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**The Adaptive Capacity to implement Climate Migration Policy in response to Sea-Level
Rise in the Maldives**

**Submitted in partial fulfillment of the requirements for the degree of Master of Arts in
International Relations and Diplomacy**

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Course Name and Number: International Relations and Diplomacy

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Abstract

This exploratory study is centered on the increasing harmful impacts of climate change and its connection to human life. The effects are exacerbating the current drivers of migration like livelihoods, security, and politics. People are losing their homes and livelihoods because of drought, rising seas, or increasing natural disasters. Millions of people are displaced by climate events every year, the number is expected to increase. Due to this, there is value in studying climate change and migration. Amongst the most vulnerable are those living in Small Island Developing States (SIDS). This exploratory study examined the Maldives to understand their adaptive capacity to ensure safe and dignified migration as sea levels threaten the country's existence. I used a qualitative methodology with a document analysis method and applied the adaptation policy framework (APF) to understand and measure if the government of the Maldives has the adaptive capacity to implement to proactive migration policy. The results suggest that the government has the adaptive capacity to do so. However, I argue that there is a shortage of discourse and proactive planning for safe and dignified migration due to climate change and natural disasters. The paper concludes by amplifying the need for advocacy for migration as a long-term strategy to address the impacts of climate change. The advocacy is necessary to activate international, regional, and bilateral agreements and funding with other SIDS.

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Abbreviations

AIS - Atlantic, Indian Ocean, and South China Sea Group

AOSIS - Alliance of Small Island States

GCM - Global Compact for Safe, Orderly, and Regular Migration

GDP - Gross Domestic Product

HDI - Human Development Index

IPCC - International Panel on Climate Change

INGOs - International Non-Governmental Organizations

IOs - International Organizations

IOM - International Organizations for Migration

JICA - Japan International Cooperation Agency

LDC - Least Developed Countries

LLDC - Landlocked Developing Countries

NAPA - National Adaptation Program of Action

NSP - The Maldives' National Spatial Plan

NDMP - National Disaster Management Plan

NEOP - National Emergency Operations Plan

ODA - Official Development Assistance

SIDS - Small Island Developing States

SIDP - Safer Island Development Program

UNFCCC - United Nations Framework Convention on Climate Change

UNDP-GEF - United Nations Development Program, Global Environment Facility

Introduction

Background and Problem Statement

Given the hazards of climate change, it is critical to investigate how it affects migratory paths and what policies are required to manage climate-induced displacements within and between countries. Migration is an adaptation strategy for climate change, and its unpredictable dynamics make it even more urgent to utilize it as so (Gemenne & Blocher, 2017). Climate change and non-climate-related mobility most often occur within regions and not internationally. For the Maldives, the inability to easily move beyond their borders enhances the complexity of this challenge (Karthikheyan, 2010). At the forefront of the climate crisis, this paper will look at the island nation of the Maldives and its adaptive capacity for a future of displacements and migration. I argue that migration pathways should be planned as a preemptive measure for safe and dignified relocation, especially in this low-lying Indian Ocean nation at high risk of being submerged due to rising sea levels. Therefore, the study seeks to discuss the issue of migration and climate change in the Maldives by contextualizing the Maldives as a possible leader among Small Island Developing States through the adaptive capacity for a cohesive national climate migration strategy. Most importantly, it discusses the results of a qualitative study conducted on the adaptive capacity of the government to use climate migration policies as an adaptation strategy to understand further how climate change can affect migration patterns in Indian Ocean islands.

A few decades ago, the high prevalence of coastal erosion, storm surges, and flooding became a significant concern for the nations. The threat to their existence motivated them to strengthen their efforts of climate change adaptation as a top national priority for the Maldives. The Maldivian government began advocating for international cooperation and compliance to implement climate change adaptation to prevent future environmental damage (Maldives Ministry

of Environment, 2020). The advocacy was due, in part, to complex problems of local vulnerability and the role of humans in global warming. Human activities are driving up the Earth's temperature, fundamentally changing the world around us. People and corporations alike have contributed to this change in the Earth's temperature through the increasing demand for fossil fuels, deforestation, and overpopulation, mainly through the industrialization of western countries (Schaub, 2012). Climate change has always been a significant factor determining the growth and distribution of the world population (McLeman, 2017; Guan & Mcelroy, 2012). Even if we try everything we know to avert climate change, severe climatic change will occur over the next several decades. There will be substantial challenges to which the world and each region must adjust (Figueres & Rivett-Carnac, 2020). It is essential to think globally, access regionally, and act locally for adaptation.

Since the exposure to climate change effects began, the emphasis on international assistance and adequate resources to be provided to Small Island Developing States (SIDS) have increased. SIDS require particular attention regarding the climate crisis as their unique characteristics can challenge adaptation strategies. They present three key characteristics: small size, with implications for pressure on resources and limited economic diversity; remoteness and isolation, leading to challenges for trading but also a unique biodiversity and cultural richness; and a maritime environment, leading to solid tourism assets but vulnerability to climate change (UNWTO, 2022). Many of the world's smallest and most isolated states are included in the Small Island Developing States category. Despite differences in population size, geographic dispersion, and development advancement, they share considerable sensitivity to natural disasters, climate change, global economic shocks, limited or unstable domestic income, and limited financing alternatives. These restrict their growth and investment in resilient development (OCED, 2022). When interconnected with climate change, these characteristics can create challenges that increase

the likelihood of drivers of displacement and migration affecting lives. This study aimed to gain an in-depth understanding of the adaptive capacity for climate change and migration by comparing the policies of climate change adaptation (especially migration), social structures, and economic conditions on the island.

The increased climate change associated with average temperature and increasing the intensity of extreme weather events is a critical issue leading to heavy rains, droughts, and rising in sea level. This can lead to human displacement. Migration may also be influenced by decreased land productivity, habitability, food and water security, as well as demographic, economic, and social factors (Parsons, 2015). Alone or combined, these factors create a group called climate migrants. These people leave their homes due to environmental pressures such as heavy flooding and rising sea levels (Bangalore, Smith, Veldkamp, 2016). While increasing weather conditions exacerbate poverty and political instability and feed tensions over decreasing resources, climate change is sometimes neglected as a factor in people departing their homelands (Cassman, 1999). Most climate migrants relocate inside their own countries, typically from rural to urban regions, after losing their homes or livelihood due to drought, rising seas, or another weather disaster. People are increasingly compelled to migrate internationally to seek safety as cities face climate-related issues, such as rising heat and water scarcity (Abbas Khan, et al., 2019).

