



UNIVERSITY OF GOTHENBURG  
DEPARTMENT OF SOCIAL WORK

## Women's Perceptions of the Social Impacts of Climate Change on their Health in Belize



Master's Programme in Social Work and Human Rights  
Degree report 30 higher education credit  
Spring 2017  
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# **Abstract**

## **Social Impacts of Climate Change on Women's Health in Belize**

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Key Words: Climate change, health, women, social work, public health

The aim of this thesis was to investigate whether climate change affects women's health in Belize, and if so, how. Belize, being a low-lying coastline country is prone to suffer from repercussions of climate change. The data was collected by conducting four focus group discussions with female participants in four rural villages in Belize. A qualitative thematic analysis was carried out to analyze the data.

The findings showed that the climatic changes seen, had serious impacts on the lives and health of the participants with both physical and mental health implications. They were exacerbated by lack of, or difficulties in accessing adequate health care. Notions of the future were described by fear of future aggravated climate changes, which also affected their current health status, inter alia sleeping patterns. Several participants had been temporarily or permanently displaced and had to seek sustenance elsewhere in Belize due to effects of climate change. The findings also pointed to the women's agency in creating adaptation strategies to deal with the extreme weather events. Furthermore, they portrayed initiatives for community action to build resilience. It was evident that progress can only come by addressing the social determinants of health with an intersectoral approach across governmental and societal levels. Policies and interventions must address the interconnectedness of social policies and health in several areas, including promotion of participation throughout policy-making and implementation. Increased and monitored accountability is needed, along with gender-sensitive agendas, portraying the authorities' responsibilities.

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## Acknowledgements

I want to thank the respondents who participated in this research, and the Caribbean Community Climate Change Centre for their good cooperation. I am also grateful for the input, inspiration and goodwill my supervisor Viveka Enander gave me. Furthermore, I would like to give thanks to the organisations that helped me finding respondents: Ya'axché Conservation Trust, Sarteneja Alliance for Development and Conservation, Toledo Institute for Development and Environment, Holy Cross Anglican School and Hol Chan Marine Reserve. Thank you to all of my beloved friends and family who helped and supported me along the way during the entire process, especially to Viviana Alvarado Pacheco for her support and guidance. Finally, I want to thank the Swedish International Development Cooperation Agency for granting me a minor field study scholarship, enabling me to travel to Belize.

## List of Abbreviations

CCCCC	Caribbean Climate Change Centre
CCCRA	The Caribsave Climate Change Risk Atlas
CEDAW	Convention on the Elimination of all forms of Discrimination Against Women
CIA	Central Intelligence Agency
CSDH	Commission on Social Determinants of Health
GDP	Gross Domestic Product
GHG	Greenhouse Gas
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IASSW	International Association of Schools of Social Work
ICV	Indian Creek Village
ICESCR	International Covenant on Economic, Social and Cultural Rights
IFSW	The International Federation of Social Workers
ILO	International Labour Organization
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
MoH	Ministry of Health
MRV	Monkey River Village
NEMO	National Emergency Management Organization
RFA	Rights Framed Approach
RBA	Rights Based Approach
SDH	Social Determinants of Health
SPREP	Secretariat of the Pacific Regional Environment Programme
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UDHR	Universal Declaration of Human Rights
USD	United States Dollar
WHO	World Health Organization
WHA	World Health Assembly

# 1. Introduction

There are many contributing factors to climate change. There is a consensus in the scientific community that climate change is caused primarily by anthropogenic factors. One of the factors causing climate change is greenhouse gas emissions (GHG). During the past 30 years, global GHG emissions due to human activities have increased by 70% (IPCC, 2007). One of the consequences of GHG in the atmosphere, is rising temperatures. The rise in global temperatures imperil social, economic, and ecological systems all over the world (Richardson, 2009). Global rise in temperatures cause extensive melting of polar ice. Subsequently, this melting causes a rise of sea levels. The global sea level average has risen since 1961 at an average rate of 1.8 mm/year and since 1993 at 3.1 mm/year (IPCC, 2007). We are likely to see aggravated changes described above further eventuate in the near future, as anthropogenically driven impacts are anticipated to exacerbate processes of climate change (CCCCC, 2009).

Climate change has wide ranging effects on countries all over the world, but some are more prone to suffer from its repercussions. Low-lying coastline countries like Belize are vulnerable to the effects of climate change, as rising sea levels and tropical storms affect nature and human lives (Richardson, 2009). The rise in global temperatures and its subsequent effects is affecting the livelihood of people in countries where the population is contingent on natural resources. Belize's economic dependence on natural resources increases the country's susceptibility to rising temperatures and the collateral impacts on agricultural productivity, fisheries ecosystems and other economic sectors (ibid). The rise of global sea level average will first and foremost affect low-lying nations such as Belize and other Asian-pacific islands (SPREP, 2016). Temperatures in Central America have risen since 1901 by around 0.5-3 degrees Celsius (Marengo, Chou, Torres, Giarolla, Alves & Lyra, 2014). Rainfall has also been more unpredictable since the 1950's, with increased delays and precipitation during the onset season (ibid). Belize is ranked 8th among 167 countries as being most vulnerable to climate risk (UNDP, 2012).

Actions are being taken worldwide to mitigate the impending effects of climate change. Immediate multilateral action from policymakers, private sector and individuals all over the world is required to reduce GHG emissions to mitigate adverse effects of climate change (Richardson, 2009). Furthermore, climate change can pose a security threat as stated by the UN High Commissioner for Refugees: "Climate change can enhance the competition for resources- water, food, grazing lands- and that competition can trigger conflict" (UNHCR, 2009). This further emphasizes the need for immediate action. Such action would be to develop mitigation and adaptation strategies. Adaptation strategies, when it comes to climate change, are defined as actions taken to help communities and ecosystems cope with changing climate conditions (UNFCCC, 2014). As a measure to mitigate these risks and in order to attribute responsibility for the effects and consequences, the United Nations Framework Convention on Climate Change focuses on holding countries accountable based on their responsibilities and capabilities (Graham, Barnett, Fincher, Montreux & Hurlimann, 2014).

Climatic changes also affect human health. Belizeans have reported that environmental changes are affecting their livelihoods, their relationship with the land, culture and their well-being (Richardson, 2009). The expected outcomes of a warmer planet are numerous and will have direct and indirect health implications for people around the world (Peace & Myers, 2012). One affected resource vital to wellbeing is clean water, not only for drinking but also for food

security, as crops and livestock are unlikely to survive in extreme weather conditions (UNHCR, 2015).

In order to cope with existing economic difficulties, some Belizean citizens leave Belize to seek sustenance elsewhere. This has created a duplex trend of immigration and emigration, where about 15 percent of the Belizean-born population live abroad (IOM, 2016). Meanwhile, since 1983, the country has received the largest foreign population in the world in relation to its total population, shaping the nation's ethnic and cultural diversity. While the diaspora contributes to the nation's development by remittances, they also add challenges when it comes to social disintegration and a "brain drain", and thereby reduced capabilities for progress (ibid).

The migration patterns of Belize are complex in many ways. The paradox of migration flows in Belize is such: the ones who choose to move to Belize, often called "lifestyle migrants" (Jackiewicz & Govdyak, 2015), do so due to amenities such as climate itself, while on the other hand climate displaced persons suffer from effects of climate change. Parts of the population in low-lying coastal countries are already required to seek sustenance elsewhere, migrating because of climate change (SPREP, 2015). However, the scale and duration of future climate migration is arduous to estimate, while changes in sea levels have unequal repercussions for local, regional and national communities across the globe (Graham et al., 2014). Meanwhile, the warm climate, low costs, and beautiful settings attract settlers from all over the world. Thereby, there is an ongoing gentrification process, where new settlers benefit from conveniences when concurrently, the Caribbean region faces severe challenges to development (Babcock & Conway, 2000). One of the challenges to this development is segregation, where some ethnic groups are discriminated against (Cunin & Hoffmann, 2013). Jackiewicz and Govdyak (2015) describe these challenges and effects of segregation as when, "[t]he relocation of relatively affluent individuals sets in motion a gentrification process and the subsequent socio-spatial inequalities" (p.18). Not only do the new settlers affect the demographic components of the country, but it also influences the cultural and ethnic identity (Seitz, 2005). Moreover, there is another group of immigrants that are less well off than the lifestyle migrants. Migrants arriving from other Central American countries, mostly Guatemala, have a low socioeconomic background and represent a group less privileged migrants (The Economist, 2012).

Belize is, apart from affected by climate change, also to some extent economically burdened. Poverty due to lack of land that can be cultivated is one of the major reasons for climate displacement (Population Education, 2015). The average income is quite high in Belize, however, behind it lays a big income disparity between rich and poor (CIA, 2017). Trends are not positive, the gini coefficient has an increasing trend and was 42% in 2009 (UNDP, 2012). Addressing poverty rates has been a key issue, where focus has been on managing unemployment rates, a growing trade deficit and heavy foreign debt burden (CIA, 2017). The poverty rate has however decreased since the economic setback in 2008 (Morris, Angel & Hernández, 2017). Tourism is the fastest growing and second largest sector which directly generates over 10% of the total national employment, plus 30% which is indirect, and contributes over 10% to the GDP (ibid). Concurrent apprehensions of the country are the involvement in the South American drug trade, crime rates, and one of the highest HIV/AIDS prevalence rates in Central America (CIA, 2017). The public health has however improved when it comes to an increasing life expectancy. The health care expenditures are 5.8% of GDP (equivalent proportion in the US is 17.1%) (CIA, 2017). Costs are anticipated to rise, as the expected impacts of climate change will cause a strain on the healthcare sector (Richardson,

2009). It will affect the most vulnerable, being people lacking financial resources to handle risks to human health. Richardson (2009), recognize these risks being “water stress, loss of important ecosystems, changes in agricultural productivity, physical damage from flooding and storms, increased burdens from malnutrition and infectious diseases, and increased morbidity and mortality from heat stress, flooding, and drought” (p.5). Climate change affects social and environmental determinants of health, such as clean air, safe drinking water, sufficient food and secure shelter (WHO, 2016).

The author’s fields of interest are social work, public health and human rights. The overall research question that drive the project is “Does climate change affect women’s health in Belize, and if so, how?” The research focuses, inter alia, on the participants’ conceptions of the scope of climate change and its impact on their daily lives, as well as its impacts on health, their adaptation strategies, and what is done by actors on different levels of society to reduce the impacts. The rationale for this thesis emanates from the prevailing lack of focus on these perspectives in relation to current and anticipated climatic changes in which the voices of women in local communities have not been heard. Furthermore, this thesis focuses on the social gradients of health of women living with impacts of climate change in the Caribbean, a research gap previously unaccounted for. The holistic approach of integrating parameters of social impacts of the SDH relating to climate change has not been hitherto elucidated. Focus group discussions were carried out in order to redress this research gap and investigate gender specific research on climate change. Four different cultural settings were visited to cover dependency of various natural resources and effects of climate change.

The stories shared by the participants of this research project covered many topics and had great depth. They portrayed agency and strength of capable, yet exposed women to hazardous climatic changes. The women in this study described fear of losing their houses to soil erosion and rising sea levels. The physical health was affected by vector borne diseases, diarrheal diseases and difficulties in accessing healthcare and medicine due to flooding and availability. There was disappointment and frustration among the women over corruption, leading to inequity in accessing help and mitigation interventions. They told stories of constraints, one of them being the financial constraint of being economically dependent on their husbands, whereby they communicated a wish for more opportunities to income-generating activities. They gave examples of response strategies to the climatic changes they experience, highlighting the importance of community action and how to find strategies despite being neglected by various levels of authorities in society. All names used for citing the participants in this thesis are fictional.

## **1.1. Conceptual Framework**

The central concepts used in this thesis are:

- Climate change: When using the concept climate change, the author derives from the United Nations Framework Convention on Climate Change’s (UNFCCC) definition of climate change as “a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods” (UNFCCC, 1992).



- Health: When implying the concept of health, the author derives from the World Health Organization's (WHO) definition of health, which portrays health as "[A] state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." (WHO, 2006).
- Climate migration: According to the United Nations Environment Programme, climate migration occurs when poverty, failing ecosystems and vulnerability to natural hazards lead to relocation of vulnerable populations (UNEP, 2016). Myers (1995) defines those affected by environmental displacement as:  
 [...] persons who can no longer gain a secure livelihood [...] because of environmental factors of unusual scope, notably drought, desertification, deforestation, soil erosion, water shortages and climate change, also natural disasters such as cyclones, storm surges and floods. In face of these environmental threats, people feel they have no alternative but to seek sustenance elsewhere, [...] on a semi-permanent or permanent basis (pp.18–19).
- Development: The progression in a complex social change has been described by Northover (2012) as, "a move from relative 'backwardness', poverty, or un-freedom, to one of relative prosperity, flourishing, 'progress', or indeed 'liberty', if not peace" (p.67). It will be referred to both as the unfolding of discernible patterns and as a phenomenon that denotes transformation (Steger, 2013). From the author's perspective, this depends on which viewpoint one takes. What many would call development is, in an environmental aspect, considered the opposite.
- Poverty: United Nations Educational, Scientific and Cultural Organization's (UNESCO) definition of poverty entails not only the economic part of poverty, but also the social, political and cultural aspects. Income poverty is defined as, "a family's income [that] fails to meet a federally established threshold" (a. UNESCO, n.d). The international standard of extreme poverty is set to the possession of less than 1 USD a day. In this thesis, when mentioning poverty, absolute poverty will be referred to, which measures poverty in relation to the amount of money necessary to meet basic needs (ibid).

## 1.2. Case Background

This thesis will relate the issue of climate change, health, adaptation, risk mitigation, and migration to the social impact they have on women, as demonstrated by this research conducted in Belize. The research is focused on women, while not only in Belize, but worldwide, women are disproportionately affected by climate change (Ergas & York, 2012). The author wants to investigate and process stories told by community members, from a social- and public health workers perspective, bearing human rights in mind. These community members are residents of four different areas in Belize. These areas were chosen as they together present a representable picture of the diverse Belizean society.

### 1.2.1. San Mateo

San Mateo is located on the island Ambergris Caye, adjoining to Mexico in the north. Residents are predominantly immigrants and other marginalized populations. Residents of San Mateo have limited access to clean water, electricity, and economic opportunities. Local government

officials have openly stated that San Mateo is not being prioritized<sup>1</sup> (Bell, Duggleby, & Kinch, 2016).

The area belongs to, and is located in the outskirts of San Pedro, a top attraction tourist hub (Bell, Duggleby, & Kinch, 2016) that is home to 11 600 people (Cardona & Cardona, 2009). San Mateo has approximately 350 private lots, and although a quarter of them are vacant, overcrowding is a problem in the area. Bell, Duggleby and Kinch (2016) found that the reason for the vacancy is “[...] due to environmental changes in the community, most likely attributed to climate change” (p. 582), as rising sea levels have flooded these lots. Since San Mateo is a swamp, many homes do not have access to water, electricity and/or sewer services. To fill up the land, trash and refuse along with seaweed is being used. This land use hampers the possibility to maintain livestock and agriculture in the area (ibid).

### **1.2.2. Sarteneja**

Sarteneja is a village on the tip of the Sarteneja peninsula in the northern part of Belize. Fishery provides the main income of the residents living there, with 15% of the country’s licensed fishermen coming from the village of Sarteneja (CCCRA, 2012). Northern Belize has had less economic growth through tourism compared to the rest of the country, even though it is now on the rise and listed as one of the emerging destinations. Tourists go there for the tranquility and near access to the barrier reef and to see manatees (Morris et al, 2017). Thus, intervention is needed to maintain this upward trend along with the ecosystem’s integrity and function. The habitat has a degrading quality due to low fish populations, lack of vegetation, and poor water quality (Kramer & Kramer, 2002). The area is declared protected but currently is not being managed when it comes to conservation work, which is yet another threat to the area (ibid). Apart from fishing, the northern district of Corozal is famous for its sugar cane production and houses one fifth of all the farms in Belize (CCCRA, 2012).

### **1.2.3. Indian Creek Village**

Indian Creek Village (ICV) is a village right outside the Golden Stream Corridor Preserve, which is a biological corridor that stretches from the Maya Mountains to the coastal mangrove forests of the southern coast (Ya’axché Conservation Trust, n.d). The village has about 600 inhabitants (personal communication, J. Chub, 1 March 2017), most of them working as farmers. Banana plantations occupies 2,400 ha in both the Stann Creek and Toledo District. Other crops grown are cacao and citrus (UNFCCC, 2002). More than 65% of the inhabitants of the Toledo District are Maya (ibid). Since there is little information about demographics on this rural village, it is hard to give exact numbers on ICV, but to the author’s understanding, the proportion of Maya population is bigger than in the rest of the district as a whole. The Maya Indian population is considered to be one of the most economically disadvantaged groups in the Belizean society, at certain areas suffering from severe poverty. When it comes to social indicators, Toledo district stand out as being particularly affected with higher unemployment rates and lower levels of education than the rest of the country (UNFCCC, 2002). Historically, the infant mortality rate in Toledo has been more than twice as high than in the rest of the country, reflecting disparities in living conditions and services, however, these numbers are now decreasing (ibid).

