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Luisa Fernanda Ocampo Date

The Gendered Impacts of Climate Change: Exploring Perceptions among Agricultural Indigenous Communities in La Guajira, Colombia

By

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Master of Public Health

Hubert Department of Global Health

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The Gendered Impacts of Climate Change: Exploring Perceptions among Agricultural Indigenous Communities in La Guajira, Colombia

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Bachelor of Arts, Biology

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An abstract of

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Rollins School of Public Health of Emory University

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Abstract

The Gendered Impacts of Climate Change: Exploring Perceptions among Agricultural Indigenous Communities in La Guajira, Colombia

By Luisa Fernanda Ocampo

Climate change has become a common research perspective given its threat to global health. Current understandings of climate change impacts are incomplete as there is a need to further understand the socio- contextual impacts that climate change has on the individual lived experiences of indigenous people. Due to a decrease in precipitation and persistent drought, self-subsistence farmers in the Caribbean department of La Guajira, Colombia face pervasive poverty and food insecurity. The present study examines the gendered impacts of climate change on the social and economic context within Wayuu indigenous communities through a cross sectional qualitative research on subsistence farmers in La Guajira. Results indicate that gender norms and roles differ in Wayuu communities, therefore leading to differentiated impacts amongst actors. Lack of fresh water and sporadic rainfall, the most pressing climate impact, severely and negatively affects economic and cultural practices essential for the livelihoods of residents of La Guajira. Intrinsic and collective agency were found to have a positive impact on adaptations strategies, especially among women. This study was conducted in collaboration with WFP Colombia which has implemented training programs to increase climate resilience and adaptation among vulnerable ethnic groups. The results have global and local policy implications that fit the various societal mechanisms at play.

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I would like to thank all the members of the Wayuu communities who, even in the face of adversity, welcomed me into their homes and shared their lives with me.

This project would not be possible without the support and collaboration of staff from the World Food Programme Colombia, including Alejandrina, Patricia Alzate, Patricia Nader and in Country Director, Deborah Hines.

Thank you to all the support and invaluable contributions I received from fellow students and faculty at Emory University, including Sophia Neitsch, Lizzy Menstell, Gabriela Lanzas and Dr. Carla Roncoli.

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To Jamiee and Camille, thank you for being my family away from family. I would not have gotten through this process without either of you.

Lastly, I'd like to thank my mother for immigrating to this country. We did it.

Para mi Familia:

Gracias por formarme en la mujer que soy hoy, por apoyarme, y por siempre creer en mí. Gracias por todos los sacrificios que han echo, solo para darme oportunidades que nunca tuvieron. Espero un día poder hacer lo mismo para ustedes.

Mami, eres le bendición mas grande que Dios me ha dado, no estaría aquí sin ti

Mis triunfos y logros también son suyos, y esto solo es el principio.

Los Amo

Table of Contents

Acronym List

CBT	Cash Based Transfer
FGD	Focus Group Discussion
GDG	Gender Dialogue Groups
IDI	In-Depth Interview
IRB	Institutional Review Board
UN	United Nations
WFP	World Food Programme
WHO	World Health Organization

Chapter I: Introduction

Context:

Climate change has come to the forefront of sustainable development talks, given its environmental, social and economic implications (IPCC, 2014). Impacts will differ across countries, income groups and gender (Dankelman, 2010; Padgham, 2009). Developing countries and those relying on natural resources will be disproportionately affected, with women and the global poor likely to bear the greatest impacts (Dankelman, 2010; IPCC, 2014). In the Climate Risk Index Colombia has been classified as a medium-risk country, subject to natural hazards but also to the negative climatic impacts of El Nino and La Nina (Eckstein, Hutfils, & Winges, 2017). The countries indigenous peoples, who are highly dependent on natural resources for self- subsistence economies could also be put at severe risk (Dankelman, 2010; Macchi et al., 2008)

The Caribbean department of La Guajira is of most concern, as the decrease in precipitation and persistent droughts have put the already vulnerable population at increased risk for climate impacts, including pervasive poverty and food insecurity (Lau, Jarvis, & Ramirez, 2010; World Food Programme, 2017). Located in the north, the predominantly rural department is home to the Wayuu, the largest indigenous group in Colombia (Daniels, 2017). With adaptation and resilaincy building measueres being promoted to strengthen communities to the shocks of

climate change, social and cultural contexts need to be factored in, especially in the case of indegnous communities (Aldon, Forbes, & Ang, 2016).

Historically, indenogous peoples have been subject to social, political and economic exclusion, making them highly vulnerable to climate shocks (Dankelman, 2010; Macchi et al., 2008) It is important to note that in Colombia indigenous populations, especially women and girls, have also been disproportionally impacted by mass displacement due to armed conflict (World Food Programme, 2017). Research shows that coupled with armed conflict, climate change is one of the main potential causes of displacement among indigenous women (Dankelman, 2010). In understanding why women bear the burden of climate change more so than male counterparts, we must understand that men and women have distinct social roles and thus are impacted much differently. Given their gender and ethnicity, indigenous women are at risk for being disproportionately affected by climate change (Dankelman, 2010).

Problem Statement:

While numerous studies in the natural sciences examine and quantify trends, impacts and potential causes of climate change, a larger need exists to understand the socio-contextual impacts that climate change has on individual lived experiences (Barnes et al., 2013). The need is even greater in the context of indigenous populations, as knowledge on the cultural and livelihood implications of climate change is scant (Aldon et al., 2016; Daniels, 2017; Macchi et al., 2008). In understanding the nuances and more immediate significances in which societies are impacted by climate, we can better design adaptation and resiliency strategies to fit the

varying societal mechanisms at play. With men and women experiencing different levels of vulnerability to climate shocks, it is imperative that all aspects related to climate change adaptation and resiliency include a gender perspective (Dankelman, 2010). The research presented was guided under an integrated theoretical framework on gender and climate change by Bryan and Behrman (2013).

Purpose:

To inform adaptive interventions, the current study aims to understand the social and economic context in which climate change is occurring and how it is manifesting within Wayuu indigenous communities. Among indigenous populations, susceptibility to climate shocks are largely dependent on forms of livelihood and availability of natural resources, thus these topics were discussed with men and women to understand vulnerability of and within the community (Macchi et al., 2008). Aware of the importance of gender dynamics within climate adaptation, we focus on gendered differences in roles and responsibilities, perceptions of climate, climate risks and climate impacts. Furthermore, the study explores how intrinsic agency and adaptive capacity already present within the community can be assets in strengthening resiliency to climate shocks.

Chapter II: Literature Review

This literature review frames the aims and objectives of the study. The first topic in this review focuses on climate change, incorporating empirical studies and organizational level reports on current trends, impacts and definitions. While there is a lot of research on the matter in the natural sciences, the literature review will also make the case for the social science perspective, highlighting the importance of the human dimension of climate change. With an understanding of climate change from a social science dimension the literature will dive into intersectionality within climatic change. Specifically, the literature will focus on how gender and gendered ethnicity shape manifestations of climatic changes, including vulnerability to impacts as well as adaptation to climate variation. Lastly, given the push to overcome climatic changes the literature will define key terms and common measures discussed.