According to the Intergovernmental Panel on Climate Change (IPCC), human migration is one of the most significant effects of climate change leading to millions of people being displaced (Jürgen, 2010). This is due to shoreline erosion, coastal floods, and agricultural disruption. This socio-environmental process creates a group of people who leave their homes due to climate change impacts. Since then, analysts have tried to put numbers on future flows of climate migrants (sometimes called "climate refugees"), the most widely repeated prediction being 200 million by

2050 (IOM, 2009). To move the knowledge forward, it is crucial to understand what climate migration means. Defining this term is not a simple task since it varies across different academic fields, and many international organizations have yet to recognize this group formally. To define migration linguistically in this context, it refers to "the movement of people to a new country or area to find work or better living conditions." While the UN International Organization for Migration (IOM) defines migrant using an "umbrella term, not defined under international law, reflecting the common lay understanding of a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons" (IOM, 2022). The term climate migration is a phenomenon being studied within many fields, including political science and law, as well as those working in the INGOs and IOs, to understand the dynamic dimensions of present and future issues in the absence of international protections (IPCC, 2015). The working definition of climate migration refers to "the movement of a person or groups of persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change, are obliged to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border" (IOM, 2019). This study will apply this understanding of the concept of climate migration. However, more information regarding the complexities of migration will be added to fully understand the possible connections between climate change and migration in the context of the Maldives.

In recent years, many scholars have begun to study climate adaptation strategies, specific migration for Small Island Developing States. This study builds upon existing research and methodologies. It seeks to fill gaps in the literature and broaden the understanding of migration as an outcome of climate change in the Maldives. In this study, I will review multiple existing pieces

of literature on climate change and its adverse effects on migration and its social and financial implications, assess currently used methodologies for studying adaptive capacity in the context of SIDS and detail my objectives, methodology, and results. This will be followed by a discussion of the results and their conclusions.

Statement of Purpose

This study aimed to gain an in-depth understanding of the adaptive capacity to climate change and migration using the policies of climate change adaptation (especially migration), social structures, and economic conditions of the island. I am particularly interested in migration as a preemptive measure for safe and dignified relocation in the context of sea-level rise. With a better understanding of climate change impacts and national priorities, I hope to identify gaps in national policy to address the possible need for climate migration policy.

Research Objectives

The study aims to advance the understanding of the relationship between adaptive capacity and the implementation of climate migration policy. This will be done by studying policies and literature within the Maldives and Small Island Developing States context by answering three overarching research questions.

Research Questions

1. To what degree is the country vulnerable to climate-related changes?
2. To what extent have the Maldives adopted climate change adaptation strategies?
3. What are the linkages and barriers to adaptive capacity for climate migration policies in the Republic of Maldives?

Literature Review

Introduction

The review explores the literature on the impact of climate change on displacement and migration and provides a theoretical framing for the research. The literature review is divided into three multiple sections. They include terminology of concepts, understanding vulnerability, understanding adaptation, SIDS, Atlantic, Indian ocean and south china sea (AIS) SIDS, adaptive capacity, case study: the Maldives, “migration with dignity” and a review summary and a re-emphasis on the emerging research gaps.

Climate change poses a severe threat to SIDS populations. SIDS have an average of 26 percent of their land area is located at or below 5 meters above sea level. Both the Maldives and Tuvalu have a whole population living on the ground less than five meters above the ocean's surface. Two-thirds of SIDS have less than one-quarter of their total land area below this level (UNEP, 2013). Climate change and all its effects have various other adverse effects on human life, which will be discussed in this literature review. In this section, I will present an essential range of impacts relating to climate change, including its adverse effects on SIDS, specifically the Maldives. Following that, I will focus more on the available literature on climate migration and analyses research methodologies currently used to study migration policies as an adaptation strategy.

Terminology of Concepts

The paper concentrates on the relationship between adaptive capacity, climate change, migration, and Small Island Developing States. Overarching concepts are defined and summarized, but they are not discussed in great depth as this paper does not examine definitions.

To connect these themes, I will discuss vulnerability followed by adaptation. Other terminologies of concepts in this paper are listed in Figure 1 below with guiding definitions.

Understanding Vulnerability

Vulnerability is the degree to which a system is susceptible to, or unable to cope with, the adverse effects of climate change. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity. There are numerous classifications of risk factors. According to Jones's study, biophysical vulnerability relates to the effects of a hazard event and the amount of damage a system sustains from encountering a hazard (Jones & Boer, 2003). These are outcome indicators instead of indications of a state's system before the occurrence of a hazard event. Combined with socioeconomic vulnerabilities, which encompass internal and external variables, such as capacity (e.g., household income, social networks, and information availability) and external social factors (e.g., national policies, international aid, and economic globalization) are some of the specific categories of vulnerabilities relevant to this paper.

Vulnerability for this paper mainly looks at how governance influences climate change susceptibility, including how local governments and civil society manage climate change risk. Policies and government programs may not be effective due to stark inequalities between various social groups. Those who face institutional inequalities are rarely involved in decision-making and are not represented (Thomas et al., 2018). The study's Continued concentration on inclusive multilevel governance and knowledge exchange between the public sector and the public could positively impact reducing vulnerability to climate risks on the governance level (Tschakert et al., 2014).

Understanding Adaptation

There are many different schools of thought about adaptation that can help future scholars build upon those ideas. (Eriksen, 2015). To bring the knowledge forward, I will use the UNFCCC definition of adaptation for this paper and expand on the academic discussion to explore the different understandings of adaptation to understand the distinctions. The UNFCCC defines adaptation as “the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.” (UNFCCC, 2022). The term adaptation can be appropriately used in many ways by those in the same sector, causing differences in understanding of the term. Different interpretations of adaptation can lead to miscommunication, wasted investments, and maladaptation. Others view successful adaptation as a more complex phenomenon using a multi-stakeholder approach (Lavell et al. 2012). For them, it is viewed as a long-term process that includes structural modifications. It includes actions and tactics that address and attempt to mitigate future detrimental effects of natural hazards and climate change (Birkmann et al. 2010). Depending on your sector or company, you may view adaptation as using less energy, whereas someone else views adaptation as diversifying agriculture.