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<sup>1</sup> Not specified in what way

#### **1.2.4. Monkey River Village**

Monkey River Village (MRV) is a small village with a population of 196 residents (Statistical Institute of Belize, 2010). The village is to a large extent populated by Creoles and Garifuna, people of mixed African and European-Anglophone descent. Most residents speak Creole (Karlsson, Van Oort & Romstad, 2015). The village is in a remote area, which is only connected to the highway by a dirt road that occasionally floods (ibid). However, in order to reach the village, the last stretch must be taken via boat. Otherwise, one can reach the village by water taxi.

The difficulties of transport have several impacts on the residents of the village. Health services are unavailable within the village, thereby residents have to travel in case of illness (Karlsson, Van Oort & Romstad, 2015). The main livelihoods of the village are fishing and tourism, occupations exclusively operated by men. Women take on domestic work but also work in the school, shops and restaurants (ibid).

MRV has been severely affected by climate change. When hurricane Iris hit the village in 2001, it left with a loss of 90% of its built structures. The hurricane also caused loss of coastal mangroves, which has added to the coastal erosion in succeeding years. The coastal retreat that has been ongoing for the past 30 years has led to the loss of two rows of houses, a street, a football field, and the sandy beach. South of the village, 100 meters of shores, an area of 6 ha (60 000 m<sup>2</sup>) has been lost to the sea. After requests from the villagers, a temporary sea-defense made by wooden stakes and tires was spread out along most of the affected areas, slowing the erosion down (ibid).

The areas surrounding the village is used for small-scale agriculture, shrimp farms and banana plantations. Irrigation for these plantations have caused riverine changes inland, affecting soil erosion in MRV. Thus, the water doesn't reach the sea and thereby hinders the sediment transported from the Maya mountains to reach the coastline. Since the sediment does not reach the coastline, the effects of storms, tides and waves are intensified due to a lack of sedentary protection. In addition to this and rising sea levels, the drivers of coastal erosion such as deforestation, fishing pressure, and increased nutrient load derived from agricultural activities have extensive effects on the ecosystem and intensify this erosion process. In addition, aquatic changes and degradation of coral reefs poses another loss of protection against soil erosion in MRV (ibid).

### **1.3. Relevance of the Study to Social Work**

The International Federation of Social Workers (IFSW) has defined social work as “a practice-based profession and an academic discipline that promotes social change and development, social cohesion, and the empowerment and liberation of people” to which “[p]rinciples of social justice, human rights, collective responsibility and respect for diversities are central [...]” (2014). The issue of climate change and climate displaced persons is therefore an issue that social workers needs to be concerned with, if the profession wants to fulfill the challenges it poses itself.

Social workers are well suited for working with people affected by climate change. Peeters (2012) argues that there is an ongoing social transition to a sustainable society, which social workers should engage in, departing from the occupation's social mission. Further, Peeters states that the ecological environment is “an important element of practice and develops an

ecosocial practice centered on empowerment, social capital formation and resilience building as both a contribution to and part of a process of social-political change” (p.287). Professionals within the author’s field will work with this social-political change and ecosocial transition using a rights framed approach (RFA, see more on this under 3.4.). It will be used focusing on vulnerable groups, who are particularly exposed to the risks of unusual or extreme weather conditions, making sure that their voices are heard. They have a pivotal role in prevention and anticipation of risks for these groups. They will bear in mind the rights of survivors of disasters caused by climate change and work with action plans, resilience, reconstruction and empowering the affected. The RFA should concentrate at social transformations needed to foster solidarity. This approach has many possibilities and deserves a prominent role in climate change discussions (IASSW, 2015). The role of social workers will, in addition to empowering and building resilience for the ones facing climate change impacts, be to advocate for the rights of those affected by climate change displacement.

Migration has shaped globalization and vice versa (Goldin, Cameron & Balarajan, 2011). In a globalizing world, migration patterns will be extended even more in the future. Global migration is one of the current major challenges in the world. The effects of climate change will exacerbate this problem further (ibid). Social workers are needed to ensure that we are prepared for this upcoming change and cater for the displaced people’s rights. The stories of the women participating in this study can be used for advocacy for social justice on various governing levels.

## 2. Literature Review

This chapter presents previous research on social impacts of adaptation strategies, area specific research, and climate justice and fairness. These subjects will focus on climate change, societal outcomes of coastal erosion, and displacement.

### 2.1. Social Impacts of Adaptation Strategies

Actions are taken to manage climatic changes in Belize. Adaptation strategies when it comes to climate change are, as earlier mentioned, defined as actions taken to help communities and ecosystems cope with changing climate conditions (UNFCCC, 2014). Adaptation strategies are an effective tool to help communities cope with changing climate conditions (UNFCCC, 2014), yet, it can also redirect the focus from addressing the problems causing climate change to handling the symptoms, while clearly a combined set of actions are needed to manage the situation (Global Greenhouse Warming, n.d.). Previous research has been done on adaptation strategies in Belize, but only by focusing on sectors important to the economy. Kerr (2011) describes the lack of research on adaptation strategies when it comes to adapting to climate change in general. However, the research that does exist, focuses on addressing climate issues of concern to decision-makers with power over economic development. Karlsson, Van Oort and Romstad (2015) researched socioeconomic stability and adaptation strategies of MRV. Even though this research has a focus on social aspects of effects of climate change, it only focuses on adaptation strategies related to economic sectors. The authors of the study mention this by stating that “Impacts are typically considered in monetary terms to inform cost-benefit analyses of possible adaptation options” (p.1). This focus on monetary aspects of climate change impacts is clearly problematic, as it does not portray the effects on livelihood, well-being, identity and culture (Karlsson, Van Oort & Romstad, 2015; Kerr, 2011). The fact that these issues are not reflected in research will affect future policies and strategies (Turner, Gregory, Brooks, Failing & Satterfield, 2008).

Yet another paper on adaptation patterns of a Belizean community touches upon community action as a response to climate change. Karlsson and Hovelsrud (2015) argue that “local collective action, seen as contestation over rights to protection from environmental change, can be a means for places and communities not prioritised by formal policies to enroll external support for adaptation” (p.96). This relates in a way to the concept of sense of coherence, as joining hands in addressing challenges as a collective could create a sense of meaningfulness.

The climatic changes seen in Belize have social and cultural impacts on the members of the communities. Since social impacts of climate change are of interest for this thesis, Karlsson, Van Oort and Romstad’s (2015) study on societal outcomes of coastal erosion in MRV is relevant when it comes to demonstrating how the aggregation of impacts will affect the villages’ continued viability, creating uncertainty amongst community members. Their empirical research is the first to study how local communities experience impacts from coastal erosion in the Caribbean (ibid). These communities are especially prone to the effects of climate change, as climate change has direct impacts on the most vulnerable, coastal communities (Bell, Duggleby, & Kinch, 2016). They studied risks in a relational approach and identified five categories at risk induced by coastal erosion: social activities, properties, sacred sites, current livelihood stability, and future development opportunities. However, they do not make a deeper connection of these five categories to health, only stating that it is possible that climate change

may affect health. Evidently, they do not see the link between loss of recreational areas, and thereby social activities, or the effects of agitation on health.

Climate change impacts is currently leading to, and will, with exacerbated effects of climate change, lead to displacement. Karlsson, Van Oort and Romstad's (2015) study is also relevant when it comes to the topic of displacement, while according to this study, land loss is perceived to constrict future development in MRV, making residents seek sustenance elsewhere, while affecting the collective functioning of the village through subsequent outward migration. Such climate change displacement could prove to be devastating to Belizean communities, and leave populations that are already vulnerable even more exposed to food insecurity and inaccessible drinking water (Bell, Duggleby & Kinch, 2016).

## **2.2. Area Specific Research**

Area specific research was studied in order to comprehend the contextual effects of climate change and the existing conditions in the four areas selected for this research project. In San Mateo, only 40% of residents have continuous access to clean water, and nearly all residents buy bottled water (Bell, Duggleby, & Kinch, 2016). It is difficult to provide the area with basic facilities, as there is just one dirt road in and out of the community. The coastline of Ambergris Caye is subjected to various natural hazards, lacking barriers to hurricanes and tropical storms. The neighborhood of San Mateo is impoverished with a lack of accessibility to resources, making it a community vulnerable to disasters. Provided the difficulties and challenges facing San Mateo, some residents have already felt the need to seek sustenance elsewhere, although, not all residents have the economic powers to migrate. Furthermore, this migration would also cause extensive consequences for the nation, as the residents are workers in one of Belize's most economically important sectors, fishery and tourism (ibid).

In Sarteneja, the current economic situation of farmers is linked to effects of hurricanes. Sugar cane farmers represent 90.3% of the households with farmland in this area (Morris et al., 2017). Farming cane sugar accounts for more than 30% of the jobs in the district. These households have been subjected to hardships by high handling costs and low yields and are thereby vulnerable to the current falling prices in sugar and increase in natural disasters. The industry is no longer competitive because of weak prices, flooding, and hurricane losses, which have cut production by one fourth from its peak in 2006. This recession has had big effects on the livelihoods of farmers. Households whose primary income relies on agriculture have a poverty rate of 50%, far higher than the national average which is about half of this rate. This high rate is due to the decrease of production in the region, which has made poverty triple in the Corozal district from 2006-2015 (ibid).

The area of ICV in Toledo district will be, and currently are being, affected by climate change, as high levels of erosion are anticipated. In fact, The Golden Stream watershed is estimated to experience the greatest increase in erosion in the southern part of Belize. Toledo district experiences more rainfall than the northern districts, creating bigger volumes of runoff. The amount of runoff is also anticipated to increase (UNFCCC, 2002). Earlier assessments have indicated that mangrove communities along the smaller catchments in the south, such as Golden Stream, are more vulnerable to climate change than the bigger water sources (Neal, Ariola, & Muschamp, 2008). These current and anticipated climatic changes pose a threat to mangroves, as sedimentation levels are vital to their survival. Small watersheds with small amounts of

sediment input will be more vulnerable and at risk, Golden Stream being one of them (UNFCCC, 2002).

Yet another threat to the environment in the Toledo district is the increase of deforestation. The deforestation rate in ICV was 2.53 % per year from 1980 to 2010 (Ruscalleda, 2011). One reason to the increased deforestation rate is hurricane Iris, which in 2001 created a loss of forest area. However, the deforestation rate is still higher than expected in designated areas for agricultural development (ibid). The deforestation has its roots in the milpa system, more known as the slash and burn farming practices, which is a form of shifting cultivation used in certain areas of Toledo district. The forest area is cleared by burning it down in order to plant crops. The land is used for a maximum of two years, then it needs to fallow for about five years. Deforestation is a direct cause of the increase in demand for food supply, thus linked to agricultural land. The removal of a natural carbon sink has a negative impact on the environment (UNFCCC, 2002). Although agriculture is the primary cause, illegal logging is also one of the drivers in decreasing forest cover, which between 1980 and 2010 diminished from 85% to 71% (Kongsager, 2015). Another important factor for the people living in the area is access to water. The mean precipitation is decreasing and becoming increasingly unpredictable in the Maya Golden Landscape, where ICV is situated. The annual precipitation is anticipated to decrease by 38% in the Maya Golden Landscape over the next 15 years. Since mean temperatures are also increasing, this leads to an increased risk of wildfires, especially with the current slash and burn techniques being used (Ruscalleda, 2011).

Since area specific research on women's perception of the social impacts of climate change on their health is lacking<sup>2</sup>, research papers from other parts of the world were looked at. Haque, Budi, Azam Malik, Yamamoto, Louis, and Sauerborn (2013) examined health coping strategies to cope with climate sensitive diseases and sickness of women living in a setting vulnerable to climate change in Bangladesh. They found that most health expenditures were out-of-pocket payments, as there is no health insurance program in the Bangladeshi rural areas. Self-medication was one of the most common climate health coping strategy among the respondents (ibid).

Another research project on climate change and its effect on women's health, was carried out by Meyiwa, Maseti, Ngubane, Letsekha and Rozani (2014) in South Africa, where they found that women are, as a result of their precarious environmental livelihoods, among the most vulnerable groups to climate change. They also found that many social problems affecting the women's health emanates from water scarcity, as women are primary responsible for fetching water and meal preparation. The role of rural women in eradicating poverty and ending hunger was found to have significant importance, as women serve a pivotal role in the agricultural labour force and rural development, as well as ensuring the well-being of the family (ibid).

### **2.3. Climate Justice and Fairness**

Climate justice research focuses in general on ascribing responsibility for GHG emissions at an international scale (Graham et al., 2014). This way, justice can be reached when responsibility for the burden of climatic changes is acknowledged. Less attention has been attributed the issue of fairness when it comes to local impacts and adaptation responses. Graham et al. (2014) focus on the effects of climate change, and subsequent responses to it, in relation to the concept of

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<sup>2</sup> As far as the author knows

climate justice. They use the concept fairness when discussing the effects of discontinuities in climate justice implications. This study is germane while one of the aims for this thesis is to examine sense of coherence. One of the aspects of sense of coherence is comprehensibility, which fairness is associated to. Comprehensibility and mental health is linked to one another (Antonovsky, 1996), which is why this research on fairness is particularly interesting. As rising sea levels have unequal repercussions for local, regional and national communities across the globe, it is connected to fairness. One can argue that there is an unfairness in the fact that the ones that are most responsible for precipitating climate change do not usually experience the greatest impacts (ibid). The researchers defined fairness as ‘putting the most vulnerable first’. It enables redressing inequalities where the least advantaged will be more affected by climate change. In addition, the vulnerable population are less likely to reach decision makers. Thus, it is important to work for procedural fairness on adaptive responses. Neither these scientists mentioned how this unfairness affects the community members’ health status.

Structures in society influence social impacts of climate change. When touching upon the topic of power, an intersectionality perspective is often needed. Graham et al (2014) describes how procedural and distributive fairness are intimately intertwined, and an issue of “recognition, participation, representation and distribution of power with a view to achieving empowerment and legitimacy” (p.413). Even though it is not a concept mentioned, this research on fairness relates to intersectionality perspectives. Within the confines of this paper reviewed, the researchers argue, in line with intersectionality perspectives, for going beyond acknowledging differences to identifying and recognising diversity within groups of people. Further, they found that coastal erosion and changes in coastal environments affects localized conceptions of identity and belonging, affecting social cohesion and well-being (Graham et al, 2014).

Previous research on the social impacts of climate change in Belize do not focus on the full range of public health aspects, but rather on the sectoral economic effects of climate change. The sector getting the most attention is the tourism sector, as it has got big economic importance for the nation (Karlsson, Van Oort, Romstad, 2015). Neither has research been carried out with a gender perspective on health in Belize<sup>3</sup>. The research gap when it comes to gender specific research, focused on other aspects than economical, is addressed by in this thesis presenting a holistic, interdisciplinary approach on the health of women in four different cultural settings.

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<sup>3</sup> As far as the author have found



### 3. Analytical framework

This thesis avails itself of a host of theoretical perspectives, including the social determinants of health (SDH), sense of coherence, gender theory, power relations and intersectionality perspectives, and RFA. They are used as means of viewing and interpreting the data collected and will be further introduced in this chapter.

#### 3.1. Social Determinants of Health

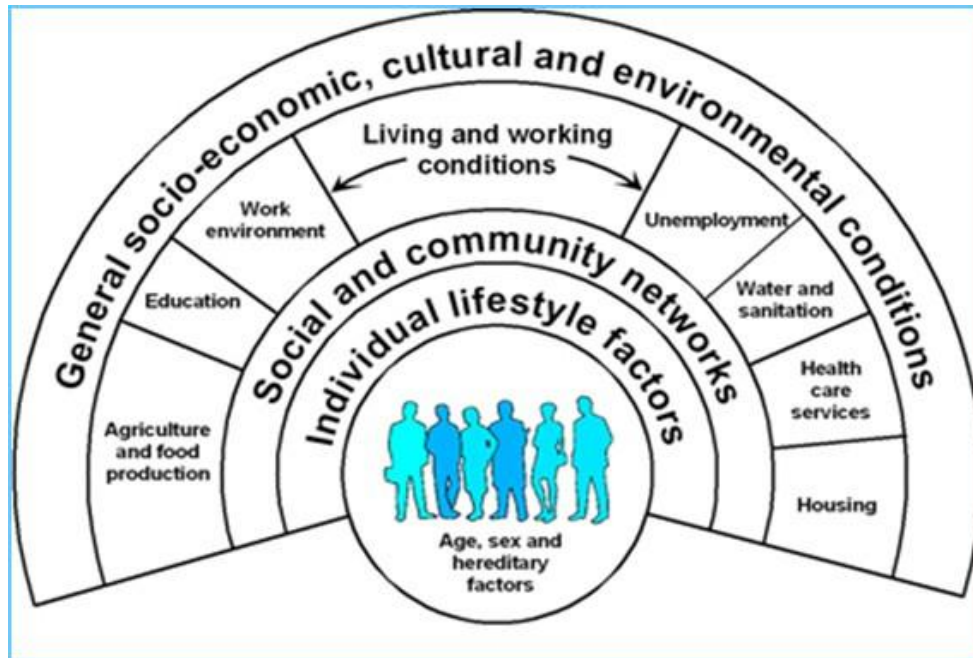
The SDH is a tool for mapping public health. It is based on the assumption that indicators on different levels of society mutually influence one another, and factors apart from medical care shape health in powerful ways (Wilkinson, Marmot & WHO, 2003).