Weather and Climate:

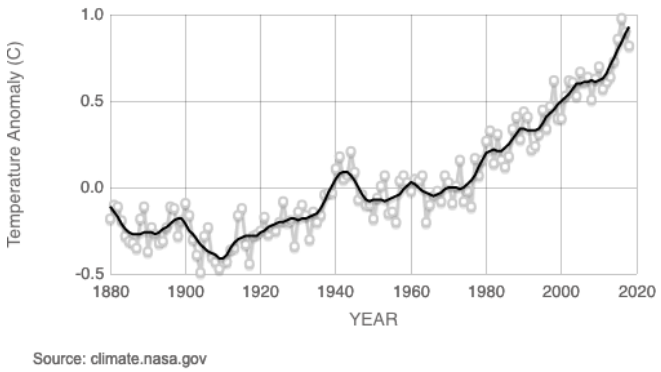
As defined by the National Oceanic and Atmospheric Administration, weather refers to short term atmospheric conditions, while climate refers to daily weather for extended time periods in specific geographic locations (NOAAA, 2018). Weather can be the immediate daily experience, while climate is what you would come to expect due to typical weather patterns (NOAAA, 2018).

Climate Change:

Given this context, climate change referrers to changes in long term averages of daily weather (NOAAA, 2018). Multiple research agencies have concluded that the hottest years on record have all occurred in the last decade (NASA 2019). Figure one shows the combined average land and ocean temperatures, showing annual increases summing up to an increase of 1.5 ºC over time.

Figure One: Global Land-Ocean Temperature Index (NASA, 2019)

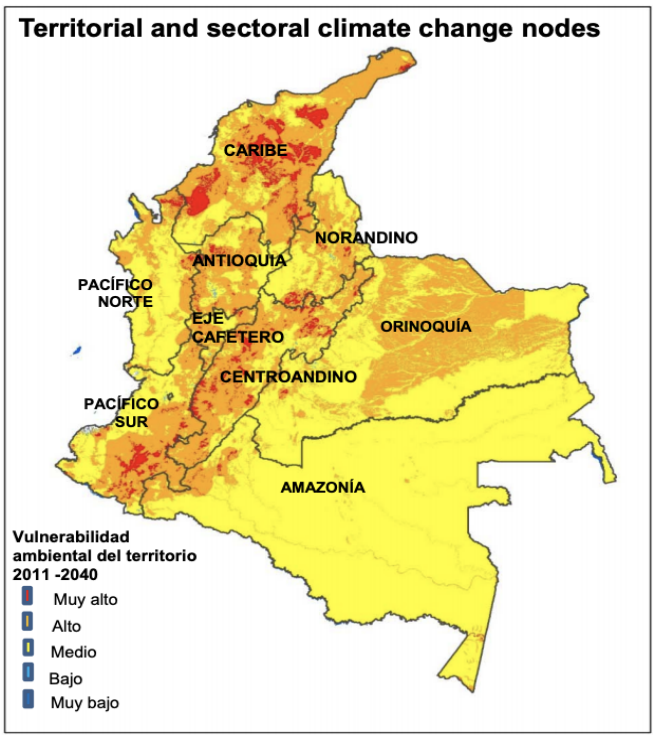
The Intergovernmental Panel on Climate Change (IPCC) is 95 percent certain that anthropogenic causes are behind current climate change (IPCC, 2014). Humans and the environment have already begun to experience the detrimental impacts and irreversible changes in our climate (IPCC, 2014). Rising temperatures, erratic and unpredictable rainfall, and weather variability coupled with an increasing frequency of severe weather events has and will continue to have significant consequences around the globe.



The an increase of 1.5ºC of warming has already been experienced resulting in increased droughts, floods, sea level rise, and biodiversity loss (IPCC, 2014). Although climate mitigation and adaptation efforts have come to the forefront of sustainable development talks, anthropogenic activities that have led to current changes in climate are expected to continue and will accelerate if heat trapping gases continue to be emitted at the current rate(IPCC,

2014). Continued increase in temperatures threaten multiple sectors, including agriculture, food security, water security, local economies and human health (IPCC, 2014; Lau, Jarvis, & Ramirez, 2010)

Figure Two: Colombian Climate Risk Index (Rojas-Laserna, 2014)



Populations of low- and middle-income countries are at a greater risk of climate change impacts and are more likely to face negative consequences (Dankelman, 2010; Padgham, 2009). In the Climate Risk Index Colombia has been classified as a medium-risk country, subject to natural hazards but also to the negative climatic impacts of El Nino and La Nina (Eckstein et al., 2017). This has serious ramifications for the country's population given that the majority of the land is designated for agricultural use, much of it owned by smallholder and subsistence farmers (Eckstein et al., 2017; Lau et al., 2010). The Caribbean department of La Guajira is of most concern, as the decrease in precipitation and persistent droughts have put the already vulnerable population at increased risk for climate impacts, including pervasive poverty and food insecurity (Lau et al., 2010; World Food Programme, 2017). Figure Two demonstrates the countries risk index as presented by the Ministry of Environment and Sustainability, areas within the La Guajira range from medium to very high vulnerability (Rojas-Laserna, 2014).

Social Dimension of Climate Change:

With adaptation and resiliency building measueres being promoted to strengthen communities to the shocks of climate change, social and cultural contexts need to be factored in. While numerous studies in the natural sciences examine and quantify trends, impacts and potential causes of climate change, a larger need exists to understand the socio-contextual impacts that climate change has on individual lived experiences (Barnes et al., 2013). An anthropological approach to understanding climate change can help inform the role political policies, as well as power dynamics within social and cultural norms play in the climate context. Often climate and climate related impacts are not seen as the direct issue, or the most important one among individuals and communities (Barnes et al., 2013). Thus, a full understanding of the context in which climate change is occurring is needed. The need is even greater in the context of indigenous populations, as knowledge on the cultural and livelihood implications of climate change is scant (Aldon et al., 2016; Daniels, 2017; Macchi et al., 2008).

In the case of La Guajira, the predominantly rural department is home to the Wayuu, the largest indigenous group in Colombia (Daniels, 2017). The countries indigenous peoples, who are highly dependent on natural resources for self- subsistence economies could be put at severe risk to climate shocks (Dankelman, 2010; Macchi et al., 2008) The department faces significant challenges with 90% of the rural population unable to meet their basic needs (World Food Programme, 2017). Unemployment in La Guajira is 300% above the national average, with the Indigenous population being more likely to be unemployed (Daniels, 2017). When

evaluating climatic impacts and adaption strategies, community specific factors need to be factored in. Ethnicity and the socio-economic policies and historical presidents that shape the environment in which climate change is occurring will also impact adaption strategies. Similarly, we must look the role gender plays in the context of climate change. In understanding the nuances and more immediate significances in which societies are impacted by climate, we can better design adaptation and resiliency strategies to fit the varying societal mechanisms at play.

Gender and Climate Change: Ecofeminism and Intersectionality

In understanding why women bear the burden of climate change more so than men, we must understand that men and women have distinct social roles and thus are impacted much differently. Historically, literary scholars have linked women and the environment, drawing parallels between environmental degradation and women's oppression (Dankelman, 2010). The argument made for the interconnection between the two areas stems from the era of the Enlightenment, where Carolyn Merchant, author of The Death of Nature (1980) argues men began seeing nature as something that was exploitable (Dankelman, 2010). Similarly, women were still primarily associated with domestic labor and childrearing, holding inferior positions to men. From these concepts stems the concept of ecofeminism, an academic area aimed with understanding the relationship between women and the environment, and their shared exploitation (Kings, 2017).

One of the major flaws of ecofeminism is that it often excludes the joint impacts of race within the linkages between women and the environment. In 1998 Agarwal argued for an alternative concept of feminist environmentalism (Agarwal, 1998; Dankelman, 2010). Feminist Environmentalism still explored the link between women and the environment, while also accounting for the impacts of social status and class, and race and ethnicity (Dankelman, 2010; Kings, 2017). Unlike ecofeminist scholars, Agarwal also argues that the linkage between women and nature is not a biological construct, but a social one based off of gendered societal roles (Agarwal, 1998; Kings, 2017). Using this lens, exploring climatic experiences through a social science perspective can help understand how the relationship between genders and society influences individuals lived experiences. Placing an importance on both environmental and social factors is essential in understand the linkages between them as the push for sustainable development in the face of climate change continues (Dankelman, 2010).

