effort and engagement in action. Projects are localized to different nations/countries.
programme	1368	Action/Policy	Used mostly in the context of LDC work Programme and usually is a plan that addresses a strategy.
developed	1357	Power	Usually in the context of Least Developed Countries. (see ldcs)
activities	1292	Action/Policy	Activities are usually steps in the projects or work in programmes.
development	1287		Development is used equally as the process of developing policy and plans of action, the stimulation of different sectors of national economies and politics, and sustainable development for LDCS. Unfortunately, this case of the word development is too complicated to categorize.
nap	1218	Action/Policy	Acronym for National Adaptation Plan.
parties	1132	Power.	In the context of the UNFCCC, a party is a member that has signed onto the Convention. They are divided into Annex I, Annex II and Non--Annex I Parties because on different commitments. These commitments are based on responsibility and economic resilience.
fccc	1109	Action/Policy	Referring to a official document of the UNFCCC (i.e. fccc/cp/2000/5/Add.2)
regional	1069	Scale	Similar to "national," this word addresses a specific region's strategies, opportunities, and synergies.
preparation	1067	Action/Policy	Usually used in the phrase "preparation and implementation of NAPAs." It is usually used in the context of a collection and creation step.
technical	1042		Usually used with the word financial to describe support. It is also used in the phrase "technical paper." Because it could easily be categorized into Action/Policy and Power, it will be categorized in neither.
ldc	971	Power	Least Developed Country. See "ldcs"
including	938	Scale	This is either used to expand on a concept (i.e. some LDCs, including Benin…). It is also expresses bits that are part of a whole.
meeting	921		Usually in the context of a assembly of invested actors. Usually referring to an event on a specific time and date. Too vague to categorize
capacity	875	Power	This word is usually referring to the ability of LDCs to adapt, build, finance, implement, etc.
ldcf	802	Power	Acronym for the Least Developed Countries Fund. It was developed by the UNFCCC to assist LDCs in the preparation and implementation of NAPAs. It is usually used to refer to the fund, in the context of what funding is available, what projects the LDCF is funding.

funding	798	Power	Usually used to denote where money for projects, programmes, and processes are coming from. Categorized as Power because no means to fund within countries.
agencies	767	Scale	Usually used in government agencies, implementing agencies, GEF and its agencies, the countries and the agencies. Actors that may or may not be associated with government. Categorized as Scale because agencies are global, regional, and (sometimes) national actors.
million	739	Power	In the context of money/financial support. Usually the money needed to fund projects.
needs	708	Scale	Usually in the context of financial and adaptation needs. Because the needs are usually specific to a country or region, this word is categorized in Scale
training	698	Power	Usually a workshop to show a skill set. Trainings are usually held for LDCs.
action	690	Action/Policy	Usually in the context of National Adaptation Programme of Action. If not it is usually in the context of action steps.
decision	675	Action/Policy	Referring to a official document. Policy jargon.
fund	653	Power	As a noun, it is usually referring the LDCF, Special Climate Change Fund, Trust Fund (or other huge funding donors). As a verb, it is used to state the providing or necessity of money for projects and support.
relevant	638	Scale	Used as collaborating or including closely related subjects or actors. Making sure strategies are appropriate.
convention	621	Action/Policy	Referring to the UN Framework Convention on Climate Change. See "convention" in Senegal's Top 50 Words.
expert	593	Power	Referring to the LDC Expert Group. Estblished in 2001, LEG was requested by the COP to provide technical support and advice to the LDCs on NAPAs, LDC work programme, and NAP process.
report	589	Action/Policy	UNFCCC document, usually an update to authorities.
cop	578	Action/Policy	Conference of the Parties, an annual meeting of all the Parties. References specific COPs.
planning	560		Usually used in the phrase "development planning" or "adaptation planning." It also includes national and regional planning. Because of its vagueness, this word is not categorized.
completed	554	Action/Policy	A paper or document (mostly NAPAs) that is finished. A word to track progress.
developing	554	Power	While this word is used in terms of developing projects and plans, it is overwhelming used in terms of developing countries and states.
organizations	554	Scale	Usually referring to relevant or partner organizations. These organizations could be part of the UN or local organizations.