Health is affected by many factors, one of them being lifestyle, which in many ways is crucial to a person's well-being. Lifestyle is not entirely self-imposed, but driven by experiences through life, interaction with others, self-esteem, and to a large extent by living conditions and environmental factors (Pellmer, Wramner, & Wramner, 2012). All these factors on different levels will have effects on health. Whitehead and Dahlgren's (1991) model "the half moon" (Figure 1) demonstrate this by dividing the SDH into five areas: age, sex and hereditary factors, individual lifestyle factors, social and community networks, living and working conditions, and general socioeconomic, cultural and environmental conditions. The model of the SDH clearly portrays how different aspects of conditions and structural factors contribute to health inequalities. It provides a holistic approach of key aspects on how lifestyle, living and working conditions will affect health (Wilkinson, Marmot & WHO, 2003).

*Age, sex and hereditary factors* is the level that can be influenced the least of the five levels, as you will always be born when you were born, the genes you inherited will always be your genes. Sex is however different, as sex reassignment is possible, which would change your social determinants of health. Factors of different risk behaviours, both behavioural and biological markers, such as smoking, substance abuse, eating habits and exercise is included in the *individual lifestyle factors*. The *social and community networks* include social relationships and support. These are important SDH, as psychosocial aspects can produce acute and chronic stress, which in turn affects physical and mental illness. *Living and working conditions* are also crucial to a person's health status and includes aspects such as housing, employment and education (Andersson & Ejlertsson, 2009). As stated by Marmot & Wilkinson (2006), health follows a social gradient: the higher the social position, the better the health. This social position is to a great extent determined by employment. Employment is vital to health, as there is a correlation between the lower the employment grade, the higher the risk of most causes of death (Marmot & Wilkinson, 2006). The outer circle represents the *general socioeconomic, cultural and environmental factors*. A wide range of aspects are included, such as the degree of equality in society, gender relations, environmental and climate factors and national security (Andersson & Ejlertsson, 2009). For example, ethnic inequalities in health are often structured by social and economic disadvantages, which is usually studied at this level.

These five levels and interaction between them are all essential to a person's health status, for example, a person with lower education is likely to smoke to a greater extent than someone with a higher education (Pellmer, Wramner & Wramner, 2012). The Commission on Social Determinants of Health (CSDH) concluded in their report on how to achieve health equity through action on the social determinants of health (2008) that inequities in health appear

because of the circumstances in which people grow, live, work, and age, as well as the systems to deal with illness. These living conditions are, in turn, shaped by political, social, and economic forces on all the levels of the SDH (ibid).



**Figure 1.** Model of the social determinants of health, based on the original by Whitehead & Dahlgren (1991).

### 3.2. Sense of Coherence

While the SDH are useful to examine perspectives of different levels, including a structural macro one, there are more aspects contributing to a person’s well-being than that. The SDH do not include a perspective of preconditions when it comes to individual psychological notions. Thereby, sense of coherence will serve the purpose of contributing to a more holistic view of well-being. However, it should be noted that the author is well aware of the importance of structural oppressive theory in social work practice (as portrayed by Baines, 2007; Bishop, 1994; Dominelli, 2002; Mullaly, 2010; Clews & Shera, 2005), especially when aiming at reducing health disparities (Curry-Stevens & Nissen, 2011), thus, an intersectionality perspective will be presented in the next chapter.

There is a connection between social inclusion and health, which permeates between all levels of the model of SDH. Thus, sense of coherence relates to the SDH (Västra Götalandsregionen Folkhälsokommittén, 2010). The concept was coined by Antonovsky in 1987 when he linked the ability to feel coherence to well-being. Antonovsky (1996) describes sense of coherence as “a generalized orientation toward the world which perceives it, on a continuum, as comprehensible, manageable and meaningful” (p. 15). His research showed that people who had experienced repeated life events which helped them to see the world as “making sense”, cognitively, instrumentally and emotionally had better coping skills, thereby making them more

likely to attain well-being. To feel good, people need to feel involved and that they are able to influence society and their own lives (ibid). Sense of coherence explains why some people can handle stress better than others, and the importance of feeling that life has a meaning.

Coping strategies and sense of coherence are closely intertwined. Coping was defined by Lazarus (1984) as “constantly changing cognitive behavioural efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of a person” (p.141). There are many different coping strategies, but typically they are used for solving problems of various kinds, whether it be emotional coping or concerning practicalities. However, Lazarus has been criticized for under valuing the importance of the role of family and friends in providing coping measures (Zaumseil & Schwarz, 2014). Furthermore, Lazarus view on coping is lacking an adaptive process associated with a potentially long-term series of interactions with demanding environments. This approach is vital to not eschew the fact that stressful events can lead to changes both in the individual and in the environment (Skinner and Zimmer-Gembeck 2007; Leipold and Greve 2009). Antonovsky linked the ability to cope with problems of various kinds with an outcome, which is sense of coherence. In sum, the better coping skills, the greater sense of coherence.

Psychological processes are needed to cope, understand and deal with impacts of climate change in order to feel a sense of control and sense of coherence. The process of seeing causality and structures in society are influenced by all levels in the half-moon model. The people we surround ourselves with, the level of education, media and social and community networks will all affect and determine how we see causality in climate change (Swim, Clayton, Doherty, Gifford, Howard, Reser, Stern & Weber, 2011). Depending on the social discourse of these factors one is in, different intrapsychic responses of individual and community behavioural responses will occur. Cultural and individual disparities will influence these processes, affecting problem solving and emotion management (ibid).

When looking at the SDH, it is important not to overlook non-material dimensions of poverty and deprivation. Coping strategies are vital for building resilience (Friedli, 2012). However, a focus on resilience cannot solely sufficiently explain inequalities in well-being, but may actually conceal and misrepresent analysis of social structures. These structures maintain inequalities in power, wealth and privilege, and thus the impact of these inequities on population mental health. Thereby, it is essential to bare the shortcomings of the SDH and sense of coherence perspectives in mind while conducting research.

As earlier mentioned, structures of society are important to acknowledge when touching upon topics such as well-being. The interaction with others are vital in understanding health outcome, as we are social beings. Thus, self-realization is dependent upon preconditions exceeding the individual, and can be acquired only with the cooperation of others to feel respect or esteem (Honneth & Fraser, 2003). As outlined by Honneth (2001), one’s self-awareness is dependent upon the experience of social recognition. He further argues that without recognition, conditions for a just society with respect of each person’s dignity is impossible, and thus plays an important role in ethics of social equality to attain social solidarity. Thereby, self-confidence, self-respect and self-esteem is dependent on factors of recognition of love, legal order and solidarity, and cannot be explained through the simplicity of sense of coherence left alone. Thereby, sense of coherence is not sufficient in explaining coping skills, as it does not take social recognition into account (ibid). However, they are interlinked, as a sense of coherence

might support the intersubjective struggle for recognition. Social recognition explains some of the aspects leading to sense of meaningfulness, manageability and comprehensiveness, as will be further deployed in the analysis and discussion section.

### **3.3. Gender theory, Power Relations and Intersectionality Perspectives**

Intersectionality describes connections between various power asymmetries in society and how these dimensions interact, are woven together, and create daily life. The dimensions are based on different types of discrimination and how these interact, depending on factors such as ethnicity, gender and class. Intersectionality includes diversity within the gender system, used as a springboard of perspectives, being in constant reconstruction (Lykke, 2003). According to de los Reyes and Martinsson (2005) intersectionality is "the transforming force that occurs when social power structures are shaped and challenged through each other and in relation to each other"<sup>4</sup> (p.33).

Using intersectionality perspectives are important for ensuring assumptions not being made based on perceptions of a group being homogenous. There are, however, social structures that should not be neglected. Women have historically been, and currently are, disadvantaged by unequal distribution of economic and financial resources, impacting their ability to benefit from development processes. Women suffer from discriminatory norms and practices when it comes to (inter alia) unequal remuneration, access to education and health care. Education is a major social determinant of health and plays a crucial role in improving health outcomes and reducing health inequities. Oppression of mothers and their lack of access to schooling will affect the health of their children, as schooling has synergetic effects of mothers having better maternal and child health outcomes (UN Platform on SDH, n.d). The fact that women do not have access to decision making positions perpetuates status quo, as it increases the risk of the issue not getting the priority and allocations needed to ensure gender equality and empowerment. Progress has been seen, although at a slow pace (UNDAW, 2009).

Women are disproportionately and particularly affected by environmental degradation (Ergas, & York, 2012). Being a marginalised group in society, it is of great importance that the effects of climate change do not direct them into further deprivation (Denton, 2002). Quite opposite, women should be involved in the process of ensuring sustainable development. The interests of all stakeholders should be included, especially women, since they are excessively disadvantaged by its consequences (ibid).

Governing structures on all societal levels face a challenge in addressing the inequalities previously mentioned. Policies on equality is an important aspect to improve public health (Statens folkhälsoinstitut, 2010), while the SDH benefits and disadvantage both women and men in different ways. Public health could be improved by paying attention to living conditions related to gender roles and norms and their underlying consequences. An intersectional analysis is vital in order to get a holistic view of women's and men's health status. By analysing differences in health within the group of men and within the group of women, in relation to other dimensions of power, such as socioeconomic status, age, sex and ethnicity, the risk of exaggerating differences between men and women is reduced (Hammarström & Hensing, 2008). An intersectional perspective, portraying how the different structures of power are intertwined, is an effective tool for health promotion, since it provides a holistic approach to a

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<sup>4</sup> Translated by the author

person's life situation. Thereby it is, according to Andersson and Ejlertsson (2009), important to take on the challenge of reaching all groups in society, without maintaining socially constructed notions of masculinities and femininities.

### **3.4. Rights Framed Approach**

In the author's opinion, a RFA should be used by social workers and other professionals in contact with the members of the community, to advocate for the people living with the consequences of climate change, affecting their health. These consequences also pose a threat to future and current displacement. This approach differs from rights based approach (RBA) and is more suitable in this case because of the lack of legal support with binding treaties for many of the rights discussed below, including the rights of climate change displaced persons, which is further discussed under "Conclusion and Discussions". Miller (2010) describes the adaptation to a continuously changing context by stating that "frames constitute an evolving and contested process, involving various social actors" (p.921). This quote pinpoints the necessity of using a RFA rather than a RBA.

The right to health is covered in different ways in several treaties. One of them is enshrined in article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR), stating that signatories of the covenant should recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health. Furthermore, it comprises the obligation of state parties to create conditions assuring medical service and medical attention to all in the event of sickness. Belize signed the ICESCR the year 2000 and is thereby included in these obligations.

Another treaty, also covering the right to health spectra, is the Universal Declaration of Human Rights (UDHR). Article 25 (1) outlines the right to an adequate standard of living, stating that "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of [...] lack of livelihood in circumstances beyond his control". The subsequent paragraph proclaims that "Motherhood and childhood are entitled to special care and assistance". This is meant to safeguard women's special need to social protection.

UDHR also specifies, in article 21 (2), everyone's right to equal access to public service, which further directs us to the right to health care, also mentioned in article 25, as seen above. The right to healthcare is also specified in article 12 in the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW): "States Parties shall take all appropriate measures to eliminate discrimination against women in the field of health care in order to ensure, on a basis of equality of men and women, access to health care services. [...] States Parties shall ensure to women appropriate services in connection with pregnancy, [...] granting free services where necessary [...]"

The right to health and environment is connected in the preamble of the Paris agreement, which articulates that "climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and

intergenerational equity”. The Paris Agreement is not a binding treaty, although it does provide a base for future and current responsibilities.

A prerequisite for health is clean water and sanitation. The right to clean water and sanitation are part of binding human rights law. The UN resolution 64/292 recognises that these are essential to the realisation of all human rights (UNGA, 2010). The resolution calls for state parties to provide clean, affordable and accessible water. It is also a part of the human right to an adequate standard of living, which is enshrined in Article 11 of the ICESCR.

As earlier mentioned, employment is an important social determinant of health. The right to the same employment opportunities is enshrined in article 11 (1b) of CEDAW. However, for those who are unemployed, social protection is needed. The International Labour Organization (ILO) Social Protection Floors Recommendation (No. 202) and the ILO Social Security (Minimum Standards) Convention 1952 (No. 102) cover the right to social protection (ILO, 2012; ILO, 1952). According to these treaties, state parties should ensure that universal social protection coverage is in place and that full and fair employment and decent work are central goals of national social and economic policy-making (ibid).

### **3.5. Applicability of Analytical Frameworks**

These analytical frameworks can well be concurrently used. The SDH portray a foundation of looking at different aspects affecting the health status of a person. Sense of coherence can be attributed to any of these levels. Gender roles and legal rights will affect how the health status is characterized on each level. Thereby, they are all closely interrelated and affecting each other. They were chosen, as they are presumed to provide a foundation to analyze the data collected in an apparent way. However, although the number of frameworks had to be limited, they do not cover all possible platforms for carrying out an extensive analysis under the confines of this research, as wider perspectives of mental health, for example, could have been covered. The RFA cannot always be connected to judicial rights, as some of the treaties mentioned are not legally binding. Furthermore, an intersectionality approach can arguably be superfluous, as climatic changes affects individuals regardless of class, ethnicity and gender. Men are also affected by climate change in Belize, but the confines of this paper do not allow for a comparative analysis, whereas the intersectionality approach do not come to its full use. The level of sense of coherence and development of coping strategies depends on prerequisites one finds oneself in. The prerequisites mentioned in the introduction chapter will affect and hamper development of such coping strategies for the exposed members of the community interviewed. However, these were the best applicable frameworks at hand.

## 4. Methodology

This chapter portrays the methodology and research process of this thesis, including a description of the qualitative methodology, participants, data collection, coding process, validity, reliability, and ethical considerations of the research.

### 4.1. Qualitative Methodology

A qualitative method was chosen due to the aim of getting close to the individual's point of views on climate change and its effects in Belize. Quantitative research might not provide the same kind of closeness to the experiences, as quantitative data would have problems providing a deep understanding of authentic experiences (Seale, Gobo, Gubrium & Silverman, 2007). Yet, quantitative data is in no sense less useful or important. Rather, it was a choice of selecting a method of an open-ended nature. The multiple interpretative outcomes provide a wide range of ways to collect data (Denzin & Lincoln, 2011). The aim was not to explain a topic, but to investigate it, and how social structures, inner thoughts and feelings are linked together. A qualitative thematic analysis is suitable for this purpose, as it opens up to see socially constructed issues in an interplay in focus group discussions (ibid).

Focus group discussions were chosen, since the author wanted to access data and insights that would be less accessible without the interaction found in a group (Morgan, 1997). Macnaghten and Myers (2007) describes the way shared beliefs occur in interaction with others in a local setting. They outlined how the exploratory approach is suitable for this topic: “[...] surveys of public opinion on environmental problems assume that people agree on what constitutes the environment, what the problems are, and their relations to these problems. Focus groups on environmental issues are likely to reveal complex, contradictory and shifting definitions, and different senses of agency” (p. 65). This quote clearly portrays the benefits of focus group discussions, whereas one of the expected outcomes of this research project was to see how women’s agency is characterized. Furthermore, the aim was to provide a platform where members of the community were listened to, but also getting their view for this thesis. Focus group discussions can remove some of the power asymmetries and some of the pressure on the relation between interviewer and interviewee. In a group, there is a possibility of connecting to, or responding to others. It is a convenient way to talk about topics discussed in everyday life, such as climate change (ibid). Some argue that individual interviews can give more in-depth information. However, Morgan (1997) argues that issues of depth can sometimes favor focus groups, as the participants' often have a range of different thoughts about the topic, which can lead to a productive discussion about their agreements and disagreements.

There is always a need to construct research, the data collection itself is inescapably constructed in some way. Morgan (1997) describes how focus groups are a constructed entity by stating “I feel that any intrusion of human observers in a research setting means that we can only talk about the degree to which we are observing a naturalistic setting. Still, my sense is that the degree of naturalism in most participant observation studies is higher than the degree of naturalism in most focus group studies” (p.2). Under these circumstances, the goal was to create an approach that was as natural as possible, by conducting the focus group discussions in settings the participants normally spend time in.

A focus group discussion is the most suitable method for equalising power and giving voice to the members of a community as a whole. However, they might hamper an individual whose

opinion is in opposition with the group, which is a limitation of the method. It takes courage and an allowing group dynamic for those voices to be heard.

Information on the topic were collected before, in between and after the focus group discussion. SuperSearch, the search engine of the library of Gothenburg University, was used to find information to the background of this thesis. It entails journal articles, library catalogue GUNDA, Publications from University of Gothenburg GUP, full text archive GUPEA, interdisciplinary database with a gender perspective KVINNSAM, journals, printed and electronic books and databases.

Some of the concepts searched for were:

“Social impacts AND climate change AND Belize”, “climate change AND Sarteneja”, “climate change AND Monkey River”, “climate change AND Golden Stream”, “climate change AND Ambergris Caye”, “climate change AND health”, “Health AND Climat\*” “displacement AND climate”, migration AND climate”, “displacement AND climate AND Belize”, “displacement AND environment”.

## **4.2. Interview Guide**

The focus group discussions were conducted in a semi structured format, where the moderator had a guide (see appendix 1) of some possible follow up questions at hand. For example, the concepts within brackets guided possible outcomes of this question:

“Which is the current biggest threat to your livelihood, when it comes to things in your direct surrounding?” (such as: soil erosion, rising sea levels, hurricanes, coral bleaching, lack of rain/water shortage, excessive rain, heat waves/increase in temperature, change of oceanic temperature, natural disasters, another example)

The guide was memorized in order to keep the primary focus on the respondents. Over all, the respondents rather than the interview guide were followed.