Indigenous women and Climate Change: Colombian Context

Historically, indenogous peoples have been subject to social, political and economic exclusion, making them highly vulnerable to climate shocks (Dankelman, 2010; Macchi et al., 2008). Given their gender and ethnicity, indigenous women are at risk for being disproportionately affected by climate change (Dankelman, 2010). Numerous factors contribute to this, with geographic location and setting, a dependence on natural resources, and language and literacy barriers being among contributing factors (Dankelman, 2010). Women from rural and agricultural communities also tend to be responsible for farming and household work, including securing

food, which can increase their labor burden in comparison to men (Lambrou & Piana, 2006; UNDP, 2011). Aside from individual vulnerabilities, women also face contextual vulnerabilities, as is the case in Colombia's country setting.

It is notable that in Colombia indigenous populations, especially women and girls, have also been disproportionally impacted by mass displacement due to armed conflict (World Food Programme, 2017). Research shows that coupled with armed conflict, climate change is one of the main potential causes of displacement among indigenous women (Dankelman, 2010). Similarly, there are still cultural expectations that a women's role is domestic coupled with patriarchal attitudes that men are superior (Bouvier, 2016). Even when excluding ethnicity, women in Colombia have yet to achieve economic and political parity (Bouvier, 2016). This can make bridging disparities in climatic impacts and experiences difficult when working with an already historically marginalized population. With men and women experiencing different levels of vulnerability to climate shocks, it is imperative that all aspects related to climate change adaptation and resiliency include a gender perspective (Bryan & Behrman, 2013; Dankelman, 2010).

Adaptive Capacity and Climate Resiliency:

When discussing climate change, there are several key terms and strategies. Mitigation, for example, refers to actions taken to prevent further climatic changes. According to the United Nations Framework Convention on Climate Change adaptation are adjustments made in

response to climatic impacts (UNFCC, 2019). Adaptive capacity are then actions, skills, or techiniques, typically preventative that can be used by individuals or communities to reduce the impacts of potential climatic shocks (Bernier & Meinzen-dick, 2014). Adaptive capacities can refer to solutions, technologies, strategies and will vary by community and location (UNFCC, 2019). Climate resiliency is defined at the ability to prevent, anticapte but also absorb climatic shocks in a sustainable manner (Jost, Ferdous, & Spicer, 2014). The strengthering or restoring of livilihoods to resist climatic shocks, would fall under claimatice resliency (Jost et al., 2014).

Group Based Adaptation and Social Capital:

Given that climatic impacts vary by gender, ethnicity and location, community context must also be considered when looking at adaptation strategies. The argument made for community based adaptation strategies is that the actions and decisions of an individual can influence and impact other members within their immediate community (Bryan & Behrman, 2013). Community based adaptions often requires social capital and collective action as the emphasize lies in community needs and priorities over individual ones (Bryan & Behrman, 2013). Social capital can be thought of as an additional resource, in the forms of relationships, social networks and support systems that can be beneficial in resisting climatic shocks (Bernier & Meinzen-dick, 2014; Bryan & Behrman, 2013). Within the case of indigenous populations especially women, social networks are needed to ensure agency and autonomy within climate adaptation strategies (Dankelman, 2010).

Gaps in Literature:

There is little published research looking at impacts of climate change from a social science perspective, especially in the case of gendered experiences among Indigenous women (Dankelman, 2010). Data that looks at climatic impacts on Wayuu indigenous groups in La Guajira is even more scare. Therefore, further research is needed in order to better understand the nuances of climate change manifestations in this region. Colombia has its own unique context, that must be taken into consideration when developing future adaption strategies This literature review examined major themes that will be explored in the research study while providing background information and showcasing interconnectedness between themes.

Chapter III: Manuscript

Title Page:

The Gendered Impacts of Climate Change: Exploring Perceptions among Agricultural Indigenous Communities in La Guajira, Colombia

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Contribution of Student [required for Rollins thesis only; not for publication]

I was involved in this project from the beginning. I conducted the formative and qualitative research in La Guajira, Colombia, over the summer of 2019. I also performed the qualitative data analysis using MAXqda version 12. My role in the qualitative research was to develop in-depth interview guides (IDI), to collect data during IDIs and paired interviews, and to analyze the data in order to present the study findings. I also was responsible for writing and preparing the manuscript for publication, including the creation of all figures and tables.

Abstract:

Climate change has become a common research perspective, given its threat to global health. Current understandings of climate change impacts are incomplete, as there is a need to understand further the socio-contextual impacts that climate change has on the lived experiences of indigenous people. Due to a decrease in precipitation and persistent drought, self-subsistence farmers in the Caribbean department of La Guajira, Colombia face pervasive poverty and food insecurity. The present study examines the gendered impacts of climate change on the social and economic context within Wayuu indigenous communities through a cross sectional qualitative research on subsistence farmers in La Guajira. Results indicate that gender norms and roles differ in Wayuu communities, therefore leading to differentiated impacts amongst actors. Lack of fresh water and sporadic rainfall, the most pressing climate impact, severely and negatively affects economic and cultural practices essential for the livelihoods of residents of La Guajira. Intrinsic and collective agency were found to have a positive impact on adaptations strategies, especially among women. This study was conducted in collaboration with WFP Colombia, which has implemented training programs to increase climate resilience and adaptation among vulnerable ethnic groups. The results have global and local policy implications that fit the various societal mechanisms at play.

Key words:
Climate change; Gender and Climate Change; Intersectionality of Climate Change; Ethnicity and Climate Change; Gender-specific climate effects; Water insecurity; Subsistence farming; La Guajira; Colombia; Climate Adaptation; Wayuu; Indigenous Populations;

Introduction:

Climate change has come to the forefront of sustainable development talks given its environmental, social and economic implications (IPCC, 2014). Rising temperatures, erratic and unpredictable rainfall and weather variability coupled with an increasing frequency of severe weather events has and will continue to have significant consequences around the globe. Impacts will differ across countries, income groups and gender (Dankelman, 2010; Padgham, 2009). Developing countries and those relying on natural resources will be disproportionately affected, with women and the global poor likely to bear the greatest impacts (Dankelman, 2010; IPCC, 2014).

In the Climate Risk Index Colombia has been classified as a medium-risk country, subject to natural hazards but also to the negative climatic impacts of El Nino and La Nina (Eckstein et al., 2017). This has serious ramifications for the country's population given that the majority of the land is designated for agricultural use, much of it owned by smallholder and subsistence farmers (Eckstein et al., 2017; Lau et al., 2010). The countries indigenous peoples, who are highly dependent on natural resources for self- subsistence economies could also be put at severe risk (Dankelman, 2010; Macchi et al., 2008)

The Caribbean department of La Guajira is of most concern, as the decrease in precipitation and persistent droughts have put the already vulnerable population at increased risk for climate impacts, including pervasive poverty and food insecurity (Lau et al., 2010; World Food

Programme, 2017). Located in the north, the predominantly rural department is home to the Wayuu, the largest indigenous group in Colombia (Daniels, 2017). The department faces significant challenges with 90% of the rural population unable to meet their basic needs (World Food Programme, 2017). Unemployment in La Guajira is 300% above the national average, with the Indigenous population being more likely to be unemployed (Daniels, 2017). The World Food Programme is currently working to support the Colombian government in increasing climate resilience and adaption among vulnerable ethnic groups, including those in La Guajira (World Food Programme, 2017).