There are two distinct approaches to adaptation with a range of variations in between that are apparent in policy, literature, and practice. People approach the challenge of adaptation from two broadly different angles: one focuses on creating response mechanisms to specific impacts associated with climate change, and the other on reducing vulnerability to climate change through capacity building that can help address various challenges, including the effects of climate change. (Leary & Kulkarni, 2007). The impact approach prioritizes climate change impacts to develop

solutions to mitigate the specific outcomes. This strategy's adaptation tactic includes erecting sea barriers to avoid sea-level rise. The vulnerability approach is more holistic as it targets the underlying factors causing harmful impacts (Bizikova, et al., 2009). This approach recognizes underlying factors such as unequal wealth distribution, gender discrimination, and cultural belief systems and that these processes influence the process of adaptation. In practice, many adaptation measures fall between these two directions of impact and vulnerability (OECD, 2009).

Figure 1: Definitions by the UNFCCC (UNFCCC, Glossary of climate change acronyms and terms 2022)

Adaptation- “The adjustment process to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.”

Adaptive Capacity- “The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.”

Climate Change- “Climate change refers to any change in climate over time, whether due to natural variability or because of human activity. This usage differs from that in the United Nations Framework Convention on Climate Change (UNFCCC), which defines “climate change” as: “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”

Climate- “Climate in a narrow sense is usually defined as the “average weather,” or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period ranging from months to thousands of years. The classical period is 3 decades, as

defined by the World Meteorological Organization (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system.”

Exposure- “The nature and degree to which a system is exposed to significant climatic variations.”

Extreme Weather Event- “An event that is rare within its statistical reference distribution at a particular place. Definitions of “rare” vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile. The characteristics of what is called “extreme weather” may vary from place to place. An “extreme climate event” is an average of several weather events over a certain period, an average which is itself extreme (e.g., rainfall over a season).”

Impacts (consequences, outcomes)- “Effects on natural and human systems. In this report, the term impacts are used primarily to refer to the effects on natural and human systems of extreme weather and climate events and of climate change. Impacts generally refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to the interaction of climate changes or hazardous climate events occurring within a specific period and the vulnerability of an exposed society or system. Impacts are also referred to as consequences and outcomes. The impacts of climate change on geophysical systems, including floods, droughts, and sea level rise, are a subset of impacts called physical impacts.”

Maladaptation- “Any changes in natural or human systems that inadvertently increase vulnerability to climatic stimuli; an adaptation that fails in reducing vulnerability but increases it instead.”

Resilience- “The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their

essential function, identity, and structure, while also maintaining the capacity for adaptation, learning and transformation.”

Sea-Level Rise- “An increase in the mean level of the ocean. Eustatic sea-level rise is a change in the global average sea level brought about by an alteration to the volume of the world ocean. Relative sea level rise occurs when there is a net increase in the ocean level relative to local land movements. Climate modellers largely concentrate on estimating eustatic sea-level change. Impact researchers focus on relative sea-level change.”

Sustainable Development- “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Vulnerability- “The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity.”

Links between climate change impacts and migration: Climate Migration

Before discussing climate migration, we must first understand the drivers or reasons for migration. Despite the connections between climate change and human migration, climate change is not the only reason people move. There are five significant factors of migration: the current political climate, the social, economic, environmental, and demographic situation (Geddes, et al., 2012). Too much stress in one of these areas can cause a person to seek opportunities to move locations to relieve the stress. Some drivers include environmental and demographic pressures, lack of jobs and ways to make a living, lack of access to basic human rights and services, and poor or insufficient governance and security. These affect migration decisions in places where people come from, while others have more to do with places where people go and where they end up (like

job and education opportunities, family reunification, and the chance to try something new) (United Nations, 2022). A series of recent studies conducted by the United Kingdom show that as climate change increases, migration will also increase due to more frequent interactions between migration drivers. For instance, longer and more frequent droughts pose economic, social, and environmental challenges. As water supplies are diminished, growing crops becomes more difficult, and the areas where plants and animals can live shift (The Government Office for Science London, 2011). In addition to creating new agricultural challenges, their livelihood is threatened if a farmer cannot adapt to the changing weather conditions (Ouhamdouch et al., 2019). Many drivers above are felt at a higher level for those living in Small Island Developing States with an unpredictable and changing environment.

As climate change discussions become more frequent, there is value in studying previous literature on climate impacts on human mobility from various sources. Multiple scholars have discussed the general understanding of climatic changes and their effect on human mobility. There is evidence that climatic events such as droughts and hurricanes have contributed to widespread mass migrations, both temporary and permanent, from the Dust Bowl and Hurricane Katrina studies (Gutnam, 2016). The benchmark UK Foresight Report reinforces that environmental change has contributed to population movements in the past and is likely to continue in the future (Fussler, 2015). Many case studies show that periods of environmental stress can increase mobility. Still, overall socioeconomic determinants are often the direct driver of the vulnerability that causes mobility. Existing research examines how the connection between migration and climate change is nuanced and influenced by social, economic, and political variables.

There is scholarly debate on if climate change can be solely the reason for migration (Connell 2016; Gemenne 2011; Hartmann 2010; Nicholson 2014; Stal and Warner 2009).

Stojanov's research on the connection between climate change and migration has prompted caution against presuming a definitive correlation. Other scholars argue that climate change can destabilize security, social tension, or economic conditions leading to unfavorable living conditions. It also has noticeable negative impacts on other parts of the planet, like changes in ecosystems and desertification, rising sea levels, flooding, and drought (Hisano et al., 2018). Climate change is projected to disproportionately affect socially disadvantaged groups already inclined to migrate, leading to higher migration rates. Climate-related food shortages, service incapacity, extreme weather events, and water security could contribute to increasing migration (Islam & Winkel, 2017). The numbers are predicted to grow in the coming decades, with the IEP forecasting that 1.2 billion people will be displaced globally by 2050 due to climate change and natural disasters (Zurich, 2022).

In some cases, migration is necessary to fulfil basic needs, as environmental degradation exacerbated by climate change can reduce livelihoods. Ginnetti's study have linked higher mobility with periods of environmental stress. Therefore, environmental changes are recognized as a driver of migration, but it is one of many factors that influence mobility (Meyers et al., 2009).