The interview questions were open ended with an indirect approach to avoid making assumptions about the current situation.

The formulation of interview questions was guided by the model of the SDH. All levels of the model were covered when creating the questions. In order to portray current risk understandings and preferences for adaptation, questions concerning memories and imageries of the past and past experiences of environmental change were included (Karlsson, Van Oort & Romstad, 2015).

## **4.3. Participants**

The four locations for data collection were selected because of their reliance on coastal or natural resources, current reality of climate change, previous experiences of hurricanes, and connections to organisations working within the villages, providing the participants willingness to participate. The heterogeneity of the villages captures a good coverage of Belize’s diversity when it comes to ethnic minorities and main source of income.

26 women participated in four focus group discussions. The participants were aged between 22 and 66 (mean age 37.6). Three of them did not state their age. Of the 25 participants who answered the question regarding income, three had an income of their own, while three respondents stated that they occasionally had an income. 19 participants relied on another person’s income. Two of the respondents did not have any children. One participant did not



state whether she had any children or not. The remaining 23 respondents had children (mean number 3.6).

One criterion for eligibility was for all respondents to be above the age of 18. For the two focus group discussions where the author did not have access to interpreter, having a good understanding and speaking level of English was a further criterion. However, the vast majority of the population in those settings do speak English. Two out of the four focus group discussions were held in coastline communities, in order to represent the approximately 45% of the population living within 10 km of the coastline (Richardson, 2009).

The method for gathering respondents for the first focus group discussion was by guidance from a local organisation, the Hol Chan Marine Reserve, to approach the Holy Cross Anglican School in San Mateo, an area affected by climate change (same method as Graham et al., 2014). Women entering the school were given a written invitation to participate the following day. Nine invitations were distributed. Eight respondents participated in the focus group discussion held in the cafeteria of the school.

Respondents to the second focus group discussion were recruited with help from Ya'axché Conservation Trust, an organisation working with the indigenous population in the Maya Golden Landscape. They gathered six respondents from a women's cooperative to participate in the focus group discussion held in the cooperative's premises.

The method for gathering respondents for the third focus group discussion was by contacting Toledo Institute for Development and Environment, an organisation that had previously been involved in a project in Monkey River Village. They provided contact information to one of the community members, who invited five respondents to her home to participate in the focus group discussion.

The respondents for the fourth focus group discussion were gathered by contacting Sarteneja Alliance for Development and Conservation, an organisation working with members of the community in Sarteneja. They brought seven respondents together to participate in the focus group discussion held in the organisation's premises.

Eneroth (1984) points out that a representative sample is not always the necessary means to highlight a research question. The purpose of the study is not generalisability, which is why the systematics in finding the sample group is less important than in other types of research, i.e. quantitative research. The strategic sample method used for this thesis was time effective, using existing networks and organisations already familiar to the context and culture. The four areas were selected with the purpose of getting an as diverse picture as possible, concerning ethnic minorities, habitat, geographical coverage and thereby different effects of climate change. They were also selected due to their reliance on coastal or natural resources, current reality of climate change and previous experiences of hurricanes.

#### **4.4. Data Collection**

Data was collected by focus group discussions, examining participants' conceptions on what kind of environmental changes they are experiencing and their analysis of these observed changes. Discussion points include considerations of how climate change may affect the health and well-being of the communities concerned. The concepts used when asking about these issues were not clarified before the respondents had a chance to answer the question. Concepts

within brackets of the interview guide were used to ask the participants to elaborate on issues unless a topic was naturally brought up. The moderator made sure to be aware of facial expressions, head nods, and verbal sounds to not convey approval or disapproval of the discussions. An as neutral reaction as possible to the things being said was kept in order to not effect or encourage a certain type of responses.

All participants, having read and signed an information-consent form, were interviewed and audiotaped. The focus group discussions were designed to capture informants' perceptions and experiences. Specific outcomes of health effects of climate change were not assumed a priori but were identified through open-ended semi-structured format questions.

All focus group discussions had lively discussions with interaction amongst the participants. Thus, moderating the groups was rather uncomplicated. All four focus group discussions lasted for approximately one hour. Since the communities visited were rather small, a vast majority (almost everyone of each group) knew each other from before, which most likely benefited the level of interaction. The author brought snacks and drinks to all of the focus group discussions, and Swedish candy to three of them. The author took notes on interaction between the participants, as well as the spoken contents. No prompts were used. Interviews were tape recorded and transcribed verbatim and later on analysed using thematic analysis.

#### **4.5. Coding Process**

A thematic qualitative and analytic method was used to process the data, since it offers an accessible approach to analysing the topic at hand (Braun & Clarke, 2006). Its flexibility, being a method independent of theory and epistemology, and ability to be applied across a range of approaches, makes it a good option for this thesis, considering the range of the analytical frameworks. The thematic method will identify, analyse and find patterns in the data. It is unique in pinpointing the most essential parts of the entire data set in a descriptive and detailed way (ibid).

The term "data set" will refer to all of the data collected and provided in this thesis. Themes were identified by looking at patterns and meanings in responses and relevance in relation to the research questions (Braun & Clarke, 2006). The prevalence of themes differed and the judgement of the researcher determined what was considered appropriate themes that captured important elements on how health related aspects were conceived in the community.

The author was inspired by the six steps of thematic coding provided by Braun and Clarke (2006) when planning and executing the research project. However, no predefined rules for the coding process were set, as it would limit the possibilities for subtle, imaginative, context-sensitive and elaborate interpretation (Yardley, 2000). After transcribing and reading through all transcripts, a list of interesting aspects and possible themes of the data set was created. Thereafter, the first coding process begun. The codes were written down in the margins of the printed transcriptions. Parallel to this, the author marked possible extracts for stating examples on interesting topics for the findings and analysis chapter. Notes were also taken on thoughts on possible themes. The next step was to collect all codes in an excel document, separating each focus group discussion in individual spreadsheets. (233 codes for interview 1, 124 codes for interview 2, 162 codes for interview 3, 208 for interview 4 = 727 codes all together). Subsequently, the interpretative structuring of codes took place (although obviously the interpretation began far earlier (Yardley, 2000)), by organizing the codes in subthemes. Subthemes were identified for the entire data set, with all codes included. Some codes were placed in more than one subtheme. The codes in each subtheme were thereafter structured into

groups, in order to clarify the different strands within each subtheme (see figure 2). These subthemes were then reviewed to check if the themes corresponded with the coded extracts. Finally, themes were identified. A table was put together, portraying the six themes identified and their appurtenant subthemes, in order to illustrate a clear picture of the contents.

		Management			
Corruption	Lack of interventions	Need for interventions	Disappointment	Existing interventions	
Corrupt gov	No waste management	Need for mitigation	More should be done by actors	AS by gov: removing seagrass	
NEMO corrupt	No waste management	Need for action by CM	Leaders should make changes	Improved farming methods as mitigation interv	
NEMO caring for who they know	Lacking infrastructure	Need for prevention interv (vectors)	No off-shore drilling	Water in wells too chlorinated	
All people affected will not benefit from interventions	No waste management	Need for interv by gov	No social protection	Naming int org	
Local representatives of NEMO being political	Lack of initiatives from business'	Need for economic support to mitigate risks	Inadequate interventions by ministry of health	Knowledge about other CC org	
Political belonging deciding access to interv	No waste management	Extensive needs for economic support	Disatisfied with risk mitigation interv	Giving examples of local org educating on CC awareness	
MPs not affected by CC	Lack of support from state	Need help from all levels	Lack of communication with CM (MoH)		
Gov inaction	Lacking support system	Need for gov enforcement of measures	Urge for leader initiative		
Prime minister pro oil drilling	Expressing need for more continuous spraying	NEMO interv needed before hurricane	Lack of ambitions in existing interventions		
Need for gov representative who will prioritize	No waste management	Need for preparation strategies (hurricanes)	Lack of resources in existing interventions		
CM taken advantage of for political reasons	Lack of interv	Giving examples of regulations needed	Requesting solutions and A/mitigation S		
Using AS as means for attracting votes	No waste management	Need for gov actions	Lack of holistic approach: only focus on farming		
	No waste management	Need for interventions	Empty promises		
	Lack of gov interv	Interventions to preserve biodiversity of fish	Not enough attention from gov		
	Inadequate hurricane shelter	Need for state regulations on pollution	Lack of support from NEMO		
	No waste management	State should ban burning tires	No help in reducing health impacts		
	No potable water	Calling out for help by machine power	Left alone to face challenges		
	No waste management	Calling out for help from the state	Issue not being raised by outside actors		
	Inadequate infrastructure		Interv could be put in place to reduce SE		
			Lack of support from gov		
			Gov interv just before elections		
			Disappointment in gov not fixing roads		
			Disappointed in gov interv		
			Gov not doing enough		
			Waiting for Gov AS		
			Health interventions don't reach them		

**Figure 2. Example of subtheme (management) and appurtenant subthemes**

The level at which themes are to be identified in, defines the approach one takes on (Braun & Clarke, 2006; Yardley, 2000). A semantic level, also known as an explicit level, was chosen for this thesis. In order to go in-depth and investigate the complexity of health aspects of these women, a semantic approach focusing on a particular group of themes in the dataset was used. The themes focused on was the ones relating to the analytical frameworks. In line with a semantic approach, no investigation for further meaning going beyond what the participants said was carried out. A deductive theoretical thematic analysis was carried out, where hypothesis is deduced from general law and thereafter tested against reality by looking for conditions that confirm or disconfirm it (Gibbs, 2007). Thus, the coding process was guided by the researcher’s theoretical interest of public health, social work and the right to health, and by the research questions of the thesis.

**4.6. Validity and Reliability**

The quality of qualitative data is (inter alia) measured by validity (Seale, Gobo, Gubrium & Silverman, 2007). Validity refers to the accuracy in which the findings reflect the data. Another measurement for quality of research is reliability. Reliability describes consistency within the used analytical method (ibid).

The validity of research can be affected in many ways. Possible misunderstandings, linguistic and interpretative, may have influenced the analysis and interpretation of data. The most meaningful way of managing the data was by giving examples, using quotes taken verbatim from the original transcripts in order to answer the research questions guiding this research project. The results were produced by systematic thematic analysis by colour coding, thematisation and quality audit of the material. The aim for the methodology chapter was to provide interesting and understandable descriptions of which procedures were used to collect and process data.

The main findings will be disseminated to participants in order for them to access the results of the study. The optimal approach would have been for them to access it prior to the publication

of the thesis. Unfortunately, that was not possible. However, the author did seek input from the local organisations and supervisors at the Caribbean Community Climate Change Centre (CCCCC), in order to ensure validity of the study and that the research findings seem accurate or reasonable to the people who were studied (LeCompte, 2000). The respondents could not easily be contacted for this purpose out of practical reasons, lack of means of communication (access to internet) and, for some of them, language barriers.

#### **4.6.1. Reflections on Bias, Validity and Reliability**

To avoid bias in the data collection, analysis and interpretation phase, tacit theories were identified and described in order to clarify possible impact on the data collection (Schensul, Schensul & LeCompte, 1999). If the author has a preconception of the respondents being victims of problems induced by climate change, it could bias investigation of other kinds of problems and thereby compromise the view of the whole picture. Furthermore, in line with formative theory, preconceptions will influence the research. The author being a public health worker, studying social work and human rights, will most likely affect the way the data is collected and processed. This value based profession will imply a personally engaged position which inevitably will affect the research. The author partly gained preconceptions prior to writing this thesis by writing an exam on climate migrants in Belize. Parts of that paper was included in this thesis.

#### **4.7. Ethical Considerations**

The four main pillars of the ethics of social science research, transparency, self-determination, confidentiality, and autonomy, is presented by the help from UNESCO's Code of Conduct and Ethical Guidelines. It was used to ensure integrity, responsibility and accountability in the research conducted. It highlights, inter alia, the importance of being familiar with, and respecting, the host culture. This was ensured by the help of local organisations, the CCCCC and thorough research prior to the data collection phase. Awareness of the concerns and welfare of the individuals studied were kept in mind throughout the research project. To communicate research objectives, written consent forms (see appendix 2) were handed out and presented orally. Intrusion into the lives of the participants was avoided by informed consent on self-determination, allowing participants to at any point without any reason given, withdraw their participation. To guarantee transparency, the informed consent form also entailed a description of purpose, context, methods and procedures of the research, along with contact information to the researcher.

Full confidentiality and anonymity of participants was ensured along with the signature of the researcher to comply to the stated agreements. All names used for citing the participants in this thesis are fictional. The autonomy of the respondents is respected by only using the collected data for research purposes. The welfare of the informants had the highest priority from start to end of this project. The quest for knowledge to contribute to individual and societal development did not exceed their well-being (b. UNESCO, n.d).

This type of research is in many ways problematic. Research is needed in order to be able to advocate for people affected by climate change and their rights. However, the direct outcome of the focus group discussions conducted is a thesis and report to organisations and governmental bodies working with this issue, and not practical assistance in addressing the issue at the times of the focus group discussions. What further makes the situation complex is the virtue of superior and practised skills, when it comes to education, with which the researcher

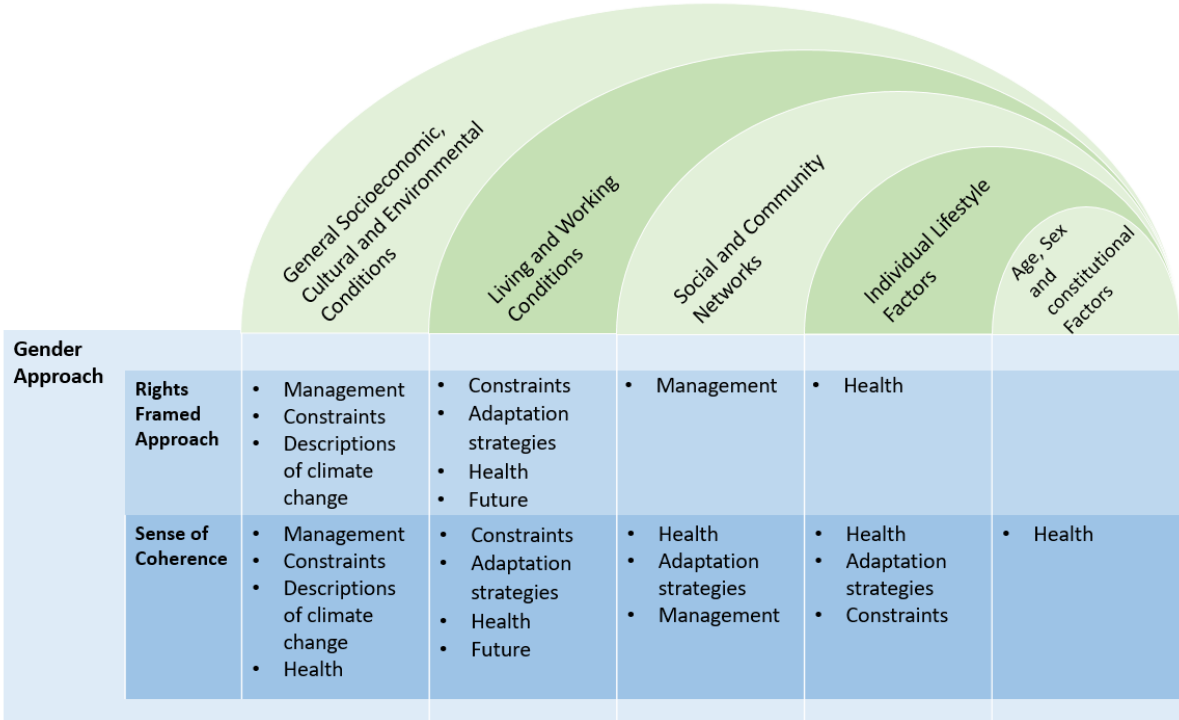
meets the members of the community, which calls for a humble and engaging approach. This research is safeguarded by written consent forms and all the steps taken on ensuring an ethically approved approach. This issue was discussed by Roger Homan (1992) stating that “consent is a procedure which protects not the participants of social research but the researchers themselves, from whom moral responsibility for adverse consequences immediately passes” (p.321). The moral obligations have throughout this research project been recognized of portraying the words of the women in this study in order to provide useful information. The positioning of the author problematizing climate change and its effects on human lives were made clear to all participants.

The fact that the researcher is a woman has probably affected the data collected, since the women in this study may have shared different stories to a male moderator when it comes to, *inter alia*, stories of vulnerability and difficulties maintaining hygiene without access to clean water. The fact that one of the translators for one of the focus group discussions was a man might have caused discomfort in sharing certain topics on the health of the women. Another ethical consideration is the fact that the thesis will be presented to the women of one focus group discussions by a man. Moreover, language issues may have affected the data collection. The author depended on a translator for two of the focus group discussions. This is an ethical consideration, since the exact translation could not be controlled for within the confines for this research project. Although most of the participants could read and very few participants were illiterate, some could not read the consent form by themselves and could only process the information orally.

What also might have affected the findings, is the way making one’s voice heard might have been seen as serving a purpose of creating external support for interventions by communities not prioritised by formal policies in dealing with climate change. The researcher, being from a global north context, might have been seen as a representative of a context from which this support is provided, thus providing information that would benefit in adaptation and risk mitigation (Karlsson and Hovelsrud, 2015). Furthermore, the will to please the researcher in providing useful information may affect the interaction of respondents and researcher (Homan, 1992).