With adaptation and resiliency-building measueres being promoted to strengthen communities to the shocks of climate change, social and cultural contexts need to be factored in, especially in the case of indegnous communities (Aldon et al., 2016). Historically, indigenous peoples have been subject to social, political and economic exclusion, making them highly vulnerable to climate shocks (Dankelman, 2010; Macchi et al., 2008) It is important to note that in Colombia indigenous populations, especially women and girls, have also been disproportionally impacted by mass displacement due to armed conflict (World Food Programme, 2017). Research shows that coupled with armed conflict, climate change is one of the main potential causes of displacement among indigenous women (Dankelman, 2010).

In understanding why women bear the burden of climate change more so than male counterparts, we must understand that men and women have distinct social roles and thus are impacted much differently. Women tend to be responsible for agricultural and household work,

such as securing food, increasing their labor burden (Lambrou & Piana, 2006; UNDP, 2011). Lower levels of education and decision-making power typically found in poorer women can also impact vulnerability to climate shocks (Dankelman, 2010). Given their gender and ethnicity, indigenous women are at risk for being disproportionately affected by climate change (Dankelman, 2010). With these risks in mind, gender is an important variable in climate change and adaptation (Bryan & Behrman, 2013).

Significance:

While numerous studies in the natural sciences examine and quantify trends, impacts and potential causes of climate change, a larger need exists to understand the socio-contextual impacts that climate change has on individual lived experiences (Barnes et al., 2013). The need is even greater in the context of indigenous populations, as knowledge on the cultural and livelihood implications of climate change is scant (Aldon et al., 2016; Daniels, 2017; Macchi et al., 2008). In understanding the nuances and more immediate significances in which societies are impacted by climate, we can better design adaptation and resiliency strategies to fit the varying societal mechanisms at play. With men and women experiencing different levels of vulnerability to climate shocks, it is imperative that all aspects related to climate change adaptation and resiliency include a gender perspective (Dankelman, 2010). The research presented was guided under an integrated theoretical framework on gender and climate change by Bryan and Behrman (2013).

Purpose:

To inform adaptive interventions, the current study aims to understand the social and economic context in which climate change is occurring and how it is manifesting within Wayuu indigenous communities. Among indigenous populations, susceptibility to climate shocks are largely dependent on the forms of livelihood and availability of natural resources, thus these topics were discussed with men and women to understand vulnerability of and within the community (Macchi et al., 2008). Aware of the importance of gender dynamics within climate adaptation, we focus on gendered differences in roles and responsibilities, perceptions of climate, climate risks and climate impacts. Furthermore, the study explores how intrinsic agency and adaptive capacity already present within the community can be assets in strengthening resiliency to climate shocks. The following sections describe the methodological approach taken, the synthesized results, and finally the implications of this work.

Methodology:

Overview:

This cross-sectional qualitative research study sought to understand the impacts of climate change on indigenous agricultural communities from La Guajira, Colombia. Semi structured in-depth interviews (IDI) and paired interviews were used to explore the perspectives of men and women. The gender disaggregated interviews focused on climate, climate change, and perceptions of social and economic impacts. This study was conducted in collaboration with the

The World Food Programme Colombia who previously established partnerships among these communities.

Study site:

La Guajira was chosen as a data collection site by WFP as it ensured the presence of the target study population and met UN safety requirements. La Guajira has a large Wayyu indigenous presence who rely on agriculture and other natural resources for their main source of livelihood, making them vulnerable to the climatic shocks. WFP identified five municipalities for data collection: Riohacha, Uribia, Maicao, Manaure and Dibulla.

Participant Recruitment and Sampling:

WFP local staff facilitated recruitment, selecting participating communities. Community characteristics and accessibility guided the selection process. Characteristics included: established relationship with WFP, location, and presence or history of agricultural activities. Communities were selected from different municipalities within La Guajira to allow for potential nonparticipation and no-shows, while capturing the heterogeneity of experiences across different Wayuu communities. Once communities were identified, WFP staff contacted community leaders, explaining the purpose of the study eligibility criteria, and setting up dates and times to meet. Community leaders then invited eligible members to participate, thus recruitment took place before data collection. Eligible participants were men and women over the ages of eighteen. Community visits by research team were done in accompaniment by WFP

staff, who reiterated study objectives in the native language of Wayuunaiki. No incentives were offered to participants.

Data Collection:

Qualitative data was obtained through the use of gender disaggregated face to face semi-structured in-depth interviews (IDI) and paired interviews. Study design intended for use of IDIs, but paired interviews were also used due to nature of setting. IDI guide creation occurred in English and underwent Spanish translation. WFP Wayuu staff reviewed final guide for accuracy and cultural appropriateness. Questions focused on perceptions of climate and local weather, perceived climatic impacts, and perceptions on gendered norms and differences. Piloting of the IDI guide took place in a Wayuu community with similarities to other participating communities. Guiding and probing questions changed throughout data collection, exploring more relevant themes, and reflecting an iterative process.

A researcher fluent in Spanish and trained in qualitative research methods conducted IDIs. Interviews occurred in Spanish, or in Wayuunaiki with the use of a translator. Interviews took place in private or secluded areas, away from other community members. This included participants' homes or patios, or secluded outdoor areas. Audio recording of all IDIs occurred with permission and consent of the participants. Interviews paused if interruptions occurred and resumed once the interruption ended. Interviews concluded by giving participants time to express additional questions or comments.

Ethical Considerations:

All study protocols, study tools, such as IDI guides, and informed consents were submitted to Emory University's Internal Review Board. Emory's IRB determined that the study was exempt from full review, however all procedures were maintained to protect participant rights and ensure confidentiality.

Prior to audio recording all participants were given informed consent, were told the purpose of the interview including risks, benefits and confidentiality and reminded that participation was completely voluntary. Participants were also reminded that they could refuse questions, take breaks and end the interview at any time. Participants were given the opportunity to ask questions before obtaining verbal and signed consent. Due to varying levels of literacy among participants, the option to sign with a pen or to use a finger print stamp was given. All information was anonymous and kept confidential, potential identifiers were removed during the transcription process.

Data Management and Transcription:

WFP digital recorders captured audio recordings of all interviews. Emory's encrypted Box drive stored audio files transferred from digital recorder. Audio files were then erased from the recorder. The research team, fluent in both Spanish and English, performed verbatim transcription of audio interviews into Spanish text. All research team members were required to complete CITI Research Ethics and Compliance Training before being added to study

protocols with approval from Emory University's Internal Review Board (IRB). During transcription participant information was deidentified to maintain anonymity and confidentiality. Transcriptions of audio files were created and stored within Emory's Box drive. The Spanish transcripts were then uploaded into MAXQDA 12 for analysis.

Data Analysis:

Six transcripts underwent thematic analysis, producing findings from a sub sample of interviews. Preliminary themes emerged after listening to and reading IDIs multiple times. Themes guided the formation of a codebook containing both inductive and deductive codes. Transcripts were annotated and coded using MAXQDA 2018. Performance of an intercoder agreement ensured standardization of coding across transcripts. Research team applied English codes to Spanish transcripts, translating quotes used in results section. Both inductive and deductive codes were applied to transcripts. Deductive codes were expected to come up based off the objectives and interview guides. Examples include, "climate change," and "livestock and agriculture," among others. Inductive codes arose from the data but were not necessarily expected. These codes included topics such as "plastic pollution" and "cash dependency." Transcripts underwent a thematic analysis, leading to the synthesized results.