In fragile contexts, such as islands losing territory, environmental degradation can lead to migration as a last resort due to uninhabitable land or loss of livelihoods. Although some studies mention that migration is often a voluntary decision made as part of longer-term plans to increase the capacity to face unfavorable circumstances. Accessing adequate funds or familial ties to another place are capacities that make household migration easier (Feng et al., 2010; Kendall et al., 2001). Therefore, migration can be a response when there are pre-existing needs that cannot be met and an adaptation strategy for those facing environmental and climate changes (Black et al., 2011; McLeman and Smit, 2006).

Previously mentioned literature failed to acknowledge that climate change in small island states constitutes a particular challenge to their argument. As sea levels rise, these areas become uninhabitable (Hauer et al., 2019). In severe cases, the island nation will disappear completely. If this happens, residents will be permanently displaced and may be forced to relocate to other countries (Kalin, 2010). According to Nurse's study, willingness to integrate adaptation measures can help islanders cope and postpone their move. Climate change impacts territorial integrity and survival for those living on islands.

SIDS

The effects of climate change are uneven, making it a threat multiplier. For example, SIDS contributes less than 1% to global greenhouse gas emissions (Kelman, 2013). Nonetheless, they are and will continue to be disproportionately impacted by the effects of climate change, with some communities suffering exceptionally high in socioeconomic, political, and cultural contexts. (Perry, Canziani, & Palutikof, 2007). These nations have varying degrees of exposure to the physical effects of climate change, such as cyclones and floods. The populations already affected by insecure livelihoods, poor governance, and socioeconomic disparities are likely less resilient to environmental stresses. The consequences of rising sea levels pose a particular challenge to islands as the land begins to disappear, which could leave them uninhabitable in the future. Indeed, Small Island Developing States have biophysical and socioeconomic vulnerabilities to climate change, making them an ideal category for understanding the links between climate change and migration. Based on current climate projections, many island nations have no time to spare as mobility is already feeling the impact. They will likely face challenges to their existing livelihoods over the next two generations, for which early migration planning is critical (Mimura et al., 2017).

The combination of these specific characteristics puts the islands at high risk of climate migration. Though the stressors can increase someone's willingness to relocate, the complex problems of local vulnerability can interfere with human mobility. The study claims that traditionally, most mobility for climate change-related and non-climate-related mobility occurs within their countries or regions and not across distances, usually due to economic factors (Dastrup, 2019). The economic factors alone would make it more plausible for those living on the islands, especially near coastal zones, to begin their migration internally as a first choice. Internal migration poses its own issues as the SIDS' population density of 110 people per km² puts them well above Least Developed Countries (LDC) and Landlocked Developing Countries (LLDC) averages (Sonia, 2021). Where it is possible, people will likely attempt to adapt in place. However, countries must take an anticipatory approach to facilitate movement, so communities can avoid moving in distress.

According to Beddington's article, many populations will be in danger due to the lack of safe migration routes from small island environments and marginal agricultural lands in the world's highlands and drylands. As a result, they may end up trapped in less developed areas, making them more vulnerable to environmental degradation. For instance, people who live near exposed shores or in flood-prone areas are often already relatively poor in small island states and other islands (McGray et al. 2007). They cannot be resettled in response to danger because migration, especially international migration, is selective based on economic status (Beddington, 2011). This finding is thought-provoking but restrictive to a specific socioeconomic status. One cannot assume that this represents upper-middle income small island environments. Contrasting this finding, several studies claim that past and present migration policies enable those with few economic resources to migrate with the help of existing networks and formal policy agreements. Given these

contrasting views, more research needs to be done on formal migration policies, existing networks, and upper-middle-income islands.

Atlantic, Indian Ocean and South China Sea (AIS) SIDS

Small Island Developing States are categorized into three geographic regions: The Caribbean, the Pacific, the Atlantic, the Indian Ocean and the South China Sea (AIS). Those groupings equate to 58 total islands with these unique characteristics, 38 UN member states, and there are 20 non-member or Non-UN Members or Associate Members of Regional Commissions. (Photo 1 below) The Atlantic, Indian Ocean, and South China Sea (AIS) region are the smallest members, containing 9. (Comoros, Guinea-Bissau, Sao Tome and Principe, Cabo Verde, Maldives, Mauritius, Bahrain, and Singapore). For this study, we will refer to AIS SIDS as those eligible for official development assistance (ODA) to exclude outliers. Due to their geographic location, AIS SIDS are at high-risk for natural hazards such as typhoons, storms, droughts, high winds, hurricanes, fires, volcanic activity, earthquakes, and tsunamis (Zitoun et al., 2020). The nations in the region are considerably spread out compared to other SIDS regions leading to diverse terrain, making it difficult to label one main environmental issue to tackle. Although they have many differences, all these nations feel the effects of increasing climatic change. Members of this region have been leading discussions in the international community regarding small islands for decades. Even so, there needs to be more academic discourse examining the region in relation to the opportunities and costs (Zitoun et al., 2020). Most of the region's research uses one nation as a case study and rarely compares more than one. In contrast, there is extensive regional and comparative research on the Pacific or Caribbean SIDS (Oakes, 2019; Hamder & Nalau, 2019; Mycoo, 2018).

Subsequently, Pelling and Uttio's article argue that some SIDS have the capacity to mitigate and adapt to the physical risks of climate change if they have political and economic stability. This study describes the complexity of the relationship between income vulnerability and resilience. However, Guilaumont's study mentions that most SIDS countries (85%) do not qualify as low-income; some have very high incomes (Guilaumont, 2010). These studies are narrow perspectives as they do not consider aspects of intersectionality between adapting to physical risks and how the experience of resilience is different depending on other demographic factors, access to international funding, and knowledge sharing (Walbnitz et al., 2017; Robinson & Dornan, 2017; International Renewable Energy Agency, 2020).

The link between access to resources and adaptability is not to be ignored, but the link does not mean lower-income SIDS do not have the potential to adapt. Specifically, in the AIS region, some islands in the middle-income range (Maldives, Seychelles, and Mauritius) have been leading the way in advancing progress for climate change. The access to aid and funding in these islands could help benefit other lower-income AIS SIDS who could benefit from previous research and knowledge sharing in the region.