# 5. Findings & Analysis

This chapter is divided into the six identified themes. They are subsequently divided into the levels of the model of the SDH that fit each theme. In order to portray this in a clear way, a model was created (see figure 3). This model portrays the half moon model of the SDH, and the themes belonging to each level. A gender analysis is carried out for all themes identified. The light blue colour represents the gender analysis in the model. Each theme was analyzed using the analytical frameworks, rights framed approach and sense of coherence. The model illustrates which framework that was used for each theme. The themes identified from the data collected for this thesis do all fit in the model of the SDH. The themes are all linked and intertwined as seen in this chapter, and so are the levels of the SDH. When the term moderator is used, it is referring to myself.



**Figure 3. Model of findings, themes on each level of the SDH**

The themes identified from the data collected are:

- Descriptions of climate change
- Management
- Constraints
- Health
- Adaptation strategies
- Future

These themes all have subthemes. These are displayed in figure 4, and will be further explained and exemplified when presenting the findings, using the levels of the model of the SDH.

<b>Management</b>	<b>Adaptation Strategies</b>	<b>Constraints</b>	<b>Descriptions of CC</b>	<b>Future</b>	<b>Health</b>
Disappointment	Needed/Lack of AS	Unfairness	Effects of CC	Psychological notions of future	Mental health
Corruption	Miscellaneous	Financial constraints	Unpredictable	Future development	Health care
Miscellaneous	Existing/visions	Lacking rights	Weather	Descriptions of future	Physical health
Existing interventions	Hindrance/failing	Displacement	Time aspect		
Need for interventions		Women & CC			
Lack of interventions		Lack of awareness			

**Figure 4.** Themes in bold, subthemes below.

### 5.1. The Social Determinants of Health

The outermost layer of the half moon, general socioeconomic, cultural and environmental conditions, includes a wide range of aspects and how they affect health, such as the degree of equality in society, gender relations, environmental, cultural traditions and beliefs and climate factors. This layer houses the themes *management*, *constraints*, *descriptions of climate change* and *health*.

The second outermost level, is the level of living and working conditions, which includes factors such as agriculture and food production, education, work environment, unemployment, water and sanitation, health care services, and housing. The themes that houses this level are *constraints*, *adaptation strategies*, *health* and *future*.

The social and community networks include social relationships and support. These are important SDH, as psychosocial aspects can produce acute and chronic stress which in turn affects physical and mental illness. Psychosocial aspects of social networks can also be instrumental to feel a sense of coherence and contribute to well-being. Themes identified for this layer are *health*, *adaptation strategies* and *management*.

Factors of different risk behaviours, both biological and behavioural markers, such as smoking, substance abuse, eating habits and exercise is included in the level of the SDH concerning individual lifestyle factors. The themes *health*, *adaptation strategies*, and *constraints* fit the level of individual lifestyle factors.

Age, sex and hereditary factors is the level that can be influenced the least of the five levels, as you will always be born when you were born, the genes you inherited will always be your genes. The theme *health* fit the level of age, sex and hereditary factors.

## 5.2. Descriptions of Climate Change

### 5.2.1. General Socioeconomic, Cultural and Environmental Conditions of Descriptions of Climate Change

Most of the descriptions of climate change and descriptions of the effects of climatic changes fit under the general socioeconomic, cultural and environmental conditions, although, some of the effects will be portrayed under living and working conditions, such as housing. It has, however, also been included under this subheading.

The climatic changes described by the participants affect the right to an adequate standard of living, which is enshrined in article 25 (1) of the UDHR, stating that “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family [...] and the right to security in the event of [...] lack of livelihood in circumstances beyond his control”. Soil erosion and its effect on houses destroyed by water can arguably be included in “circumstances beyond control”. The subsequent paragraph of the declaration proclaims that “Motherhood and childhood are entitled to special care and assistance”. This is meant to safeguard women’s special need to social protection. This adequate standard of living regarding housing is threatened by soil erosion in Belize. The participants were discussing the urgency of the matter:

Emilie: It’s right in front of us right now. It can’t come any closer. If it come close then the house will go. She’s threatened. It [the house] is concrete, so we can’t move it. If it was a wooden house then probably had moved it long time.

Michelle: I live like two houses in front of me from the beach and I am scared right now because, you have to scared. Next year my house will be threatened. The way the erosion is happening and the beach...

Kate: It happens fast. It has eroded from the last year, it’s just a couple of months, it erodes quickly.

Another right affected by the effects of climate change, is the right to “the enjoyment of the highest attainable standard of physical and mental health”, included in article 12 (1) of ICESCR. Another quote concerning unfairness below, under constraints, also relates to this issue. The participants described how, according to them, the government is not doing enough to change the situation. The obligation by the state to take the steps necessary to achieve the full realization of this right to health is covered in the same article (2b). Thereby, the general socioeconomic, cultural and environmental conditions are related to living and working conditions.

The right to health and environment is connected in the preamble of the Paris agreement, which articulates that “climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity”. Since women are, as earlier mentioned, disproportionately affected



by the effects of climate change (Ergas & York, 2012), this special outreach of protecting women's rights is important.

Seeing one's house disappear due to soil erosion has natural effects on one's sense of coherence. One of the discussions following a question concerning climatic changes noticed over a period of time were as follows:

Camilla: Lots of land is gone.

Michelle: At present we have several houses threatened. [X] used to live by the beach, she lost her home there.

Olivia: Yeah... erosion, I had to move, like over 18 years.

Camilla: And now it's getting worse.

Michelle: And this young lady here, she's 34 years old now, she used to live at the beach front there and she used to have a lot of beach to play on. We used to go down there on the beach, you could walk a few miles... That was fun for me when I was a kid we go down the beach on Sundays we eat coco plum, and now we don't have that.

Emilie: We have no beach, you have to walk in the water. Right now the water is just probably the length of this table from my house.

Environmental conditions will affect the likeliness to feel sense of coherence to your neighborhood since this area is slowly disappearing, leaving several people displaced. The sentimentality cultivated for the beach as a recreational area is evident in this quote. Environmental conditions, which is a part of the outer layer of the SDH, thereby has an effect on mental well-being of the residents.

### **5.3. Management**

#### **5.3.1. General Socioeconomic, Cultural and Environmental Conditions of Management**

One of the subthemes of management is corruption. The women interviewed told stories of corruption when it comes to accessing help from governmental bodies. When asked who they would get help from in case of a hurricane, Viviana answered:

They have the NEMO, National Emergency Management Organization. [Laughter]. NEMO would be in place giving advisories about help after a hurricane. Most of the time it's just the close persons to politics that get help. The poor people get poorer. And the rich people already have their benefit and their health... They have the insurance. Belize doesn't give insurance like in other countries. If the house burns down, that's it, that's your loss. If a hurricane comes, that's your loss.

Many of the other participants nodded in agreement. The laughter was in itself a sign of consensus on the topic. The issue of NEMO being corrupt was brought up during another focus group discussion as well, where the discussion consisted of different examples from several participants of this corruption. State run organizations can influence national security, occurrence of corruption and social stability, which subsequently will affect the health status of the residents (Harring, 2013). This quote indicates that current governance structures do not

include the voices of the most marginalized. These marginalized groups tend to bear disproportionate burden of poor health, and should thereby be addressed in a strategic way.

Yet another subtheme of management is lack of interventions. Different aspects of this topic were pointed out during all focus group discussions, and during three of the four focus group discussions, the lack of waste management was discussed. When asked “Which is the current biggest threat to your livelihood, when it comes to things in your direct surrounding?” the issue of flooding was brought up. Lucy and Nicole conducted to the discussion by saying:

Lucy: Like when it rains, it floods. The whole street get...[flooded]

Nicole: Yeah especially here in San Mateo. When we have some crazy rains, the streets get flooded. And back here’s a lot of swamps and dirty water and garbage. So we have to walk in those nasty stuff. And it’s not good for the kids either... The street gets real flooded when we have a lot of rain.

Nicole mentioned the hazards floods imply on children. Children suffer a disproportionate share of the environmental health burden and are more prone to contract diseases caused by environmental factors, such as diarrhea, malaria and respiratory infections (UN Platform on SDH, n.d). Effective governance is needed in order to ensure that all voices and interests of the ones most affected by these diseases are heard. Local, regional, national, and global governance levels must take responsibility to attain sustainable development and environmental sustainability. Action on the social determinants of health is needed on all these levels, especially for the poor and the vulnerable population, to create an inclusive, equitable, productive and healthy society (ibid).

The subtheme of management named “existing interventions” comprised descriptions of interventions by the government that the community members were not satisfied with, but also of existing succeeded interventions. During floods, water sources get contaminated. Chlorinating the water is a response to this. During one of the discussions the participants discussed water which was too chlorinated. When asked what can be done to reduce the impacts of climate change, an earlier discussion concerning water continued:

Unknown: Reuse the water.

Samantha: We boil the water.

Raquel: Buying gallons of purified water.

Rebecca: Right now since there’s no rain, the water in the wells tastes too much like chlorine. The people buy purified water to drink<sup>5</sup>.

During a discussion in another village, Lilia and Frida discussed the same topic:

Lilia: One of the main issue here in the community: there’s no electricity, also no proper drinking water<sup>6</sup>.

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<sup>5</sup> Translated from its original, Spanish.

<sup>6</sup> Translated from its original, Q’eqchi’

Frida: They could assist families and children you know so they could do a lot more chores at home, so that they can wash inside, but it comes with a cost... Potable drinking water..., it's also another issue, very difficult without access to water<sup>7</sup>.

This topic is also related to the theme constraints, and the extracts were coded under both constraints and management. Frida mentioned the difficulties in doing home chores without access to water. Although much of the labour of women is not defined as economically active employment, these women still spend long hours in undervalued work to ensure the well-being of their households (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014). The right to clean water and sanitation are part of binding human rights law. The UN resolution on the human right to water and sanitation (64/292) recognises that these are essential to the realisation of all human rights (UNGA, 2010). The resolution calls for state parties to provide clean, affordable and accessible water. It is also a part of the human right to an adequate standard of living, which is enshrined in ICESCR. However, this right is not being met and the consequences have devastating health effects on the families affected. When mentioning "they" as the ones who could assist, Frida referred to the state, implying that the obligation is not met.

Another topic discussed in this quote was electricity, which plays an important role in the development process, as energy and development are mutually reinforcing (UN Platform on SDH, n.d). Increased availability of energy reduces poverty and has synergetic effects on health. Lack of electricity will hamper economic development, industrial productivity and household income (ibid). Energy poverty is not a problem in general in Belize, apart from areas affected by the effects of climate change and extreme weather events. In these areas, the poorest rural households are the most affected by energy poverty. The problem is anticipated to exacerbate, as electricity demands will increase with the pace of more frequent heat waves and raising temperatures, creating a need for air conditioning (Richardson, 2009). The opportunities are plentiful, in a country with good preconditions of using solar panels, people still suffer from energy poverty. Utilization of solar-derived electricity are used to a certain extent, but could preferably be extended with additional resources (Bell, Duggleby, & Kinch, 2016).

Yet another subtheme of management is disappointment. Disappointment towards the government was expressed in all four focus group discussions. When the moderator asked what is done by the government to change the situation during one of the discussions, Emma and Ashley discussed the lack of interventions and corruption:

Emma: Up until now we don't know of anybody doing anything<sup>8</sup>.

Ashley: People come, from the government or companies, to ask for signatures. People are saying no, but then somehow they flip it, and then somehow everybody said yes. People's opinions don't matter<sup>9</sup>.

Being taken away one's voice and self-determination is degrading and can create feelings of helplessness and lack of feelings of meaningfulness, since the politicians according to the participants do not listen to the community members. The frustration during the discussions was evident. The women said they urge decision and policy-makers to listen to members of the

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<sup>7</sup> Translated from its original, Q'eqchi'

<sup>8</sup> Translated from its original, Spanish.

<sup>9</sup> Translated from its original, Spanish.

community and build on aspects that drive individual and collective change. They searched for, and implemented response strategies to the climate change challenges that they faced, organising and learning skills to get around obstacles caused by the adverse effects of climate change, but felt alone in doing so.

### **5.3.2. Social and Community Networks of Management**

According to the Paris Agreement, which 143 countries, including Belize, have signed and ratified (UNFCCC, n.d), there is an obligation by the international community to recognize the specific needs and special circumstances of developing countries, especially those that are particularly vulnerable to the adverse effects of climate change. The participants of one focus group discussion mentioned the international support when answering the question of what they can do to reduce the impacts:

Michelle: We could do? Pray.

Olivia: I wish we knew what to do.

Michelle: We have to pray hard.

[...]

Michelle: The only thing we could do is pray that somebody out there international could give us some help because, you know..., people in Belize try their best but it's not enough. Locally and internationally...

This quote was also coded as, and fit the theme “adaptation strategies”. It could also fit another level of the SDH, individual lifestyle factors, as praying could be seen as an adaptation strategy carried out by the individual as a coping strategy. Adaptation strategies are important for the sense of coherence, as most likely the spirit of the community would change if they knew that they would receive help from the international community.

The corruption of NEMO has been brought up before. Above it was raised as a structural problem with politicians being corrupt. In one of the discussions, it was however brought up as members of the community representing NEMO being corrupt. This way it is also linked to the level of social and community networks, as well as the level of general socioeconomic, cultural and environmental conditions. When discussing the help retrieved after a hurricane, NEMO was mentioned, whereby the moderator asked:

**Moderator: Do you feel the support you need from NEMO?**

Raquel: Answer ladies, answer ladies. [Laughter]

Samantha: No, because lot of times, there's a NEMO group here. But when they come they're going to the people here that are related to NEMO. They start distributing to what they brought first to their families, and then the rest of people have nothing left. You get the leftovers.

[...]

Samantha: I think mostly because of politic, UDP [ruling party]... If they get the food for example, they will only give it to UDP, instead of give it to all the persons who were affected. A lot of politics. Politics really affects this... NEMO being political. Not the ones that comes, but the ones that are here, representing, living here, right?

This phenomenon of inequity in accessing risk mitigation and adaptation interventions has an effect on the identity and unity of the community. The laughter answering the question concerning support is a quite evident proof of consensus on the fact that they do not feel supported by the state-run organization, whose mandate is to preserve life and property. The women in this study raised concerns about their lack of information about other programs meant to empower them and develop their capacity for climate change as a problem. More, or better well-functioning programs are needed in these rural areas, as the need for accessible information on managing climate change was clearly portrayed in the discussions, yet it was not clear how that information may be accessed.

## **5.4. Constraints**

### **5.4.1. General Socioeconomic, Cultural and Environmental Conditions of Constraints**

One of the subthemes of constraints is “unfairness”. The participants of several of the discussions told stories of unequal access to help and mitigation. When answering a question concerning whether anyone is addressing the issue of soil erosion, the disappointment was evident:

Camilla: They’re not addressing it enough, maybe they talk...

Kate: They do have people trying but they keep reaching but just can’t pass.

Olivia: They’re not trying hard enough.

Kate: They try but it’s difficult, but I mean it’s difficult dealing with the government... and...

Camilla: They’re not doing enough. The thing is you have to be there 24/7.

Emilie: By the time different organisations, the government... They really don’t put effort to help us in the south because they don’t have nothing to lose. No losses for them. Maybe until they lost their votes. Because nobody will vote for them, we will put a stop to that.

The discussion was heated with frustration. Kate thought that there were people in the government trying, while Olivia did not agree. However, there seemed to be a consensus in the group that the government do not provide enough risk mitigation and interventions. The self-determination of using their voices in the next elections, and the power in ensuring that others do the same, seemed to strengthen the agency of the women discussing the topic. Interventions are clearly needed. As climate vulnerabilities are location and context specific (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014), the government should evaluate what is needed in each of these rural settings before planning and executing interventions.

Another subtheme of constraints is “Financial constraints”. One of the reasons given by the participants why their rights were not safeguarded by the state were “inadequate state resources”. When asked what can be done by the government, Raquel and Samantha discussed Belize’s economic dependence on natural resources, which would fit the general socioeconomic, cultural and environmental conditions:

Raquel: I think that a lot has to be enforced. There's a lot of people are burning garbage, rubber, tires, those things which affects the health of people. I don't see the government doing a lot of that.

Samantha: Just to enforce what she's saying... This is just my personal point of view, I don't know what others think... The government is not doing much. We don't want oil drilling and we are against that- He's [Prime minister] not against that. To me, he's not against that. He wants to drill oil in the sea. And that's not good. There are a bunch of people trying to do a referendum to avoid that and he's supporting that. To me, he's not.

Raquel: Not only here. Other countries have that problem. Some government depend on those sources, including companies like, I'm not going to mention it, that are companies that do this destruction on the environment and support it.

The government inaction causes frustration in the participants' perception of the surroundings being manageable, as state interventions are needed for that feeling to occur. This subtheme, financial constraint, and the quotes from the discussion above, is also related to two other subthemes of constraints, "unfairness" and "lack of fundamental rights". The general economic situation of the government relates to the environmental conditions, as the latter is worsened by the former. The right of nation states to "exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction" (p.2) as stated in the UNFCCC (1992), which Belize has signed and ratified, is thereby misused, whereas national policies are not in line with oil drilling activities. This also opposes the commitments stated in article 4 (f) asserting that all Parties shall "Take climate change considerations into account [...] and employ appropriate methods, for example impact assessments [...] with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change" (ibid). The quality of the environment and public health is according to the respondents exacerbated by the oil drilling activities, arguing that oil drilling is thereby an inappropriate method for ensuring a good quality of the environment and public health.