Results:

The results presented are derived from a sub-sample of six qualitative transcripts, representing three paired interviews with women and three individual interviews with men. All participants

identified as belonging to the Wayuu indigenous people, and to communities who were currently or previously a part of WFP interventions. The study focused on communities with a high susceptibility to the impacts of climate change due their ethnicity and characteristics as self-subsistence farmers and pastoralists. The framework presented in figure one illustrates how climatic impacts, vulnerabilities and adaptation strategies are gendered processes within the larger political and socio-contextual environment. Guided under this framework, this synthesis focuses on gendered differences or similarities. The results are presented as follows: climate and perceptions of climatic variability, livelihoods and assets, climatic impacts on those livelihoods, and lastly the exploration of adaptive capacity.

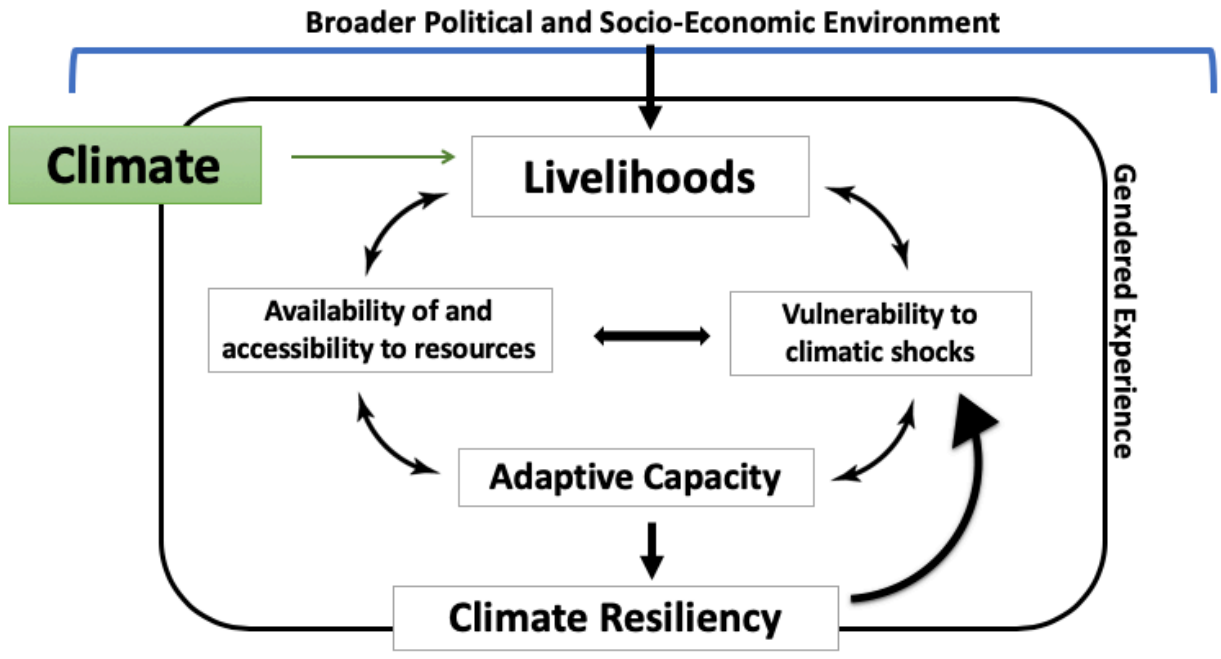

Figure One: Conceptual Framework depicting relationship between Climate, Gendered Ethnicity and Adaptive Capacity

Climate:

> *Because the last rains strong as that were the ones in 2010. those were the last ones and the ones from 2010 and 2015, there was no rain, there were children who grew up for five years and did not know rain. (W2: 337)*

Across all participants, regardless of gender, there was a mention of unpredictability or change when asked about current climate. Participants mentioned the expected seasonality of weather patterns and how irregular the current climate has been. While one female participant used the term “Cambio Climatico” (climate change) in talking about climate change, no other participants did. Another female participant stated that it was an atmospheric phenomenon or something of the matter. No other participants named the phenomena or referenced climate change but focused on the actual changes in weather patterns. Most notable was the mention of lack of water, especially rain, and drought in regard to climate change. This was present across all participants.

One male participant also discussed how the terrain used to be greener, which was also attributed to the lack of rainfall. This highlights the importance and significance that water and rainfall hold for the participants. After participants spoke on perceptions of climate and climate change, they were also asked to discuss their beliefs of the source or cause of change, specifically in relation to rainfall. All participants who were asked stated that they did not

understand the reason or "why" behind the climatic changes, just that it was occurring and leaving lasting impacts on entire communities.

Perceptions of Differential Impacts by Gender:

> *Women, we for example, when pregnant we need. If you have menstruation you have to see where you bathe, you have to see how you bathe. That means the windmill, if the man is not present. You cannot bathe at home. We that do not have partners have to see about water so that the children can bathe (inaudible) and what one has to travel by bicycle because there is no donkey, on a bicycle to get water so that their children can bathe and to prepare meals for their children and water for their children. In that part, the woman suffers more.* (*W1: 107)*

In exploring perceptions of gendered impacts, specifically water scarcity, participants were asked if they felt men or women were impacted more by the lack of rain. Responses varied, suggesting adaptive measures should account for heterogeneity within gender norms in communities.

For example, female heads of households were responsible for all agricultural and, in some cases, pastoral activities, as well as with responsibilities associated with housework and child rearing. Though this can give women in these households more autonomy, it can also place female headed households at disproportionate risk to climate shocks as they have a higher

burden of labor (Bryan et al., 2017). Multiple women also pointed out the increasing difficulties faced in areas of child rearing and menstrual hygiene given the lack of water. This problem is specific to women and can materialize into larger issues impacting education and other activities (Kings, 2017).

When asked about perceptions of gendered impacts, all male participants stated that the lack of rain impacted both men and women equally. They then went on however, to discuss the different ways in which men and women were impacted. Some women gave similar responses as men, stating both genders were affected, but in different ways. Thus, participants acknowledged differences but perceived them as equally impactful. Three women did however state that women were impacted more, referencing disproportionate workloads or ties to familial food security. These differential impacts will be further discussed on the sections below.

Livelihoods:

Multiple livelihoods were present in communities, including cash-based livelihoods and non-cashed based livelihoods. Overall participants stated that while some community members had access to the formal work sector, most members of the community relied primarily off of subsistence farming and informal livelihoods. Certain activities were tied to men while others were associated with women. The differences among the ways in which men and women made a living and obtained cash also has implications for the differential impacts of climate change on these livelihoods.

Subsistence Livelihoods:

> *And some who work defend themselves. And some that do not work - because there are people here who humbly sustain themselves from the harvest. With the harvest that, they go out to the market to sell, they take a little to the market to buy what is rice, what is sugar, corn to make chicha. There are people who simply survive - they do not have other jobs, they just dedicate themselves to farming. Then they eat from there and for the most necessary, they take out a part and sell it, that is, to support themselves. But this year has been difficult, things are hard, because as it did not rain, most did not sow. You have to buy what is corn, what is banana, everything, because it has not rained. Then when it rains, we have food here. (M1: 240)*

Agricultural activities were identified as the primary form of subsistence livelihoods with all participants, regardless of gender, citing the community's dependence on farming and natural resource, such as rainfall. In instances when there is an abundance of crops, products are sold for cash. However, every participant stated that farming was primarily used for self-consumption, if available. This has been an area where the impacts of climate change have been felt the strongest. Men and women reported that without access to water they could not plant or farm. Even when there was slight rain or drizzle, participants stated that it was not enough to successfully support the growth crops.