workshops	554	Power	Training and regional workshops. Usually demonstrating some sort of skill or approach to climate change.
secretariat	551	Scale	UNFCCC secretariat, GEF secretariat, GCF secretariat, CBD secretariat, along with many others. Secretariat refers to an administrative body. Because it refers to many different bodies, regional and global, this word is categorized in Scale.
undp	549	Power	Acronym for United Nations Development Programme. This organization is part of the United Nations General Assembly and connects countries to knowledge and resources to meet sustainable development goals. This word is usually used in the context of providing or supporting countries.
provide	544	Scale	Usually in the context of providing support, guidance, funding, advice, insight.

Words excluded from corpus: leg (3206), climate (2123), change (1663), projects (1619), process (1616), napas (1589), naps (918), cp (771), programmes (753), com (701), country (660), pleted (620), implement (542)

International Agreements and Treaties 50 Words

Word	Count	Category	Justification
Parties	20437	Power	In the context of the UNFCCC, a party is a member that has signed onto the Convention. They are divided into Annex I, Annex II and Non--Annex I Parties because on different commitments. These commitments are based on responsibility and economic resilience.
Annex	9697	Power	Used to differentiate and identify Annex 1 parties and Non-Annex 1 parties. It is also used to identify additional sections to documents. Based on it's first usage it is categorized as Power.
Article	9443	Action/Policy	Referring to legislation or policy. Typically in the form of informing or justifying an action.
emissions	8608	Action/Policy	Usually referring to carbon and other GHG discharges, which is the source of problem that needs an action and/or policy reaction.
countries	7195	Power	In some cases, countries is used as a term to isolated or draw attention to a group of countries, it is overwhelming used in the context of developed and developing countries.
information	6256		Usually synonymous with "knowledge." Sometimes in the context of communicating or obtaining information. Too vague of a term to categorize
convention	6130	Action/Policy	Usually referring to the literal UNFCCC treaty (i.e. article 9 of the convention).
national	5966	Scale	Usually referring to individual duty of a party/country. Sometimes referring to National Communications, but not enough to categorize it in Action/Policy

developing	5942	Power	Mostly used in the phrase developing country, sometimes used in developing economy. Both worthy to be categorized under Power
party	5899	Action/Policy	Mostly rules about what a party can or cannot do.
adaptation	5688	Action/Policy	A response to climate change impacts, while sometimes it is used in adaptation fund and adaptation technologies. There is a stronger pull to categorize this word in Action/Policy because it is mostly associated with action.
development	5431	Action/Policy	Mostly used in phrases like clean development, sustainable development, technology development. Sometimes (not as frequently) used as socio-economic development. Because of the overwhelming use of the word to denote improve and planning, it is categorized as Action/Policy
mitigation	5020	Action/Policy	Described as an action taken to address climate change
country	4884	Power	Used in developed country and developing country.
fccc	4763	Action/Policy	Used as an identification marker for an official document
review	4650	Action/Policy	Used to reflect on projects and measures. Equally used to review policies and plans.
action	4466	Scale	Used in the context of collective and collaborative action. While it would seem to go under Action/Policy, this word will be categorized under scale because it talks about international action as well as national action (various levels of scale).
implementation	4449	Action/Policy	Usually referring to the action of putting a plan into action. If not, it is usually referring to Joint Implementation or Subsidiary Body of Implementation.
including	4349		Used somewhat like "considering." It is mostly a grammatical tool to expand on an idea. This word does not fit into any of the categories.
support	4317		Used in the context of getting financial or technical support, but also used as a noun to talk about different agencies and organizations that need backing up. Also used as action or support. This word is too complicated to categorize.
decision	4301	Action/Policy	Usually referring to a document, or draft/version of a document. Usually refers to the conclusion.
technology	4184	Action/Policy	Used in terms of find technology to fulfill adaptation or mitigation goals
period	4148	Action/Policy	Usually referring to commitment period or base line period, which is a tool used to evaluate progress
emission	4010	Action/Policy	Used as emission reduction and emission limitations.
developed	3924	Power	Usually used in the phrase "developed countries"