#### **5.4.2. Living and Working Conditions of Constraints**

Food scarcity was one of the topics discussed, which would fit the level of living and working conditions. Climatic changes are affecting the food production in Belize (Marengo, Chou, Torres, Giarolla, Alves & Lyra, 2014). The women taking part in this research described this issue when answering a question concerning effects on food production:

Emma: Yes, affects food. No crops in Sarteneja<sup>10</sup>.

Raquel: My friend has a farm and he says that the soil is not that good as it used to be.

Samantha: At the moment, right now it should be raining. My father in law, he planted onions that he would harvest this month, but because the shortage of water, it did not come

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<sup>10</sup> Translated from its original, Spanish.

out, he lost them because of the climate change. He was expecting rain right now. And there was no rain. The plantain produced... [shake head]

Low agricultural production will have an impact on the entire family, as many women are economically dependent on their men. Food security is a pivotal precondition for a healthy life, especially in early childhood, as temporary or long term interruption of a child's nutrient intake can result in permanent reduction of its cognitive abilities (UN Platform on SDH, n.d). Anticipated higher temperatures and change of precipitations patterns have far-reaching implications for development, agriculture, farm profitability, land use patterns, household and community food security (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014). Food security was discussed during another discussion as well, where the participants mentioned that there is a problem of food scarcity during hurricanes. This implies that the food security needs to be enhanced through measures ensuring universal access to food, which is crucial in improving the social determinants of health. Measures would, for example, comprise improved regulation of food trade, effective controls and an improved national food safety system. The national food safety system should be supported by multinational agreements on food standards, including the Agreement on the Application of Sanitary and Phytosanitary Measures of the World Trade Organization (ibid).

Female dependency was further discussed in other focus group discussion. Only three women of the twenty-six participants had an income of their own. The female economic dependency fit the subtheme "women and climate change", and was described as a constraint in another focus group discussion when answering a question concerning how the participants see their future:

Viviana: Even now we know if the barrier reefs getting destroyed more and more, and I guess it's humans that are destroying it. Humans are destroying it. The hammerhead sharks comes in the barrier reef, eats the small fish, so now small boats won't be able to go and fish, because they will be afraid of those type of sharks. Now, that's the livelihood of a fisherman. Now the ones that go snorkeling: Accident happens to this tourist, and then he gets in serious trouble with social security and insurance, and he doesn't pay one, so he ends up in jail. And that's another livelihood gone. So it *is* affecting us a lot. And us that depends..., we wives, we people that don't work, depend on them. Most of the homes depend on only one salary... One salary only.

Economic dependency was described as a problem. All the members of communities affected by climate change will suffer from its impacts. However, it is undisputed that rural women and children are the most likely to suffer the worst impacts of climate induced changes on the environment and extreme weather events. Meyiwa, Maseti, Ngubane, Letsekha and Rozani, (2014) describes women's peculiar situation, "They are at extreme risk as a result of dependence on the environment as they subsist off the land and rely on natural resources for daily survival. They are consequently exposed to the dangers of water scarcity, [...] their existing problems are magnified by degradation of the natural resource base". The participants pointed out during several discussions, that water scarcity has a greater impact on women, as they are responsible for cleaning, washing, maintaining the family and cooking. In addition, many rural women lack equipment to deal with climate change. Furthermore, many are not informed about the causes of the changes in weather observed (ibid). Economic dependency further exacerbates the situation for women living with impacts of climate induced changes on

the environment, as vulnerability to climate change is likely to aggravate existing vulnerabilities and create new vulnerabilities (ibid), as found with the women in the research. Several times during several discussions, the desire to work was brought up. The translator to one of the interviews delineated what Lilia had described to him on this topic:

Lilia: She was thinking outside of the box, not only about the weather, but also the economic situation the families are in. The minimal income coming in, there's even hardship in sending children to school, if you have a big family... maintaining a healthy diet in regards to purchasing the basic material that you need. Limited employment has a big impact in the life of a woman, especially if the husband is just a farmer, it's even more difficult, and the cost of living is even getting higher and higher, it's not getting better. Not only the impacts of the changing weather, rain and so on, but also the economic situation. Her other explanation is that, to her understanding, from her experience, the weather... Nobody can change that, nobody is able to go and fix the issue of the changing weather. That is something from God who control everything, but in regards to her situation, what can help them is opportunities, jobs, more economical activities that can involve both men and women in assisting the family<sup>11</sup>.

This quote touches upon many subjects and would also fit under the theme “adaptation strategies” (subtheme existing AS), as religion in this case is in a way used as a coping strategy. It also fits the theme “health” (subtheme physical health), as Lilia is describing difficulties in maintaining a healthy diet. It is evident here that many of the themes are closely related and interact with each other. However, the quote is interesting for the theme constraints, as it describes the intertwined relation between climatic changes and financial constraints. This financial constraint affects schooling for the children, which is a right enshrined in article 13 of ICESCR. Furthermore, Lilia is touching on and referring to the right to the same employment opportunities, as stated in article 11 (1b) of CEDAW, when requesting more opportunities for women and men. Employment have major effects on health equity. In fact, health follows a social gradient as such, the higher the social position, the better the health (Marmot & Wilkinson, 2006). This social position is to a great extent determined by employment. Employment is vital to health, as there is a correlation between the lower the employment grade, the higher the risk of most causes of death (ibid). Being employed can induce income security, social status, personal development, social relations and self-esteem, and protection from physical and psychosocial illness (UN Platform on SDH, n.d). Women in Belize are particularly in need of this security, as they are disproportionately affected by the effects of climate change (Ergas & York, 2012). There is no social protection for unemployed people in Belize (Social Security Board Belize, n.d). This is not in line with the ILO Social Protection Floors Recommendation (No. 202) and the ILO Social Security (Minimum Standards) Convention, 1952 (No. 102) (ILO, 2012; ILO, 1952). According to these treaties, state parties should ensure that universal social protection coverage is in place (ibid).

The response strategy to the lack of opportunities that Lilia described, was for this group of women to come together as a cooperative, creating a successful and sustainable community based transformative action. Their collective reaction to climate change exemplifies the way in which women can scale up change processes and use their agency to improve the situation. These resourceful and resilient women contribute to supporting their families and communities

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<sup>11</sup> Translated from its original, Q'eqchi'



through both paid and unpaid labour – with entrepreneurship and through being the caretakers of children and the elderly (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014).

One of the subthemes of constraints is “lack of fundamental rights”. The right to education is included in article 13 of ICESCR. When discussing the effects of hurricanes and subsequent flooding, the issue of not accessing education was brought up:

**Moderator: Anyone else want to add something? So it mainly affects the fishery?**

Raquel: Students also, because I can't go to the college, out of the village. So, like, me..., like, the time by the flooding affected I had to stay at Belize [City]. The whole road was flooding... Less knowledge that I get, because I have to be there. Because only Sarteneja I think was affected mostly.

Samantha: Your kids can't go to school, and your husband relies on fishing.

Rebecca: When it affects the fishery there's no income to also pay the school. How do we pay for the school with no money<sup>12</sup>?

Another respondent hummed in agreement to what Rebecca said. This example clearly shows how livelihood and access to education is linked to each other, whereby the subtheme of “lack of fundamental rights” under constraints is also linked to “financial constraints”, another subtheme of constraints. Education is a major social determinant of health and has a crucial role in improving health outcomes and reducing health inequities. Education has synergetic effects, as mothers accessing schooling have better maternal and child health outcomes (UN Platform on SDH, n.d). Not only is education a human right, but it is also a solution to many social development dimensions, and would improve many aspects of the challenges Belize faces.

Another constraint mentioned relating to the well-being of the participants, is access to medicine. When asked whether they can access all the medicine needed, the answer was no:

Ashley: No. No, if you need medicine, you need to buy it in the city<sup>13</sup>.

Samantha: Can't access the medicine you need. Get them in Corozal, don't sell anything here. Another limitation right. We don't have a good pharmacy where we can buy the prescribed medicines. We can get antibiotic for babies, Ibuprofen, Benadryl [medicine for allergies]. Limited access, we don't get a lot of things, painkillers.

**Moderator: And when you go to Corozal, can you get the medicine there?**

Samantha: Sometimes. We don't get the medicine there. We have to go to the private pharmacies.

[...]

Raquel: Sometimes the medicine has expired as well, and it happens a lot. At the hospital, right, here I don't know. And they still give it to you.

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<sup>12</sup> Translated from its original, Spanish.

<sup>13</sup> Translated from its original, Spanish.

Access to universal health coverage and medicine implies, as stated in World Health Assembly (WHA) resolution 58.33 on Sustainable health financing, universal coverage and social health insurance, that “all people have access, without discrimination, to nationally determined sets of the needed promotive, preventive, curative and rehabilitative basic health services and essential, safe, affordable, effective and quality medicines, while ensuring that the use of these services does not expose the users to financial hardship, with a special emphasis on the poor, vulnerable and marginalized segments of the population” (WHA, 2005). The participants’ stories of not accessing universal health coverage and medicine are not in line with the resolution.

The stress mentioned in earlier extracts of not being able to send your children to school due to loss of income because of climate change, had an effect on the sense of manageability for the respondents. The economic dependency, and the big effects on farming and fishery, in combination with not being able to pay for schooling can cause stress, which can have long term effects on well-being.

#### **5.4.3. Individual Lifestyle Factors of Constraints**

One of the constraints in creating a change concerning risk mitigation on climate change on a personal, but also community level, is that it is not on the agenda enough in some of the villages. However, in MRV, which is most severely affected by soil erosion of the villages visited, the answer to the same question was the opposite. They said they discussed it amongst each other and anyone who would visit the village. It was used as a way to connect and deal with the hardships that faced them. When the participants in Sarteneja were asked whether the issue of climate change is discussed, and in case it was, who they talk to about it, they said:

Samantha: People only talk about it when it’s happening, when it’s gone they all forget about it. They don’t get together and say ‘you know what, this is happening, we need to do something’, they just forget about it.

Raquel: No, we don’t talk about it.

Individual strategies to build resilience have been seen, using religion is one of them. However, if the government would initiate local risk mitigation projects and involve members of the community, using a rights framed approach in ensuring a safe environment for the residents, the issue would probably be discussed more. The lack of interventions is evident in the quote above. Not until it is on the table is the issue discussed, because in between the events there is no intervention or ongoing awareness campaign. This was coded under the subtheme “lack of awareness under the theme constraints. The level of awareness will affect individual lifestyle factors, having ripple effects on the environment and the community.

### **5.5. Health**

#### **5.5.1. General Socioeconomic, Cultural and Environmental Conditions of Health**

Cultural traditions and beliefs can affect the health status, as local remedies sometimes includes adaptation strategies for illnesses. When asked what can be done to reduce the impacts, one group of women discussed local remedies:

Sabrina: During the heat you have to drink water<sup>14</sup>.

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<sup>14</sup> Translated from its original, Q'eqchi'.

Frida: There's some local remedy, like using garlic, but also buying from the pharmacy<sup>15</sup>.

Julietta: Medicinal plants, herbs, bitter plants<sup>16</sup>.

Ana: Most of the time it is a reality when it comes to cold, flu, coughing it stays as long, until it passes away. It affects the health, the condition of the children. Don't know the remedies, sometimes we try plants, sometimes we go to the pharmacy. Sometimes we just leave it. Maybe you know some good herbs and medication that you can recommend<sup>17</sup>?

The participants expressed a lack of knowledge. The fact that Ana asked the moderator for recommendations on medication could be an indicator that current strategies are not sufficient, especially since the following discussion regarded lack of information and knowledge about nutritious food and what is needed to stay healthy. The expressed lack of knowledge, stating that they do not know the remedies, is an indicator that there is a need for interventions on this area.

Heat waves was a health-related threat frequently mentioned in the discussions. An increase in warmer temperatures due to climate change is anticipated to extend the frequency of days with unhealthy levels of ground-level ozone, which could further contribute, along with direct physical temperature stresses, to the health problems seen today (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014).

### **5.5.2. Living and Working Conditions of Health**

The right to health care is outlined in UDHR (article 25). Article 21 (2) of the same declaration also specifies everyone's right to equal access to public service. The fact that it should be accessible could also arguably mean that it should be affordable. When asked if they could access adequate health care for health issues described, Viviana and Lucy described a malfunctioning health care system:

Viviana: Health issues in an over all is a chaos. Here and anywhere in the country. Here there's only a polyclinic that will treat you with minor injuries and common sickness, but for example if you want to see a gynecologist you have to go to Belize City. If you want to see any other pediatrician you have to go over there. Here it's only general doctors for small issues. When you get to the capital they say only emergencies, which is shooting and stabbing, if you're dying..., so the health system here is in total disaster.

Lucy: Let's say if you have an emergency around midnight, pay a private airplane and it's like 3-4000 dollars [BZD= 1500-2000 USD], so it's very expensive.

Poorly performing health systems can be a big barrier to health care and a critical social determinant of health. The right to health care is, apart from what was stated above, specified in article 12 in the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW): "States Parties shall take all appropriate measures to eliminate discrimination against women in the field of health care in order to ensure, on a basis of equality of men and women, access to health care services [...]. States Parties shall ensure to women

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<sup>15</sup> Translated from its original, Q'eqchi'

<sup>16</sup> Translated from its original, Q'eqchi'

<sup>17</sup> Translated from its original, Q'eqchi'

appropriate services in connection with pregnancy, [...] granting free services where necessary [...]”. This right is clearly violated, according to the stories of costly transport and lacking health care services for women that Lucy and Viviana shared. For the people living on the islands, like these respondents do, the costly transportation is an extension to the already malfunctioning health care system. Geographic location has essential bearing on the level of vulnerability and response strategies, as rural areas often are less resourced and lack access to information (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014). A functioning health care system focusing on the SDH is needed to increase equity in health care access, improve health outcomes and health equity. This is of course a struggle for many low-income countries, such as Belize, which is why coordinated efforts from several actors, including international organizations, governments, civil society organizations and academia is needed to achieve affordable and available universal access to health care. However, increased efforts are also required to put in place effective national social protection, which can help to address the social determinants of ill health and enhance universal access to health care by the government of Belize (The UN Platform on SDH, n.d), as recommended by the WHA resolution 58.33 (WHA, 2005).

The appropriate services in connection with pregnancy were clearly not provided in a case described by the participants of one focus group discussion when answering the question concerning whether they can access adequate health care:

Multiple: No. [Many people shaking heads]

Ashley: Clinics only used for kids and pregnant women, and there’s nothing else. There’s no emergency room, if you have an accident where you need stitches you need to go to Corozal. There’s no emergency room here<sup>18</sup>.

Emma: There was a woman who was pregnant and she had the baby on the ferry on the way to Corozal<sup>19</sup>.

From the stories told by the women of all focus group discussions, the capacity of the healthcare sector has to be improved to identify and contribute to addressing social determinants of health through intersectoral action and policies.

When asked who will help them in reducing the impacts of the health problems described, Emma and Samantha said:

Emma: Nobody, just ourselves<sup>20</sup>. [Laughter from several participants]

Samantha: The end of the book, it says the end, no one is going to help us... [A saying] “Colorín colorado y este cuento se ha acabado”

**Moderator: How do you feel about that?**

[Using arms, smacking teeth, hands against lap]

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<sup>18</sup> Translated from its original, Spanish.

<sup>19</sup> Translated from its original, Spanish.

<sup>20</sup> Translated from its original, Spanish.

Amelia: You feel like you're a fish out of the water, and it's choking, no one's going to help them. You're waiting for someone to push that fish back into the water, but no one comes, so you'll individually help yourself<sup>21</sup>.

The helplessness portrayed in the body language of several of the participants, and Amelia's metaphor about the dying fish illustrates hopelessness. The agency of helping yourself and knowing that there is no one but themselves is evident in this quote.

### **5.5.3. Social and Community Networks of Health**

Community networks and feeling safe in a community is vital to well-being, in fact it is important also for the community mental health (Lacruz, 2011). Certain prerequisites will enable the likelihood of a feeling of community, and various factors will hamper the development of that feeling. San Mateo has limited access to clean water, electricity, and economic opportunities (Bell Duggleby & Kinch, 2016). These hardships have created a community disturbance where the women described they do not feel safe. The women of one focus group discussion described their dilemma of leaving the island during evacuation for hurricane threat when answering the question about whether they had ever have to move because of climate change:

Viviana and Lucy: No, well just with the hurricane, a lot of people on my side move. When you come back you don't have anything in your house. Because they already stole it when you were gone. If the hurricane didn't wash it away, it was stolen. So you come back to zero again. Just the hurricane season you will go.

Viviana and Lucy filled in each other's sentences and talked simultaneously. This extract was, *inter alia*, coded as frustration, which fit the subtheme "mental health". This frustration evidently influenced the community feeling, which is why this quote fit the social and community networks level of the SDH. The lack of emotional reassurance, knowing that the community network will function in its provision of a safe environment free from theft, will affect the feeling of support, which in turn might affect the feeling of community and the health status of the residents. Lack of feeling of community might affect the level of participation within governmental processes, which subsequently can hamper the participation in activities leading to economic development. The people we surround ourselves with, and community networks we engage in, will also affect and determine how we see causality in climate change (Swim et al., 2011).