> *listen, that has been difficult. it has been difficult because there is no food. We could not plant because it did not rain. Look, by this date, this month we should have eaten beans,*

> *squash, yucca. That was not planted because it did not rain... We have to buy the food because there is none. Because here one lives from the harvest. As long as it does not rain, one cannot do anything. (M1:231)*

There was a variation of responses on whose role it was directly to tend to the crops, with many participants stating shared responsibility and others perceiving agriculture as a primary gendered responsibility associated with men. Though men were perceived to be primarily responsible for the act of farming, women were associated with finding and providing food for children, which is directly dependent on farming activities. This association was not present for men, placing the consequences of low food production as an issue for women to deal with.

> *Of course, because the main job for men is agriculture and for us it's children (W3: 290)*

Similar sentiments were also expressed by a woman when speaking about water collection.

> *On the other hand, the man can go and return and drinks the water if possible in order to not carry it back because it is only him, on the other hand, the woman has more responsibility with the children. The men do not. (W1: 107)*

While subsistence livelihoods can be equal responsibilities shared across genders, there is an added weight on women who are responsible for the well-being of the children, which is not present among men. The effects on agriculture and farming can also be linked to food insecurity and malnutrition, as participants noted that agriculture was primarily for self-

consumption. Again here, there is an added burden on women to face the issue of food insecurity. With lower food production, participants have faced a shift from relying on subsistence livelihoods to cash-based livelihoods.

Cash-Based Livelihood:

> *Um me, all the time…well basically in the matters of livestock, sheep, cattle, I go about on a horse. All of that yes. That's how I live. Never worked, my job is in livestock.* (M2: 34)

> *Well the income here is not much, well it's the matter of artisanal work, that is what there is more or less here, although people abuse that, I mean the middle men as they say, because they are the ones who put us to weave here, very cheap. (W1: 30)*

When asked about Cash-Based Livelihoods, two distinctly gendered activities were cited by participants. Men and women both primarily associated livestock and pastoralist activities as the way in which men earn an income. Men cited Men's livelihood was directly tied to natural resources as goats grazed on locally available greenery and water. Being sold when cash when needed for food or other supplies, Goats allowed men access to formal currency and local markets. However climatic impacts on water scarcity, have had implications for the sustainability of this practice moving forward.

Women on the other hand were said to earn a living through artisanal weaving of handbags and hammocks. Though not dependent on natural resources, women still face challenges and limitations in successfully carrying out their livelihoods. Exploitation by middle parties is

common, as the women often lack direct market access. Another notable finding was that artisanal weaving was often associated as a gendered activity. Yet, given the current resource scarcity, participants of both genders mentioned that men had also started weaving for a source of income.

> *Notice that the men who lived there already learned to weave because they see that the women sell their four- three backpacks there and already come back with a hundred bars (pesos) in their hands. Then they say that we can do it too and they do it. (M1:307)*

This falls in line with existing literature that indicated women's livelihoods may be appropriated by men. Usually this occurs when women's livelihood increases in value due to development interventions. In this case of our study population however, this seems to be occurring due to the diminishing value of men's livelihood, which is tied to livestock.

Vulnerabilities and Resources:

As shown in the conceptual framework, the relationship between livelihoods, and access to resources and vulnerability is bidirectional. While livelihoods play a role in accessing and securing resources that impact vulnerability, it also holds that true that the availability of resources can impact the ability to successfully carry out livelihoods.

> *Yes, better said we were being left with... without livestock. Better said, one that had 200 was left with 50 ... they are dying, the question of water, there is nothing for the goats to eat (M2: 134)*

In the case of men, water and resources scarcity had direct implications on their livelihoods. Goats were also dying from dehydration and an overall lack of food, often requiring pastoralists to travel further distances in order to find these resources.

Although men were primary responsible for goat care, impacts on livestock also impacted women. In the longer absence of men to find suitable pasture, women took on responsibilities that were identified by participants as shared between men and women. Existing literature suggests that that absence of men as a response to climatic shocks has the potential to increase decision making among women but also increase their burden of labor (Bryan et al., 2017).

Across genders there was an increase in dependence on external aid, especially when it came to water. Participants heavily relied on external water rations which were inconsistent at times or insufficient in meeting the demand.

> *Ohh just the one that the Cerrejon is giving away, that is the one that we are drinking, biweekly... and there are times when it runs out one has to force oneself to drink that dirty water (M2: 81)*

Multiple participants stated that these times they or member of their communities would drink whatever water was available from the wells or from “jagüeys” traditional man-made ponds meant to store rain water. The findings coincide with existing literature that suggest increased dependence on external aid in the face of adverse climatic shocks (Macchi et al., 2008). This dependence on water from external sources has serious implications, especially in the absence or shortage such sources.

Lastly all participants mentioned an increase in the need to access cash. Across men and women, participants identified the need to buy food, in a context where it was previously grown. Cash was also seen as a barrier to access other resources that could lead to either income or subsistence.

> *Because land we have. What we don’t have are the resources, the money. There are people who in reality do want to work but what we do not have is the money to buy... wire, at least. We need that -wire, clamps. Aja, that is what we need to have a productive garden. (M1:205)*

With their agricultural and pastoral lifestyles under threat there will be a greater need to buy resources, such as food, and access formal economic systems. Unemployment rates in the region are already high limiting opportunities for formal employment. Not only does this have economic implications for the Wayuu, but loss of traditional livelihoods could also be tied to cultural identity loss (Dankelman, 2010; Macchi et al., 2008).

Adaptive Capacity:

> *We adapt to life because the idea is to improve our quality of life for ourselves and for our children. That is why I, I put myself at the forefront of this situation and dedicate myself to this and because I am more understood, because I am the daughter of the authority. (W1: 134)*

Another theme that was explored within our research was that of adaptive capacity. Though adaptive capacity depends on a variety of external factors, our findings focus on intrinsic agency within individuals and collective agency as social capital within the community, as these could be protective factors against climatic shocks (Bernier & Meinzen-dick, 2014).

Across interviews, participants also expressed collective agency. Collective agency manifested itself in shared consciousness and joint action. Specifically, women expressed looking out for the interests of the community as a whole. This response was prevalent among participants with a leadership role within the community who sought external resources and petitioned to different aid organizations. Even among women participants who did not identify as having a leadership role, the presence of collective consciousness and activeness was still present. Participants expressed knowledge and resource sharing among members of the community.

> *I have to aha share with ... socialize... socialize my ... within the community itself aha (W3:619)*

While some men also spoke about wanting broader community improvements, their responses mostly related back to livestock and agriculture. Women on the other hand often referenced working together and helping each other out. In this case, collective agency can be interpreted as a form of social capital. This influences community adaptation and resilience but can also impact and improve individual response to climate shocks (Bryan & Behrman, 2013).

On an individual level, women also expressed a willingness to adapt. Most women interviewed mentioned that they would like to learn about of innovative solutions and alternatives to overcome water scarcity instead of waiting around for rainfall.

> *Of course because maybe, I mean maybe, I notice that the bushes are dying and aha well and we can irrigate and we are starting to take an idea of what irrigation is, we are no longer restricted to suddenly having to wait for the water but instead we have to look for another alternative (W2: 320)*

When asked about potential adaptation strategies, men on the other hand referred to steps already taken. Several men made references to the implementation of new knowledge in agriculture and crop diversification. They went one to discuss resulting dietary changes in response to these adaptation strategies. For men the focus of adaptation was more immediate and directly related to them, while women spoke more collective terms. This ties in to earlier

themes of women being responsible for more than just themselves, while men can focus on individual needs.