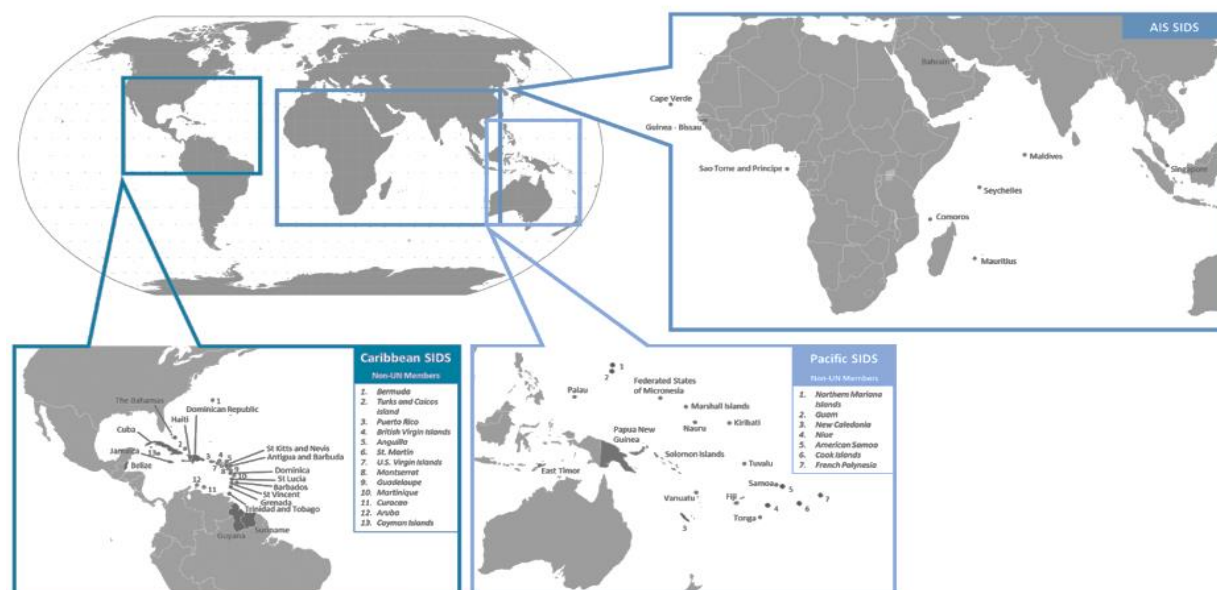


Figure 1: Categories and Locations of SIDS Figure 1 shows the work of (Zitounet et., 2020).

Adaptive Capacity

Adaptive capacity refers to "the ability of a (human) system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, or to cope with the consequences." (UNFCCC, 2022). Ohlsson (1999) developed the concept of adaptive capacity in 1999. The theory implies that a crucial component of a society's overall resource wealth is its "adaptive capacity." The adaptive capacity of a nation is its ability to mobilize national social resources to compensate for its lack of physical natural resources. This theory is predicated on the concept of first and second-order resources (Ohlsson, 1999). A lack of natural resources can be considered a "first-order shortage," and a lack of adaptive capacity is considered a "second-order shortage."

In this way, improving adaptive capacity can reduce vulnerability and improve long-term development. To assess resilience, income indicators (such as GDP), education statistics,

availability (or lack thereof) of impact data, appropriate emergency response, business continuity plans, or overall adaptation strategies can be used (Brooks et al, 2004). It adds more in-depth indicators like health, literacy, and governance on the national level are strongly correlated with adaptive capacity. Although adaptive capacity is not directly measurable; thus, measures of adaptive capacity are more challenging to discover than indicators of risk. Given this complexity, the study employs a scorecard (subjective) method for evaluating the capacity changes associated with a project (UNDP-GEF, 2003). The scorecard is arranged according to Institutional Policy and Legal Framework, Planning and Implementation, Monitoring and Evaluation, Knowledge Management, and Community Engagement and is focused on functional capacities.

Other scholars use a different method to assess a nation's capacity to adapt. Brooks and Adger argue that it is impossible to provide a list of "indicators to capture universal determinants of adaptive capacity that are useful at the project level, and indicators must be tailored to each case (Brooks & Adger, 2005). For my research, I will use their method for identifying adaptive capacity.

Alongside this method, the study follows the guideline of the United Nations Development Program's Adaptation Policy Framework. Thus far, examples are scarce, but as Eakin's study points out, the United Nations Development Program's Adaptation Policy Framework provides excellent guidelines for conducting adaptive capacity assessments in practice (Brooks & Adger, 2005). The APF provides principles for developing and executing activities that reduce vulnerability to climate change by limiting potential negative impacts and optimizing any beneficial effects of climate change. The framework highlights five fundamental principles: adaptation policy and measures are examined in a developmental context; adaptation to short-term climatic variability and extreme events is expressly included as a step toward reducing susceptibility to long-term change; adaptation occurs at different levels of society, including the

local level; the adaptation strategy and the process by which it is implemented are of equal importance, and building adaptive capacity to cope with climate change is emphasized (Burton, Lim, Spanger-Siegfried, Malone, & Huq, 2005).

It is not to be ignored that the complexities can provide limitations to these methods and could cause more harm. Differences in culture or social goals can alter the original intention of the adaptor, making it important to involve stakeholders from all levels throughout the process. The study strongly emphasizes the understanding of the individual agency in determinants of adaptive capacity to help reduce vulnerabilities (Rayner & Malone, 1998). The process involves identifying individual and household characteristics, resources, and the cultural and social context. However, it also gives a picture of the relevant institutions involved. These can range from institutions that are financial organizations to infrastructure providers to local social organizations; all of these play a role in determining adaptive capacity.

For this paper, the term 'adaptive capacity' is useful because it helps navigate the complex context of adaptation and mobility, especially at the policy level. Assessments can be improved by examining governance, institutions, and management preparations for and responses to recent climatic events (Burton et al., 2005). There is evidence from the practitioner community that adaptive capacity is also translatable to policy application. Focusing on the management, governance, and institutional approaches that increase adaptive capacity could help decision-makers more immediately reconcile resilience and vulnerability frameworks into even more theoretically sound and policy-applicable assessments. Therefore, the adaptive capacity of the Maldives is relative to the ability of the government to enact adaptation strategies into policy for this paper. The adaptive capacity that already exists to reduce current vulnerabilities was also considered.

In most cases, SIDS have a low adaptive capacity, and adaptation costs are high relative to gross domestic product (GDP). Small island States should readily accept that (i) they are unlikely to be able to access substantial external resources for adaptation; and (ii) climate change adaptation strategies are not 'new' or 'unique' and, therefore, should be integrated into existing plans and programs (Nurse & Moore, 2005). However, while acknowledging that some islands may not have access to substantial external resources for adaptation, the existence of funding opportunities for new adaptation strategies should be questioned, as some island states have allocated a large proportion of their budget to the environment.