### **5.5.4. Individual Lifestyle Factors of Health**

The individual lifestyle factors of the SDH include personal coping strategies used, and habitual approaches in dealing with climatic changes. The participants of one of the discussions gave stories of fear of climate change and its effects on wellbeing during an interview conducted in an area severely affected by soil erosion:

Olivia: You don't know when you have to run. You can lay in your bed, you could go at 10 o'clock, when you look... all water in your house, look at the one o'clock, one twenty four, two o'clock, three o'clock sometimes before I sleep with them hard breeze you know, because you hear them, you hear it [the breeze].

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<sup>21</sup> Translated from its original, Spanish.

The stress and fear of the sea level rise disturbs Olivia's sleep. Sleep is important for the wellbeing of a person and not getting a good night's sleep can affect many aspects of life (Andersson & Ejlertsson, 2009). Sleep is thereby linked to health and the right to it. The fact that she lives with the fear of not knowing when she will get displaced, worrying about sea level rise and hurricanes, has an evident effect on her well-being.

The health of the participants was clearly affected by the climatic changes seen in their neighborhoods. Although they expressed agency and gave many examples of adaptation strategies and ways of coping with the effects of climate change, it still affected their mental health. The changes seen were described as incomprehensible and creating feelings of helplessness. When asked what can be done by the people who live in the area to change the situation, the participants first started laughing. After a while Viviana said:

Viviana: Sometimes when you ask that question I guess I will talk on my part; I feel helpless. You see that I cannot make that much change. I would say that that I feel that I cannot contribute to make such a big change. And that is a good question for us. Because we are aware of the climate and everything.

Nicole: There's nothing we can do.

Lucy: That's mother nature. Pollution to us when you take out garbage and burn garbage, it has to do with the effects... the ecosystem<sup>22</sup>.

The helplessness is evident when Viviana is describing the problem, and acknowledging that the awareness of climate change is not what is lacking, but a bigger worldwide shift towards a sustainable living is needed. The feeling of being small in the context of climate change was a recurring subject during the discussions. The fact that all participants had difficulties naming international actors working with climate change can contribute to this feeling of being alone in it. All participants except two (during the same discussion) had difficulties in naming actors on a national level. It was more common for the participants to know and be able to name regional and local actors working with climate issues. The same participants discussed the question about how they saw their future:

Viviana: To me it seems like it was an overnight change from, you know, from what we used to have to what we have now. It's like everything is slipping out... It's slipping out. You can't control the amount of water and the strength that it's coming in. Like, the barrier reef is just getting destroyed. When you walk along the beach you will see parts of the coral reefs, pieces of that all along., all along. In a couple of years then we might see San Pedro only one street along, everything would be under water. We're going to start living on the boats, kayaks. [Laughter]

Lucy: It's true, it's happening so fast, everything so fast.

This extract also points to one of the aspects of sense of coherence, which is sense of comprehensibility. Even though it might not have been meant completely seriously, Viviana's comment about living on boats still proves an attitude of adjustment and creating a life with

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<sup>22</sup> Translated from its original, Spanish.

existing plausible adaptation strategies. Further research on the effects on mental health, living in an area experiencing rapid climatic changes, are needed. Already from these extracts, there is a clear pattern of that living in an unpredictable environment with fear affects the mental well-being.

#### **5.5.5. Age, Sex, and Hereditary Factors of Health**

The participants were all women, a group more vulnerable to the negative impacts of climate change than men, due to their lower social status and dependency on natural resources threatened by climate change (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014). In the communities visited, there is a societal assumption that women are responsible of securing water for cooking and other household chores, making them face the challenge in providing the basic needs for their family. Furthermore, gender differentiated access to resources, political structures and leading positions in society will affect the development of response strategies on climate change related events, prolonging the situation for women. The women interviewed managed to provide for their families and it was apparent that the women are the custodians of a number of life skills. They use each other's knowledge and support to adapt to the climate induced changes they experience. When asked if the issues discussed were related to gender, class and/or ethnicity in any way, Lilia and Julietta discussed how the issue has a gender and class aspect to them:

Lilia: It affects differently, in regards to people with a lot of resources, it affects them minimally, because they can purchase all that they acquire. They don't really worry about being affected or their resources and food. In regards to the community with farmers, it affects them a lot. Depend only on the planting of crops, the little that they can gain, if it affects them it's far more impacting than another set of high class people with a lot more resources<sup>23</sup>.

Julietta: Women tend to see the impact when it comes to availability of water in the home, taking care of the children and different diseases that comes about<sup>24</sup>.

However, Olivia had the opposite view, and no one added anything to what she said in the group of women interviewed in MRV:

Olivia: You know., Anybody, any class, man or woman, boy or girl, black or white, brown, once you're in that area there..., you're threatened.

These two groups of women are affected by the impacts of climate change in very different ways, which may be one explanation to their answers. ICV has the lowest socio-economic position of the villages visited, while MRV faces the most severe effects of soil erosion and rising sea levels.

The inner level of the model of the SDH also comprises age. The number of elderly is increasing worldwide, including in Belize. This poses a challenge, especially in developing countries, as it increases prevalence of chronic diseases and disabilities that comes with age (NCA, n.d). Furthermore, it also poses a challenge to women, since weather and climate play a vital role in

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<sup>23</sup> Translated from its original, Q'eqchi'

<sup>24</sup> Translated from its original, Q'eqchi'

health, and climate change will add to women's care burden, as they often are responsible for the care of the sick (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014). The participants of one discussion elaborated on the issue of the increased number of people with diabetes, when talking about what kind of diseases were common in the area:

Olivia: The thing we have is a lot of diabetic patients. It's true, three of us around the table.

Camilla: And we're gonna have some more because... the thing is: A lot of sweets, and no exercise.

[...]

Michelle: They don't even... no kind of sport. They're too busy, I say. They don't have the time. They don't spare the time to do some PE. Even the teachers... I can remember... the school everyday, up in the field we go.

Camilla: Run, chasing, jump off the veranda. If they run and jump off there right now: water.

The loss of recreational areas due to effects of climate change has an impact on health according to the participants. The loss of recreational areas in MRV has led to a reduction in social and recreational activities, as earlier shown by Karlsson, Van Oort and Romstad (2015). They also found that this loss has led to a reduction in social cohesion of the village.

## **5.6. Adaptation Strategies**

### **5.6.1. Living and Working Conditions of Adaptation Strategies**

The right to clean water was previously discussed under "Management". This right is infringed by many reasons, drought, excessive rain and subsequent flooding, and infrastructural management problems. Adaptation strategies to combat the problem of contaminated water were inter alia to add chlorine to the water, boiling the water, buying water, digging canals to drain the flooded areas and sealing things when leaving the house during a hurricane evacuation. Water is an essential part of sustainable development, as it is connected to a number of key global challenges. Water conduces to health directly within households through food, and indirectly by maintaining a healthy, diverse environment. Clean water and sanitation are also key factors in poverty eradication and women's empowerment. Lack of access to clean water disproportionately affects socially and economically vulnerable populations (UN Platform on SDH, n.d). Thus, the UN resolution 64/292 on the human right to water and sanitation, calling for state parties to provide clean, affordable and accessible water needs to be better implemented in Belize. Some participants highlighted the importance of drinking water during heat waves. This extract exemplifies some of the adaptation strategies concerning water:

**Moderator: What about the water in this area, has it been affected by climate change? I'm thinking if there was a hurricane..., flooding..., can you access clean water?**

Samantha: Yeah it does because in my house we use water from the well. And when there's a flooding or hurricane the water stays like yellowish and there's a lot of garbage as well so we can't bathe in it.

**Moderator: So what do you do then, when the water is yellowish?**

Samantha: We have to put clorox in it to disinfect them.



Raquel: Just to add on the potable water right, a side effect I would say after a flood... After the flood people started digging canals to the sea right, and hence they started breaking the pipes, that happened all over the village, that caused that people not getting access to potable water. And linked to what she said, the well was dirty; No potable water. Effect of that flood...

The interaction between the participants were lively and they finished off each other's sentences and alluded to each other's contributions to the discussion in recognition of issues raised earlier. The response to flooding and water contamination by chlorinating the water and by digging canals, however not completely successful, is an indication of the acknowledgement of a need for the community's agency (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014).

The urgency of soil erosion and floods and how it infringes the right to an adequate standard of living was described earlier under descriptions of climate change. One reaction to the changing climate is to elevate houses as an adaptation strategy. This was discussed when answering a question concerning whether they had noticed anything about the climate where they live over a period of time, and the issue of flooding was brought up:

Amelia: They elevated the houses after that happened, in order to prevent it from happening next year, adapting to what they saw happening.

Rebecca: Yes, because it... when it rained, it flooded, everything in the house got ruined. The water rose about 3 feet<sup>25</sup>.

[...]

Emma: They are going to elevate the floor because it is made of thin paper and now they are elevating the rest<sup>26</sup>.

The active responses to climate change and the agency of families affected by climate change was described by Meyiwa, Maseti, Ngubane, Letsekha and Rozani (2014), "Women are not merely victims of climate change; they also serve as active agents of change equipped with knowledge useful in climate change mitigation, disaster reduction and adaptation strategies" (p.110). This knowledge is being used for elevating houses and finding adaptation strategies to challenges they face. Their agency provides a foundation of a coping strategy creating a sense of coherence.

### **5.6.2. Social and Community Networks of Adaptation Strategies**

The need to join hands and coming together as a community in order to change the situation of climate change was expressed several times during all discussions.

Nicole: I think for us we need to come together. Especially for this side of San Mateo need to have a talk with the council, so that they could come and start fixing this place. Because this place is just not healthy. A lot of garbage. The roads are messed up. There's a lot of work to be done here.

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<sup>25</sup> Translated from its original, Spanish.

<sup>26</sup> Translated from its original, Spanish.

During another discussion, Samantha touched upon that education is needed in order for the community to get together and make a change:

Moderator: **Anything else that can be done by the people who live in this area?**

Samantha: I would say that something that we as a community need to get educated on..., what's climate change, for us to know what we can do, because there are many things that we as humans... We know that climate change is caused by humans, right? And we are part of those human and we are not paying attention to what we are doing to the environment, which is causing harm to it and hence producing climate change. So I think if we would get educated, we would lower our bad habits.

Another respondent connected to what Samantha was saying by giving examples of what routines can be changed at home to lead a more sustainable life. Seeing these possibilities of adaptation strategies can contribute to a sense of coherence, as working together to change the situation might create a sense of meaningfulness. It might also build on a feeling of manageability in handling the actuality. This adaptation strategy of coming together as a community fits the second outermost level of the SDH since it builds on social and community networks. As a collective, at local level, the participants have proven to be resilient, sharing information on strategies that they have used to withstand the effects of climate change, as well as finding ways to work together in making a change.

### **5.6.3. Individual Lifestyle Factors of Adaptation Strategies**

A wide range of adaptation strategies were identified on different levels in society. On a community level, as seen under living and working conditions, members of the community were digging canals in order to redirect the water of flooded areas. In this paragraph adaptation strategies on an individual level will be presented and analysed.

Religious belief was coded as adaptation strategies, as it was interpreted to serve a purpose of a coping strategy. This coping strategy is, as outlined by Antonovsky (1996), linked with an outcome, which is sense of coherence. In line with his research, the better coping strategy, which in this case is religious belief, the greater sense of coherence. The translator explained Lilia's laughter when answering the question about what can be done by the people who live in this area to change the situation:

Lilia: God is the one who controls the weather, she was saying that we will not be able to go up somewhere and change the situation<sup>27</sup>.

An indication of putting the trust to a divine source was Raquel's sign to God, making a cross sign after saying:

Raquel: What if ebola would touch Belize? Everybody would die. Belize would be eradicated, everybody would be dead, because we don't have a good health system.

There seemed to be a consensus during all discussions, as several participants joined in the conversations regarding God. This one was about how they see their future:

Emilie: We have to thank God, Thank God we alive and we still have this little piece of land, and that your house is still on this little piece of land.

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<sup>27</sup> Translated from its original, Q'eqchi'

Camilla: Thank God for the piece of beach and sand

Michelle: We have to pray.

This relates to their agency to take control over their life and create a manageable everyday life. One can debate what constitutes agency, but the agency of having the capacity to acting in power over the situation, defines manageability in a way. Using religion as a tool in achieving that manageability seem to be a phenomenon reproduced and sustained in groups and at community level as well.

## **5.7. Future**

### **5.7.1. Living and Working Conditions of Future**

The answers to the question “How do you see your future?” during one of the focus group discussions were:

Michelle: The future is dim.

Kate: It looks dull to me.

Michelle: I don't even want to think about the future because we can see the erosion really bad and I think if we could get some help..., we are not getting enough help from the government. If we would get some hard breeze, or a hurricane, we completely off the map. So what I think about the future?... When we wake up everyday...

The fear of exacerbated living conditions due to climate change is evident in this conversation. The right for these women to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, is articulated in CEDAW, article 14 (2h). As earlier displayed, sanitation, electricity and water supply has also been affected by soil erosion in MRV. The effects of living with the fear and stress Michelle describes above can have serious effects of mental wellbeing and functioning (Pellmer, Wramner & Wramner, 2012).

When asked how the current biggest threat to their livelihoods affected their daily lives, the women of one focus group discussion said:

Camilla: Scared every day

Kate: Especially when the breeze blow hard, east wind or north east wind..., when it comes in.

Olivia: You think, if I have to move what will I do with the things in my house? Everybody is thinking: what will I do?

Emilie: My house is at the back, but first thing my husband thinks I'm not going to add anything to my house. I'm not going to build because of the erosion, you don't know what will happen.

The sense of meaningfulness when it comes to planning for the future is clearly lacking from the stories the women of this focus group discussion shared. Living with the fear described can have long-term mental and physical effects on health (Pellmer, Wramner & Wramner, 2012).

### **5.8. Summary of Findings**

In sum, the findings point to climatic changes seen in the communities visited having a multifaceted impact on the interviewed women's lives. Feelings of being scared and high levels of anxiety were described as affecting the mental health of these women. When it comes to physical health, stories of vector borne diseases, diarrheal diseases and not accessing health care facilities, medicine, clean water and sanitation were the main issues. The reasons for not accessing healthcare, was partially because of financial constraints, but also because of problems with flooding and hence inadequate roads to travel to healthcare facilities.

When mentioning health issues, the women often pointed out hazards for their children, and thus pointed to their children's health prior to discussing their own. Most of the respondents were mothers.

Furthermore, the women in the communities visited shared stories of corruption and feelings of not being listened to by governing structures. They also discussed difficulties of providing an income for their families, as climate change affects fishery and agricultural farming in the areas visited.

## 6. Conclusion and Discussions

The aim of this thesis was to investigate whether climate change affects women's health in Belize, and if so, how. The findings show that the climatic changes seen have serious impacts on the lives and health of the participants. These health effects have both physical and mental implications. They are exacerbated by lack of, or difficulties in accessing adequate health care. Notions of the future were described by fear of future aggravated climate changes, also effecting their current health status, inter alia sleeping patterns. Several participants, especially those in the island community of San Mateo, and the residents in MRV had been temporarily or permanently displaced and had to seek sustenance elsewhere in Belize due to soil erosion, rising sea levels, and/or hurricanes.

The findings also point to the women's agency in creating adaptation strategies to deal with the extreme weather events. Furthermore, they portray initiatives for community action to build resilience.

The health of the inhabitants of a nation is a prerequisite for sustainable development, and an indicator of how far development of the nation has come, when it comes to environmental sustainability, economic sustainability and sociopolitical sustainability (UN Platform on SDH, n.d). Belize is facing a challenge when it comes to all these dimensions. Thereby, as this thesis has argued, progress can only come by addressing the SDH with an intersectoral approach, in order to cover all aspects of development and improve the public health of the population. Thus, the SDH was a suitable analytical framework to build this thesis on. Such a framework gives a clear picture of what interventions are needed and the current health status of the participants. Health promotion is fundamentally concerned with action and advocacy to address the full range of potentially modifiable social determinants of health. Social workers in and outside Belize will have a vital role in advocating the rights of people affected by the impacts of climate change in Belize. They would benefit from using the SDH, portraying the foundation of problems, the "causes of the causes", giving a good picture of what strategies should be used in health promotion and disease prevention programs. However, the effects of any given factor are contingent upon the event of a myriad other factors (Braveman & Gottlieb, 2014), the complexity of causality between social factors and health is, according to the author, best portrayed using the SDH model.

There are policies on all themes found in this thesis. Organizations on various levels (however, with a debatable effectiveness, as earlier mentioned by the participants) work with these factors individually in Belize. The Belizean government is taking steps to combat the detrimental effects of climate change by shaping strategies to help them become more resilient, and guide people how to make changes to adapt to environmental factors (Bell, Duggleby, & Kinch, 2016). However, the challenges posed to future development in Belize rely upon the creation of a coherent response across governmental and societal levels, resulting in better health outcomes for all. Policies and interventions must therefore address the interconnectedness of social policies and health in several areas, including promotion of participation throughout policy-making and implementation. To ensure that these changes are implemented, the accountability must be increased and monitored (UN Platform on SDH, n.d). Gender-sensitive agendas are needed, portraying the authorities' responsibilities to the vulnerable and rural women to help them find ways to achieve skills and expertise in managing the effects of climate change (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014). As stated by Karlsson and Hovelsrud (2015), "attention to formal arrangements such as adaptation policy alone has limited

explanatory power to understand collective responses to change” (p.96). Thus, more is needed. The members of communities affected by the effects of climate change are in need of assistance from all levels of society, as many social-ecological challenges exceed local adaptive capacity (ibid). Joint action is needed to see these formal arrangements follow through.