Overall participants interviewed expressed the willingness and need to change, or adapt, in order to secure their future. However, men and women will have differing perspectives on adaptation based on gendered norms and responsibilities (Bryan & Behrman, 2013; Dankelman, 2010). Thus, though the desire is to adapt is present in both genders, resilience building strategies must be designed in a way that allows both genders to feel economically and socially empowered given the limited resources available. Contextual factors outside of the community must also be considered as these will also shape how climatic shocks impact communities and individuals.

Broader Political and Socio-Economic Context:

> *Right now, we have some families that have arrived from Venezuela. They are not part of the [WFP] program. So, we have learned to help them, to give them also, to share what we have. Because a lot of our family - not just my family - but, the family of everyone in the community...They grow their family there. What happens today with the situation there? They remember the family. So you can not say they are not from here, because they are from here. Aha, they have returned. We feel good because they are family. Only for them it has been very difficult because to live here one is used because one is from here. One already knows how to make for food. They do not. So this is a*

> *desert for them. They think about how to make food, that there is no work here, that one can make a little money one day - there is not one. Yes, if anything I feel embarrassed. (M1: 307)*

Given Colombia's country context there is a need to address the political context, including developing issues with neighboring Venezuela, as this was mentioned by all male participants, and some female participants. Historically the Wayuu have been considered as binational, not recognizing country borders but rather traveling freely between Wayuu land located in Venezuela and Colombia (Daniels, 2017; World Food Programme, 2017). Recent situations have caused a mass influx of Venezuelans into La Guajira, including the return of Wayuu who previously lived on the Venezuelan side. One male participant mentioned how Venezuela's inflation had impacted his wife's income as she used to work across the border. Another female participant mentioned that many family members had returned to Colombia but were not recognized as formal citizens, rendering them ineligible for government aid. It is important to recognize the additional burden that might be placed on already resource scarce area of La Guajira. However, this once again highlights the presence of collective consciousness and the availability of social capital between community members, a key asset in community based adaptation strategies in building climate resiliency (Bryan & Behrman, 2013).

Limitations:

The results of this study were subject to several limitations which should be considered. The interviewer, though a Colombian national, did not identify as Wayuu and presented as WFP

staff, potentially impacting rapport among community members. Additionally, the interviewer was female which may have affected the responses of male participants. The use of WFP as gatekeepers facilitated participant requirement, however there is a possibility that communities felt obliged to comply or that participants responses were influenced in some way by WFP staff presence. Data collection was limited to a very specific sub-population of La Guarija and cannot be generalized. However, data could be representative of other similar agricultural or small holder farming communities. During data collection, there was a limited access to the WFP Wayuunaiki translator and thus in some cases interviews occurred with intermediate levels of Spanish proficiency, inhibiting rich data collection. Lastly, qualitative IDIs and paired interviews were collected, leaving room for FDGs and quantitative research in order to further explore climatic impacts on this population.

Discussion:

The results indicate that socio-contextual factors, from outside and within the community, must be considered when planning interventions geared toward increasing climate resiliency. Even within smaller populations and communities, there are differences among individuals that influence both vulnerability and adaptive capacity. Though this is not limited to gender, special focus should be placed to ensure that adaptive measures are equitable for both genders, accounting for their differential experiences. Similarly, gendered livelihoods can impact risk perceptions and adaptation priorities, as supported by existing literature (Bryan & Behrman, 2013; Gustafson, 1998).

Water is still a major concern for the Wayuu people. The unpredictability and scarcity of rainfall has led to direct impacts on their livelihoods. With agricultural and pastoralist activities under threat, communities risk climate related disruption of traditional cultural practices as these livelihoods become less viable (Aldon et al., 2016). A sustainable way to access or collect water needs to be developed in order to mitigate economic and cultural impacts of climate change. Though attempts have been made to provide water rations, in my communities it is still not enough These efforts also risk making the population too dependent on continuous external aid in order to maintain their livelihoods. The increased need for cash to buy resources requires integration of Wayuu people into the formal labor force. This could prove challenging in an area with already high unemployment and a population with varying Spanish fluency and education.

The results from this study also have broader policy implications, on a local and global context. The area of La Guajira has undergone years of extensive drought, increasing the vulnerability of its population. On a global level, policy surrounding climate and water must be put into place to mitigate further adverse effects on already vulnerable populations. Locally, Colombia must address the challenges faced in the area, especially in the face of the ongoing issues in Venezuela. Colombia's neoliberal economy also has had broader impacts in the area. While foreign investments by large international groups can stimulate economic growth, such growth has come at a cost to the people of La Guajira (McKenzie & Cohen, 2018). The mining project in the area, led by Cerrejon, uses large amounts of water while polluting the local river, as stated

by participants in our study. These initiatives signal broader issues related to environmental injustice that should not be neglected.

To design successful and effective adaptation strategies, it is imperative to have a full understanding of the context in which individual and communities exist. By doing so policy makers and aid-based organizations can better assist those impacted by climate change.

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Chapter VI: Discussion

The results indicate that socio-contextual factors, from outside and within the community, must be considered when planning interventions geared toward increasing climate resiliency. Even within smaller populations and communities, there are differences among individuals that influence both vulnerability and adaptive capacity. Though this is not limited to gender, special focus should be placed to ensure that adaptive measures are equitable for both genders, accounting for their differential experiences. Similarly, gendered livelihoods can impact risk perceptions and adaptation priorities, as supported by existing literature (Bryan & Behrman, 2013; Gustafson, 1998).

Water is still a major concern for the Wayuu people. The unpredictability and scarcity of rainfall has led to direct impacts on their livelihoods. With agricultural and pastoralist activities under threat, communities risk climate related disruption of traditional cultural practices as these livelihoods become less viable (Aldon et al., 2016). A sustainable way to access or collect water needs to be developed in order to mitigate economic and cultural impacts of climate change. Though attempts have been made to provide water rations, in my communities it is still not enough These efforts also risk making the population too dependent on continuous external aid in order to maintain their livelihoods. The increased need for cash to buy resources requires integration of Wayuu people into the formal labor force. This could prove challenging in an area with already high unemployment and a population with varying Spanish fluency and education.

Sustainable and long-term solutions must be implemented in this context in order to reduce vulnerability and increase climatic resiliency. One possible solution, in the case of women is to develop a joint partnership with the Ministry of Commerce, Industry, and Tourism and the Ministry of Environment and Sustainable Development, to formalize and certify their artisanal crafts. This has the potential to minimize exploitation from middle men or third parties while providing a steady source of cash-based income. Another possible venue that would not require government involvement is the use of established partnerships between WFP and mission-based retail brand FEED. FEED, sells bags, luggage and other totes with the intent of providing meals for children in need through WFP in other country contexts.

The results from this study also have broader policy implications, on a local and global context. The area of La Guajira has undergone years of extensive drought, increasing the vulnerability of its population. On a global level, policy surrounding climate and water must be put into place to mitigate effects on already vulnerable populations. Locally, Colombia must address the challenges faced in the area, especially in the face of the ongoing issues in Venezuela. Mass migration out of Venezuela has caused on influx of new resident which only further strain the resource limited area.

Colombia's neoliberal economy has also had broader impacts in the area. Arguments against this economic model claim that it perpetuates violence, displacement and economic insecurity especially among Indigenous and Afro-Colombian groups and that is largely a mask for neocolonial control (Dyer, 2019). Efforts to refute these policies are limited as Colombia has

high incidences of activist deaths (Dyer, 2019). The issue is that while foreign investments by large international groups can stimulate economic growth, the benefits of such growth have been uneven and have come at a cost to the people of La Guajira (McKenzie & Cohen, 2018). For example, the mining project in the area, Cerrejon, is one of largest open pit coal mines in the world (McKenzie & Cohen, 2018). Though it claims the logo of "responsible mining," the mining company uses millions of gallons of water a day, even in the face of water shortages and prolonged droughts. Participants in our study also mentioned the impacts of this company's operations on the local river, as the water is too polluted to drink.