Case Study: The Maldives

The island of the Maldives is labelled as upper-middle income and is high on the human development index (HDI), which gives them the advantage to tackle climate change proactively. The allotment of resources dedicated to climate mitigation and adaptation allows the Maldivian government to prepare for the impacts of the It is for this reason that the island nation is an ideal case study for studying how low- and lower-middle-income countries use migration as an adaptation strategy. There is a way for less developed countries that already have access to aid and external funding to integrate climate action into broader development actions in a cost-effective manner. Policies and international agreements on climate migration will make the migration process less traumatic and less costly because they are pre-planned. In this article, we see how climate change and its effects threaten the ability of governments to meet basic needs. In the literature on the drivers of migration, it is known that the likelihood of migration increases dramatically when basic needs are not met.

Another reason why the Maldives is an ideal case for assessing climate change resilience through migration policy is because of its geographical features that contribute to increased sea

level rise. The Maldives is an archipelago of 26 low-lying coral atolls in the Indian Ocean, consisting of under 1,192 small tropical islands, of which approximately 358 are used for economic activities and human settlement. It is among the world's lowest and flattest nations, with over 80% of its land area being less than 1 meter above mean sea level, enhancing its vulnerability to sea-level rise (Ministry of the Environment, 2016). The Maldives has a population of roughly 540,000 people spread among 185 islands. Male, the capital city, is home to more than 30% of the population. Uneven population distribution around the atolls and rapid population growth in the capital city have led to overpopulation. The problem of overpopulation in the capital exacerbates the need for more habitable land and urban planning. On top of this, the island is at high risk for continued land loss due to rising sea levels. Land reclamation and coastal infrastructure projects have temporarily solved this long-term problem. The country has various vulnerabilities to climate change, including freshwater resources, coral reef impacts, food security and agriculture, human health, fisheries, and tourism.

To tackle this complex issue, the government has sought to relocate the small island populations to larger islands through population consolidation. Initially, the government claimed to relocate its citizens forcibly to provide more accessible health care, education, and social services. Speelman's study also reinforces that socioeconomic factors rather than environmental factors drive the notion that migration flows to the Male (Speelman et al. 2016). Specifically, cases from Pacific islands show that culture, connections, and lifestyle are more significant drivers of migration than climate (Barnett and Webber, 2010). However, current Maldivian government leaders have pushed for population consolidation based on climate change impacts (Sovacool, 2012). Environmental change, specifically its effects on land use and rights, has previously influenced Pacific Island migration (Campbell et al., 2005). Historically, government-led

relocations demonstrate the capacity of large-scale immigration policies. To better understand the impact of climate change on migration policy, the Maldives makes an ideal case study.

Once considered, these complexities make it quite challenging to predict who will be rendered particularly vulnerable to climate hazards and even more difficult to predict who might move. Another thing to consider is that adaptive capacity can facilitate adaptation in place for some people but not for others. For some populations, it might mean that they move in adaptive ways. Adaptive capacity can be distributed through social networks across distances, so people who have connections elsewhere often have higher adaptive capacity than those who do not. This example shows the importance of governments developing migration policies and continuing to study past migration flows. These ideas are quite common among those studying migration, but they still need to be better understood in the adaptation sector.

Migration is not necessarily a failure to adapt (Tacoli, 2009). People have been moving internationally for a few decades but not necessarily to escape current or immediate environmental threats. They are more likely to cite typical migration drivers for a range of reasons for moving abroad, such as finding better economic and educational opportunities and for their children for a more secure future (Warner, 2009). Most of the time, this is a proactive move before the environmental threats become too much. Those planning to move their house inland away from flood risk could be seen as highly successful for your family's adaptation. Despite this, a neighbour may decide they want to stay in the area because that is where their ancestors are buried; there is no maladaptation if that is an active choice to do so.

“Migration with Dignity”

There are few real examples of climate migration policy in practice, but Kiribati's “Migration with Dignity” policy is widely considered a groundbreaking example for future

policies (Teji, May, & Daly, 2020). Kiribati considers migration a long-term strategy if rising temperatures increase environmental, social, and economic damage in the coming years (Tong, 2015). As the international response is delayed, the island must prepare for the worst and provide options for its citizens. Islands may be unable to support the current levels of populations, and adaptation strategies may not be enough. Relocation as an adaptation policy will prepare citizens for relocation to another country. The policy emphasizes the importance of giving its citizens a competitive advantage in the international labour market. To that end, Kiribati is strengthening their education system, training, and improving labour mobility protocols. In partnership with more developed neighbours New Zealand and Australia, a temporary and permanent labour mobility scheme has been developed. Vocational and technical training in New Zealand and Australia reinforces this to the benefit of all involved (Maclellan, 2012). This policy gives a baseline to similar agreements, giving a limited number of islanders a way to migrate to another country and allowing them to share social, economic, and lifestyle migrations (Kravchenko, 2008; Shen and Gemenne, 2011).