According to the Paris Agreement, which 143 countries, including Belize, have signed and ratified (UNFCCC, n.d), there is an obligation to recognize the specific needs and special circumstances of developing countries, especially those that are particularly vulnerable to the adverse effects of climate change. Belize is, as earlier mentioned, one of them. Belize is also considered to be a country in development, struggling with high poverty rates. Because of this, other countries, according to the convention, are responsible for taking full account of the specific needs and special situations of this country, with regard to funding and transfer of technology. Receiving help from the international community will help the nation in building resilience, but also help members of the community. Resources are needed to enhance the response strategies on the observed climatic changes. On the level of individuals, vulnerability to climate change is determined by the physical impacts of climate change on the availability of resources that people rely upon (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014).

The participation of members of the community in policy-making and implementation is vital for its effectiveness. Participation is about acknowledgement and representation, and opens up for possibilities of redistribution of power from the government to local communities. Furthermore, it enables and highlights the importance of procedural fairness for climate adaptation (Graham et al., 2014). The participants of the focus group discussions repeatedly pointed out that their voices were not heard by various governmental organizations, such as the MoH and the NEMO. The participants evidently felt excluded from the development of adaptation policies and would like to see greater levels of community engagement. The stories of the women in these communities indicates that current governance structures do not include the voices of the most marginalized. These marginalized groups tend to bear disproportionate burden of poor health, and should thereby be addressed in a strategic way. One way to address their vulnerable position could be by involving them in decision making, to guarantee that laws, policies and resources are used to develop equitable, health-promoting environments for those most vulnerable to health risks. This way everyone would benefit from NEMO’s interventions. Other benefits by doing so, would be improved transparency and accountability and minimized opportunities for corruption (UN Platform on SDH, n.d). Women have the skills required for resource management, and should therefore be enabled to identify and implement measures necessary for adaptation and mitigation responses. Although they have the skills and knowledge needed, they lack the possibility to make such contributions since they are under-represented in decision-making on climate change (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014). As presented by Walker (2009), community members are not only concerned about the impact of policies, but also about the process through which adaptation decisions are made and by whom. By not involving local residents in the process, local knowledge vital to make successful adaptation decisions are lost. Thus, understanding values demonstrates a useful approach to evaluating the distributive and procedural fairness of adaptation options (ibid).

The participation of members of the community in policy-making is, as earlier mentioned, important for several reasons. Yet another reason, except developing successful adaptations strategies, is to form a joint approach on the issue of climate change. A vast majority of the participants did not mention climate change as an environmental issue, but a development issue.

Only a few participants contemplated adaptation strategies to benefit sustainable development. The World Bank representative Enos Esikuri mentioned this and how to adapt accordingly by saying that “[...] keeping the focus on the environment on this issue would result in losing the audience”, pointing to those who make their living in nature dependent sectors, such as fishing, farming and tourism (Humes, 2015, April 09).

Displacement due to climate change is an interesting, yet complex subject when it comes to judicial rights. As earlier mentioned, a RFA could be used beneficially to advocate for the people living with the consequences of climate change that are affecting their health, and pose a threat to the future and current displacement. However, the juristical foundation is not too rigid. Along with exacerbated climatic changes, the need for new approaches to governance to accommodate expanding meanings of being a refugee expands. This is especially relevant in the context of climate displaced persons, while there are no policies or treaties protecting persons fleeing effects of climate change, nor giving them the right to seek asylum (Goldin, Cameron & Balarajan, 2011). Instead, government policies restrain what would in different circumstances be much larger flows of international migrants (ibid). Displacement is not mentioned in the Paris Agreement, compiled in 2015. Instead, it aims at strengthening the global response to the threat of climate change. Article 2 (a) does however state that by “[h]olding the increase in the global average temperature to well below 2 °C [...], recognizing that this would significantly reduce *the risks and impacts* of climate change [...]”, the agreement “[...] aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate *poverty*” (emphasis added). Poverty due to lack of land that can be cultivated is one of the major reasons for climate displacement (Population Education, 2015). One could argue that article 2 (a) does therefore, indirectly, address displacement. Displacement is one of the most unpropitious impacts of climate change (DESA, 2016). Several of the women participating in the focus group discussions had been displaced due to hurricanes and soil erosion in combination with rising sea levels. They did all resettle in new residences within Belize territory, however, a potential future scenario of climate migration might be sooner at hand than anticipated, with the seen pace of climatic changes. Bell, Duggleby and Kinch (2016) came to the same conclusion when stating “San Mateo is especially susceptible to environmental factors, and as such, mitigation resources to help the community should be put into place by the Belizean government. If no steps are taken to combat this pressing issue, San Mateo faces a future similar to that of the Pacific island nations, whereby Belizean individuals and families will seek to immigrate to more developed nations.” (P.587). This further emphasizes the call for immediate action.

The Convention and Protocol Relating to the Status of Refugees defines refugees as fleeing state persecution, not from climate effects. By only considering the fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion (UNHCR, 1951, article 1(2)), it fails to address the threats from rising sea levels, droughts, and severe storms. Belize acceded the 1951 Convention relating to the Status of Refugees and the 1967 Protocol in 1990 (UNHCR, n.d). UDHR, ICCPR, ICESCR, CRC and other treaties do not mention climate or environment refugees at all. Neither do the UNFCCC or the Kyoto Protocol. All signatories, including Belize, of the treaties stated above have however consented to the UN Charter on working “[t]o achieve international cooperation in solving international problems of an economic, social, cultural, or humanitarian character and in promoting and encouraging respect for human rights and for fundamental freedoms for all”

(art 1,(3)) (UN, n.d.). One can argue that people affected by climate change displacement should be included in the problem solving actions concerning international humanitarian character.

Climate change was described in a wide range of different ways. The different settings, ethnic minorities and prerequisites broadened the outcome and portrayed the different ways in which these women build and act on their agency. Macnaghten and Myers (2007) describes the way shared beliefs occur in interaction with others in a local setting. The exploratory approach is suitable for this topic, as the notion of what constitutes the environment varies in the public opinion. Thus, it cannot be assumed to be agreed upon. Focus groups on environmental issues can thereby reveal complex, conflicting and shifting definitions, as well as different senses of agency (ibid).

Agency can include many things and be reflected in different ways, depending on external and internal factors. Barkin (2010) described how the structures and agency interact, “Behavior that is determined by structure, be that structure social or biological, can be expected to be consistent as long as the structure remains the same. The only mechanism for change without agency in the narrow, active sense is change in the external environment that affects structures” (p.102). However, there are more sources than social structures and material environment working as driving forces of change (ibid). Internal processes and coping strategies will influence the sense of coherence, which will have an impact of agency. The ways in which supportive networks are built with members of the community relying on each other contributes to a sense of coherence and synergetic effects of agency. In addition to this, a change of structures when it comes to gender equality is needed in order to enhance the agency of women in Belize and all over the world. Their agency, experiences and aspirations need to be kept in mind when formulating solutions to address climate change (Alam, Bhatia & Mawby, 2015).

Sally Weintrobe’s (2013) book on psychoanalytic perspectives to deepen our understanding of the human response to climate change, identifies the underlying themes of these perspectives to be conflict, social justice, and theories about hidden underlying structures. She discusses the denial of climate change and depth-psychological and politico-economic perspectives in an intriguing way. What she identifies as self-organization as a result to what happens when there is a lack of sufficient order imposed from above has also been seen in this study. Her way of explaining both individual psychological processes and collective human responses to climate change provides support for the need for immediate action to curb climate change, as pointed out in this thesis.

The contribution of this research to the field of social work and social impacts of climate change has been to fill the research gap concerning how women’s health is affected by effects of climate change. The findings in this thesis relates to those of others, when it comes to women being disproportionately affected by climate change. They also relate to previous research on fairness, which has portrayed inequalities where the least advantaged are more affected by climate change, as seen in this research as well.

To conclude, while the focus of this study was on four small communities at risk of effects of climate change in Belize, it is evident that the approach taken here could be equally applied to other communities facing other climate change risks. This research can provide an empirical example of how projected impacts of climate change in the local communities may unfold regionally, but also globally.



## **6.1. Methodology Discussion**

This research was carried out in close collaboration with the CCCCC to ensure effective communication with members of the community. The planned objective, including providing a base for analysis for the master's thesis, was to produce relevant information to help raise the voices of the local female population with the help of organisations involved in decision-making structures, with respect to human health in an environment affected by climate change. However, this was done while avoiding, "carving out unacknowledged pieces of narrative evidence that we select, edit, and deploy to border our arguments" (p.80) as Braun and Clarke (2006) describes it. This will serve the purpose of creating an evidence based report on women's health that the CCCCC can use in their national and international policy work. It should be noted that the author was independent and not under influence from the organisation, other than for contextual guidance.

The fact that some respondents were already involved in a project relating to climate adaptation and/or risk mitigation, although sometimes indirect, might have affected the findings. However, climate change is, to the author's experience, everywhere and intertwined in many activities and groups of people in Belize.

One of the interview questions touched upon the issue of what can be done on different levels by different actors in society. During one of the focus group discussions the participants all agreed that the climate is not something that human beings can change, but determined by God. Since several of the subsequent questions were about adaptation strategies and human's reactions on climate change, at one point one of the respondents seemed a bit agitated about the fact that she was repeating herself. The interview guide could have been better designed to take this factor into account.

When asked about whether the participants had seen any changes of the climate in their direct surroundings, thorough answers were given. However, these answers depend on how long the participants have been living in the area. This could well have been asked for during the introduction where demographics were asked for. Nevertheless, a good age range with a mean age of 37.6 compensated for this mistake, as younger participants might not see climate change over time in the same way elderly might do, for example seeing the beach disappear knowing what it used to bring (Karlsson, Van Oort, Romstad, 2015). The wide age range is good for several reasons, as effects of climate change are defined endogenously. The age range helped in portraying approaches from many perspectives.

The process, when it comes to data collection and analysis, is inevitably informed by the researcher's disclosures, expressions and choice of questions, as well as by preconceptions and personal, theoretical and political orientation. However, the findings are close to those reported previously concerning social impacts of climate change. This suggests that the expressions of climate change and how it affects the health used by the participants in this study are not particular or peculiar to this group of women, nor too heavily influenced by the expectations of the researcher.

## **6.2. Practical Applicability**

This report will be used by the Ministry of Health, CCCCC, the organizations contacted for recruitment of participants and possibly as a foundation for future research.

This thesis demonstrate how women in rural areas of Belize are impacted by climate change. The confines of this study did not allow a comparative study including men, although that would be of much relevance and interest to the author. However, this thesis should be of interest to development practitioners, researchers, and policy-makers, so that policy formulations incorporate gendered vulnerability to climate change. Women who are already disadvantaged encounter additional impediments in meeting development goals and meet traditional roles assigned to them. Furthermore, their dependence on the environment as a sustainable resource may become increasingly delicate, lacking the external support needed to adapt to climate change (Meyiwa, Maseti, Ngubane, Letsekha & Rozani, 2014).

## **6.3. Future Research**

More research on social impacts of climate change and its health implications is needed. Longitudinal qualitative research would provide a more in-depth picture of the health status for people living with the effects of climate change. Such research could further investigate how living in an area experiencing rapid climatic changes affects mental health. Already from the discussions with the women in this study, there is a clear pattern of the effects living in an unpredictable environment with fear, on the mental well-being. More thorough research would widen the knowledge of the intertwined and interacting factors affecting the health of this group, and in a more thorough way than this research can offer, provide an intersectionality perspective. Furthermore, more research on inequality and power relations in the intersection of health and climate change is needed, something that is most relevant when it comes to this kind of research. Preferably, this research would be carried out covering all the levels of the SDH, in order to take on an intersectionality perspective. Such intersectionality perspectives would help researchers consider the dangers of grouping people. Grouping people often denotes a risk of creating a false dichotomy. Framing the group as “people affected by climate change”, without further explanation provides a risk of neglecting the intersectionality within this wide group and falsely make assessment of individuals based on general identities and categories. An intersectional perspective was kept in mind while planning, collecting data and writing this thesis, to acknowledge the identity categories within the group of women, paying attention in the analysis phase to class and ethnicity. More focus on these aspects are needed to broaden the view on women’s health in Belize. The need to collect, organize, and analyze gender-disaggregated data on how men and women are affected by climate change has been pointed out before (Alam, Bhatia & Mawby, 2015). Furthermore, more attention is required to acknowledge examples of successful responses related to climate change mitigation and adaptation (ibid). Finally, more area specific research is needed to develop an action plan on how to mitigate the risks and create adaptation strategies on how to combat climate change and their social impacts on women’s health in Belize.

## 7. Summary

Climate change affects the visited communities in Belize with unprecedented challenges. Everyone in these areas is affected. However, the poor and vulnerable population are most severely affected, especially women, being a group profoundly troubled with impacts of climate change. They struggle with adapting to these changes and finding ways to cope with them. However, they use their agency to address the threats they encounter. They are also the ones who provide for their families' needs. In order to create sustainable solutions to the issues at hand, the government must address gender inequality, poverty, and guarantee equal access to interventions, regardless of geographical position. A rights framed approach, ensuring the residents' right to health must have a central position in working with addressing the climate challenges of rural areas in Belize. A participatory approach involving the members of the communities affected is needed to achieve this. The participants of this study expressed frustration over the fact that politicians, according to them, do not listen to the community members. The women in this study said they urge decision and policy-makers to listen to members of the community and build on aspects that drive individual and collective change. Responsibilities and accountability should be presented to guarantee more effective, sustainable and equitable solutions for all.

Climate change is caused by humans, and will therefore only cease or lessen with the pace of changes in human behaviour, attitude and lifestyles. The participants expressed helplessness when describing problems, acknowledging that the awareness of climate change is not what is lacking, but a bigger worldwide shift towards a sustainable living is needed. Transformative action is needed to create gender justice, advance equity and support gender-responsive climate actions. Belize would benefit from addressing the SDH with an intersectoral approach, in order to cover all aspects of development and improve the public health of the population. Increased equity in health care access is needed. This is of course a struggle for many low-income countries, such as Belize, which is why coordinated efforts from several actors, including international organizations, governments, civil society organizations and academia is needed to achieve affordable and available universal access to health care. However, increased efforts by the government of Belize are also required to put in place effective national social protection, which can help to address the social determinants of ill health and enhance universal access to healthcare for all. All these actions are needed in intersectoral joint action to curb the social impacts of climate change on women's health in Belize.

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## Appendix 1

### Interview Questions:

- Have you noticed anything about the climate where you live, has it changed over a period of time? (Weather, crops, rain at the right time, wind, direction of the wind etc).
- Which is the current biggest threat to your livelihood, when it comes to things in your direct surrounding (such as: soil erosion, rising sea levels, hurricanes, coral bleaching, lack of rain/water shortage, excessive rain, heat waves/increase in temperature, change of oceanic temperature, natural disasters. Or do you have another example?)
- How would you describe the effects of this (the identified current biggest threat to your livelihood) on your daily life? Who does what in your house? Man breadwinner.
- What can be done by the people who live in this area to change the situation?
  - What can be done by others?
- Is this issue discussed? Who do you talk to about it?
  - Do you think anyone is addressing this issue (municipal, National government, an organization in your area)
- How do you see your future? What is your response to the effects of (X: identified in Q1)?
- Do you see any impacts of these climatic changes on health? (health in a wide perspective. Describe vector borne diseases; dengue, malaria, zika. Water, food, shelter, asthma. It may be indirect)
  - What can you do to reduce the impacts? (Ex: Boil water? How did you for example handle diarrhea? -if mentioned)
  - Who will help you in reducing the impacts?
- Can you access adequate health care for these health issues? (if not, explain why/what is the reason (money, transportation/distance/lacking facilities etc)
- Did you ever have to move because of climate change? (Permanent or temporarily?)
- Is this issue related to gender/class/ethnicity? How?



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## Appendix 2

### Consent Form

#### **Social Impacts of Climate Change on Women’s Health in Belize**

**Researcher/interviewer:** Mathilda Jerenius, student at the Master’s programme in Social Work and Human Rights, University of Gothenburg

**Supervisor:** Dr. Viveka Enander, Department of Social Work, University of Gothenburg

**Supervisor in Belize:** Dr. Ulric Trotz, Caribbean Community Climate Change Centre

The information collected during interviews with members of different Belizean communities will be used for analysing health effects of climate change on women in these settings. Participation is voluntary and participants can at any point, without any reason given, withdraw their participation. All participants will be anonymous, no names will be used in the thesis.

I hereby consent to:

- Information provided by me being used to analyse, with a qualitative method, thematic analysis, self-rated health in different groups of the Belizean population
- The information being presented in a report (master’s thesis) to the Caribbean Community Climate Change Centre, as well as the University of Gothenburg and possibly in a scientific paper
- The focus group discussion being recorded, with the only purpose to write down what is said. I am aware that the tape recording will be deleted when written down and analysed

I have read the Participant Information Sheet and I have had the opportunity to ask the researcher any questions

Name

Date

\_\_\_\_\_  
Signature

I hereby promise to carry out this research in line with the above stated agreements

\_\_\_\_\_  
\_\_\_\_\_  
Thank you for participating!

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