Such actions have broader implications for environmental justice that should not be neglected, as the mine also has ties to displacement and abuse, aside from environmental degradation (McKenzie & Cohen, 2018). To design successful and effective adaptation strategies, it is imperative to have a full understanding of the context in which individual and communities exist. Political policies, social contexts and cultural significances, including gender and ethnicity, influence human action and reactions and thus need to be accounted for in the context of climate change (Barnes et al., 2013). By doing so policy makers and aid-based organizations can better assist those impacted by climate change.

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Appendix:

Interview Guide:

Proyecto de Cambio Climático en La Guajira
Guía Semi – Estructurado

Consentimiento Informado y Declaración Introductoria:

Numero de Entrevista:			Nombre
Entrevistador:		Departamento:	
Dia de Entrevista (dd/mm)		Municipio:	
Hora de Comienzo		Comunidad:	
Hora de		Punto de Entrevista:	

Contexto:

1. ¿Me gustaría hablar un poco sobre tu familia, me puedes describir quienes forman parte? (sondar para llenar la tabla)
    a. Tienes cónyuge?
        i. ¿Y cuántos años tiene?
        ii. Y a que se dedica
    b. ¿Y tiene hijos?
        i. ¿Cuántos hijos tiene?
            1. ¿Y qué edades tienen?
                a. ¿Y son niños o niñas?
                    i. Y van a la escuela o a que se dedican?

Nombre o numero	**Relación con el encuestado**	**Edad**	**SEXO**	**Nivel de educación / asistencia**	**Fuente principal de ingresos / ocupación**	**Fuente secundaria de ingresos / ocupación**	**Han vivido toda la vida aqui?**	**¿Otro?**
	encuestado							
	cónyuge							
	Hijo/a 1							

Roles Familiares:

2. Dónde / cómo obtiene dinero o cosas para satisfacer sus necesidades y las de su familia? (Una vez que identifique los activos clave (activos productivos, bienes duraderos, medios de

transporte, etc.) podrías tener una lista de ellos, para ayudarte clasificar a la familia en términos de ranking de riqueza)

3. ¿Qué hace su cónyuge para satisfacer sus necesidades familiares?
4. ¿Cuáles son los tipos de cosas que se espera que haga o proporcione en tu casa?
    a. ¿Y qué pasa si no?
    b. ¿Es usted la única responsable de eso o contribuyen otros también?
        i. Si lo hacen, ¿por qué o cuándo contribuyen?
        ii. Y como ontribuyen?
5. ¿Qué espera que haga o brinde su cónyuge?
    a. ¿Qué pasa si no hace lo que esperas?
6. ¿Qué tipo de gastos hay en su casa?
        i. ¿Quién es responsable de este tipo de gasto?

Ingresos:

7. ¿Puede describir los sistemas agrícolas locales?
    a. Agrícola o cultivo acuático
8. De lo que produce que cantidad, o qué porcentaje deja para el consumo de la familia usted y su familia?
9. ¿Y de lo que produces que cantidad vendes, o cuantos bultos?
    a. ¿Y cómo decidiste cuánto vender?
10. ¿Cómo o dónde vende sus productos?
    a. ¿En el mercados o dónde?
    b. Quién vende los productos?
        i. ¿Usted, su cónyuge u otra persona?
            1. ¿ Y por qué?
11. ¿Y cómo se usa el dinero que proviene de las ventas de los cultivos / productos?

Contexto estacional / Cambio climático:

12. ¿Cuáles son las temporadas principales agrícolas aquí?
    a. ¿y qué tipo de clima espera en cada temporada?
13. Y cómo decide qué cultivos cultivar durante cada temporada?
14. ¿Qué tipo de cultivos / ganado produce?
    a. Frijoles
    b. Mora
    c. Pescados
    d. Otro?
15. Por qué escogió producir estos cultivos / productos? (preguntar por cada producto)
16. ¿Cuáles son las principales tareas que se deben hacer para este cultivo? (preguntar por cada producto)
17. ¿Cuáles son las principales ventajas de cultivar este cultivo?
    a. ¿Hay alguna desventaja?
18. ¿Cuáles son algunos de los riesgos o amenazas para este cultivo?
    a. Sondas: (¿plagas, robos, clima?)
    b. ¿Cuándo y cómo afectan esas amenazas a tus cultivos?
19. ¿Ha notado algún cambio en el clima o las estaciones?
    a. ¿Desde cuándo ha notado los cambios?
    b. ¿Cuáles son los principales cambios? (sonda: lluvia, viento, temperaturas)

20. ¿Cuáles cree que son las causas de estos cambios?

Vulnerabilidad:

21. (Para cada uno de los cambios informados) ¿Cómo le afectaron estos cambios?
    a. ¿Cómo han afectado sus cultivos? (Regrese a cada cultivo específico que mencionaron crecer / producir)

    b. ¿Cómo han afectado su capacidad para satisfacer sus necesidades y las de su familia?
        i. Sonda: en términos de seguridad alimentaria?
        ii. Sonda: en términos de la generación de ingresos
22. ¿Cuáles son algunas de las consecuencias que estos cambios en el clima han tenido en su comunidad?
23. . ¿Qué está haciendo para convivir con estos cambios?
    a. ¿Por qué haces esto?
24. ¿Dónde se obtiene información sobre eventos climáticos severos?
    a. Y con respecto al clima?
25. ¿Cuáles son algunas de las formas o alternativas que usted crea que puedan mejor los cultivos dado a los cambios.
26. ¿Qué temas gustaría ver en las capacitaciones de cambio climático?
27. ¿Qué programas sociales y recursos sobre cambio climatico / agircultura están disponibles en esta comunidad?
28. ¿Qué otra sugerencia sobre el programa le gustaría compartir conmigo?

IRB Approval:

EMORY UNIVERSITY | Institutional Review Board

Date: June 6, 2018

Luisa Ocampo
Principal Investigator
*Ethics Center

RE: **Exemption of Human Subjects Research**
IRB00103688
ASSESSING CLIMATE CHANGE IMPACTS AMONG WOMEN FARMING COMMUNITIES IN RURAL COLOMBIA

Dear Principal Investigator:

Thank you for submitting an application to the Emory IRB for the above-referenced project. Based on the information you have provided, we have determined on **June 4, 2018** that although it is human subjects research, it is exempt from further IRB review and approval.

This determination is good indefinitely unless substantive revisions to the study design (e.g., population or type of data to be obtained) occur which alter our analysis. Please consult the Emory IRB for clarification in case of such a change. Exempt projects do not require continuing renewal applications.

This project meets the criteria for exemption under 45 CFR 46.101(b)(2). Specifically, you will conduct qualitative research with interviews and focus groups conducted in Spanish, recorded, transcribed verbatim and then translated to English.

- Protocol:
  - Colombia Protocol
- Interview Guide:
  - Draft IDI/FDG guide
- Consent:
  - Verbal Consent Form

Please note that the Belmont Report principles apply to this research: respect for persons, beneficence, and justice. You should use the informed consent materials reviewed by the IRB unless a waiver of consent was granted. Similarly, if HIPAA applies to this project, you should use the HIPAA patient authorization and revocation materials reviewed by the IRB unless a waiver was granted. CITI certification is required of all personnel conducting this research.

Unanticipated problems involving risk to subjects or others or violations of the HIPAA Privacy Rule must be reported promptly to the Emory IRB and the sponsoring agency (if any).

In future correspondence about this matter, please refer to the study ID shown above. Thank you.