Research Design

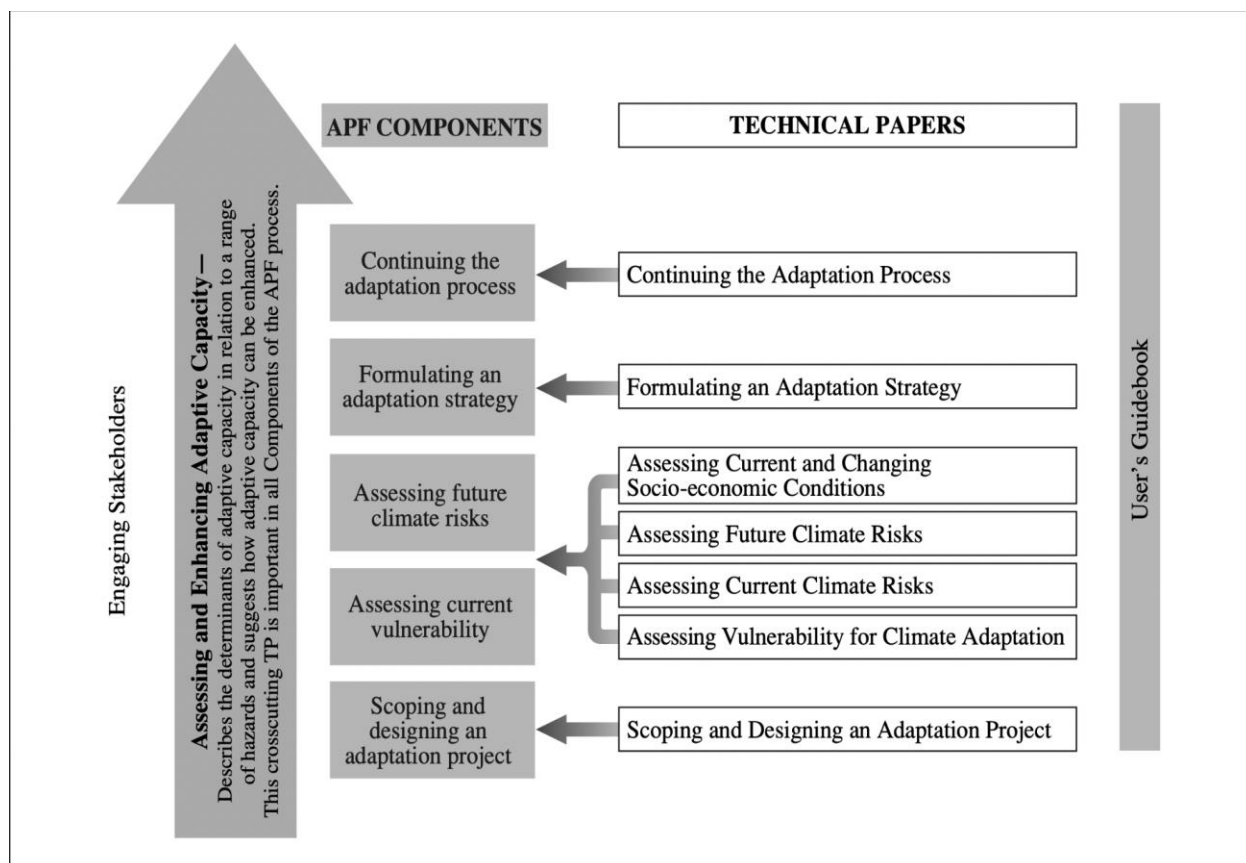
Methodological Rationale

This study aimed to gain an in-depth understanding of the adaptive capacity to climate change and migration by comparing the policies of climate change adaptation (especially migration), social structures, and economic conditions of the island. The methodological two-fold approach intended to form a solid backbone based on: (i) a literary analysis of the existing academic literature on climate migration and on national and international policies related to climate change; and (ii) the qualitative study using the APF framework structure to understand the adaptive capacity to implement proactive climate migration policy, which is illustrated hby the case study of the Maldives. Human, financial, physical, social, and natural capital are typically considered to be indicators of adaptive capacity (Whitney et al., 2017). This case study does not quantify the prevalence or the extent of displacement or migration already occurring or compare

it to other forms of adaptation. Qualitative research to assess adaptive capacity is an emerging field with limited comparable data, especially regarding climate migration policy. The technique differs from the method used in this case study. Two differences exist in the UNDP-GEF technique: evidence of adaptation must be supplied, and a scorecard is used instead of specific indicators (UNDP-GEF, 2003). Although the technique broke new ground in studying adaptive capacity, the issue with using such methods is that they are not comparable since the specific indicators are different in each study. Moreover, the results are more general rather than specific to each case.

As a result, this case study relies upon Malone & Rovere's book: "Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies, and Measures". The Adaptation Policy Framework 5 components, including 1. Scoping and designing an adaptation project, 2. Assessing current vulnerability, 3. Assessing future climate risks, 4. Formulating an adaptation strategy, 5. Continuing the adaptation process. The book contains 7 Technical Papers used to support the components of the APF in this study. Figure 2 below shows how the APF and technical papers coincide to understand the adaptive capacity. These papers examine and supplement existing climate change adaptation planning methods. As a framework for assessment, planning, and implementation, it outlines a method of climate change adaptation that supports sustainable development instead of the reverse (Malone et al., 2004). The APF is more concerned with practice than theory; it begins with the information that developing countries already hold about vulnerable systems and strives to utilize existing synergies and intersecting themes to facilitate more informed policymaking. (Burton, Huq, Lim, et al., 2005).

Figure 2: How the APF and technical papers coincide to understand adaptive capacity (Burton, Huq, Lim, et al., 2005).



This study is grounded in a national policy-based approach from Technical Paper 1 to investigate the effectiveness of a proposed policy in light of changing climate sensitivity, including the incentives or disincentives that should be used to develop policy in places vulnerable to sea-level rise (Brooks & Adger, 2004). It looks at many financial, policy, and social aspects of the population and government of the Maldives using data from the World Bank, with supplements from academic literature (World Bank, 2022). Though all the papers guided this process, I specifically used Technical Paper 7, Assessing and Enhancing Adaptive Capacity (2004) by Brooks and Adger, for the guiding questions for this method to take an open-ended approach to

understand adaptive capacity. These guiding questions are in Figure 3 below. The approach allows the issue to be understood in-depth with all its complexities and nuances, rather than reducing it to a scorecard as (UNDP-GEF, 2003) does. Thus, an explanatory study using qualitative methods was employed to study the phenomenon of adaptive capacity in the Maldives, taking a confirmatory approach using data from already existing theories and literature (Dressel et al., 2020).

Guiding Questions from Technical Paper 7

Table 1: How the APF and technical papers coincide to understand adaptive capacity. : Guiding questions from Technical Paper 7, Assessing and Enhancing Adaptive Capacity

What are the priority systems and targets groups in need of adaptive capacity?
What are the qualitative indicators that characterize adaptive capacity within and between systems, populations groups, and regions?
What is included in the shortlist of realistic options for adaptation and adaptive capacity development for a priority system/population facing a particular hazard or set or hazard?
What is your preferred adaptive capacity development options based on considerations of feasibility, efficacy and acceptability, identified in consultation with stakeholders?
What is the strategy for implementing the preferred adaptive capacity development options involving significant stakeholder involvement, frequent review of progress, and assessment of options for revision?