international	3798	Scale	This word is mostly used in the context of an organization name, when it is not being used in that way it is denoting collaboration and interaction between nations.
actions	3684	Action/Policy	Usually adaptation actions or mitigation actions, something someone can participate in.
carbon	3493	Action/Policy	Referring to carbon dioxide and carbon emissions. Sometimes talks about the carbon market.
use	3428	Action/Policy	Mostly referring to land-use and electricity use. The verb of choice when explaining the deployment of things to achieve results
commitment	3387	Power	Usually referring to first and second commitments of reducing greenhouse gases. Similar to responsibility.
included	3319	Power	Usually in the phrase Parties included/not included in Annex I/Annex II. Mostly referring to GHG inventories, as they are a responsibility of the Annex I and Annex II Parties.
cmp	3294	Action/Policy	Acronym for Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol. This creates a separate group from the COP, commonly referred to as the Parties to the Kyoto Protocol, or parties who formally adopted the rulebook of the Kyoto Protocol and Marrakesh Accords. In the documents, it is usually referencing different decisions/documents.
commitments	3279	Scale	Synonymous with "duties." Usually in terms of mitigation commitments, limitation and reduction commitments. However, unlike "commitment" mentioned earlier in this corpus, commitments are also usually described as national or individual commitments. Because of this, this word is categorized as Scale
cp	3255	Action/Policy	This refers to decisions of the Convention of the Parties, which is the decision-making body. This word is usually found in referring to documents.
activities	3226	Action/Policy	Usually referring to plans or programmes in action, or industries that are already in motion.
financial	3158		Financial needs. Financial management, financial resources, financial mechanisms. Typically financial has been categorized in Power, but in this corpus is has too much breadth to categorize
reduction	3090	Action/Policy	Usually referring to a reduction of emissions
conference	3085	Action/Policy	"Conference of the Parties" these are the formal meetings of the UNFCCC Parties.
new	3056	Action/Policy	When this word is not part of a country name (New Guinea, New Zealand, etc.) it is usually referring to research, information, tools and resources (as well as other things). Commonly used in the phrase "new and additional." The idea of replacement of a thing for a better version.

report	3047	Action/Policy	Written report or assessment. Usually an update document.
add	2905		Shortened version of addendum and refers to documents (i.e. FCCC/KP/AWG/2009/10/add.2)
global	2878	Scale	In reference to global greenhouse gasses as well as global goals. Unifying and universal.
measures	2869	Action/Policy	Usually used in the phrase "policies and measures." Used as steps or actions to achieve goals.
session	2846	Action/Policy	Refers to meetings. COP is also references as sessions (i.e. COP6= sixth session).
accordance	2845	Action/Policy	Making sure a decision follows the rules, policies and frameworks.
meeting	2796	Action/Policy	Usually referring to the CMP. If not, talking about the actual event of a gathering to discuss action and progress.
greenhouse	2765	Action/Policy	Refers to greenhouse gas or greenhouse gas emissions. Source of the problem that initiated all of this solution-based action.
provide	2732		Usually used as providing information or incentives. A verb used to describe interactions. Too board to be categorized.
capacity	2622		Mostly used in terms of capacity-building. Because it is a broad term that applies to all parties in the UNFCCC, it does not properly fit into any category.
based	2586	Action/Policy	Either used as a justification tool to warrant certain actions or policies.

Words excluded from the corpus: shall (8154), protocol (8644), climate (7635), paragraph (7203), change (6332), kyoto (5271)