Selection criteria

The criteria for the case study of the Maldives was for it to be an area with high vulnerability to sea-level rise without specific climate migration policies. Another consideration was the available data and research regarding relocation and climate change. The Indian Ocean region was chosen due to my previous experience understanding regional norms and political processes. Access to local networks and an understanding of geography were also considered. I used key words including climate change, adaptation, SIDS, adaptive capacity, and the Maldives to find literature. I considered the narrative voice, structure, and numbers of citations to gather contextual evidence to answer my three research questions. Gaining background information and reading conflicting views allowed me to form my own view and convey them to the reader. I used national policy documents and international agreements. The criteria for selection was that they were related to climate change or were a formal UNFCCC recognized international agreement. The inclusion criteria for research and academic literature were relevant to understanding this complex issue. For Maldives-specific policies and history relevant to my research, I used several reports from the Ministry of Environment. I used the World Bank open data website to get access to specific indicators. For academic literature, I excluded articles that did not have over 25 citations or were not peer-reviewed.

Data Collection Process

For the case study of the Maldives, I used in-depth guidelines and tables provided by (Brooks & Ander, 2005) to help carry out the data collection process. I used a two-fold approach to understand the adaptive capacity of the Maldives to enact climate migration policy using the guiding questions from the Technical Paper. To understand the reasons for changes in relocation-

policy and changes in government support, I used Gussman and Hinkel's (2020) analysis of relocation policies in the Maldives from 1968-2018. The results of Gussman and Hinkel's study show that specific events, including the regime change in 2008, institutional constraints such as island autonomy, and socioeconomic development such as rising welfare, tax incomes, and constructed infrastructure on the islands, prompted a shift in policy (Gussman & Hinkel 2020). I used indicators including GDP, foreign direct investments, literacy rate (15-24), life expectancy, CO2 emissions, disaster risk reduction progress, total fisheries production, and primary government expenditures. These indicators cover various topics and scenarios like financials, policies, and human development. Because access to financial capital can promote adaptive capacity, financial indicators like GDP, foreign direct investment, and primary government expenditures were chosen (Keskitalo et al., 2011; Lockwood et al., 2015). The knowledge, experience or skills an individual or population has known as human capital can demonstrate adaptive capacity (Nelson et al., 2010). Some of these may be more obvious, like literacy rate and life expectancy (Grothmann and Patt, 2005). At the same time, others, like CO2 emissions, disaster risk reduction progress, and total fisheries production, show that the Maldives has the knowledge and skills to plan strategic adaptations (Seara et al., 2016, Villamayor-Tomas and García-López, 2017).

Research Ethics

This study received internal review board approval from the School for International Training. Due to this study not including interviews, no vulnerable populations were directly affected. It is important to demonstrate empathy for those who may be forced to leave their homes and understand cultural ties and historical and current political, climate, and economic situations in both interventions and research.

Limitations and Positionality

The methodology adopted for this study was indeed conducive to understanding the adaptive capacity of the Maldives to implement climate migration policy due to sea level rise. It allowed for a more general, in-depth, and nuanced understanding of the climate situation in Maldives and SIDS. Moreover, the exploratory nature of the methodology meant it was broad enough to capture the breadth of these issues that would be deemed necessary to understand to implement policy- namely adaptive capacity, vulnerabilities, and past government effectiveness. However, there are several limitations to qualitative research, the most prominent of which is the issue of generalizability of the topic and results. It is important to recognize that the point of most qualitative studies is not to produce data or evidence that can be extrapolated to other situations but to gain a nuanced understanding of the subjective realities of a specific group of people in a defined area (Austin, 2016).

The study was conducted purely based on already available literature and data. The understanding and experience of adaptive capacity in practice on location conducting interviews are likely to differ from reading about what others have found and adding to that. One major limitation was not involving community members and other stakeholders in the study. Due to time and geographic restraints, I relied on previous literature and data from databases to understand the viewpoints of the government and the citizens. With interviews directly from government officials, it could be easier to understand current political stances on the issue of climate migration policies.

Nonetheless, past official statements and detailed government policies/strategies provided historical details into possible future policy decisions. Other issues like bilateral agreements with other nations for work permits and education, collaborations with international aid donors, and

overall international human rights law could have been analyzed more in the future. Repeating this study in collaboration with INGOs, governments (international, national, local), and community members could lead to a source of implemented data. Issues such as familial pressures and person ties to land preventing a person from migrating could be more evident if I conducted on-site interviews. Other themes, like the lived experience of those who have already been subjected to forced relocation within the Maldives based on government policy, could have manifested as an example of adaptive capacity for future policies. Repeating this type of study in a few different typologies with in-person interviews could lend to a rich source of in-depth qualitative data on the adaptive capacity of the Maldivian government and its' citizens to implement a positive climate migration policy through a multi-stakeholder approach.

Moreover, there are many biases inherent in qualitative studies. The most prominent among these are the personal biases of the researcher. Every researcher invariably incorporates his or her own perspectives, ideas, and worldview into the research process, from design and data collection to analysis and interpretation. Through self-reflection and introspection, it is possible to regulate this to some extent by recognizing oneself and one's position as the researcher (Norris, 2007). Every researcher inevitably brings their own personal views, notions and understanding of the world into the research process – from design and data collection to the analysis and interpretation stages. This can be controlled to an extent by acknowledging and being aware of oneself, and one's positioning as the researcher through self-reflection and introspection (Norris, 2007). My inherent personal biases are to be considered as I currently work with an NGO focusing on climate migrants and refugees. I came into this with my own positionality and experiences, having lived and worked in the Indian Ocean, Mauritius. I controlled for any potential biases as best as possible, starting from the study design stage by keeping the location as open-ended as possible by using literature

and data to decide on the location for the case study as neutral as possible. To reduce the selection bias, I chose the Maldives, which many in the SIDS and climate space are familiar with, to guide me if I needed resources or had decided to do interviews. I had an acute awareness of the complexity of the region's environmental, social, and political issues but very little about the country.

Findings and Discussion

An in-depth analysis was conducted to identify adaptive capacity by investigating positive indicators, including past and current climate change policies, human development demographics, and country-specific vulnerabilities, and the adaptation programs they have undertaken to address vulnerability to answer the guiding questions in the AFP Framework for evaluating adaptive capacity.

The following sections provide evidentiary support to complement the government's overall effectiveness and vulnerabilities in answering the AFP questions (Malone et al., 2005).

In answering these questions, I also determine the answers to the overarching research questions.

Table 2: Guiding questions from Technical Paper 7

What are the priority systems and targets groups in need of adaptive capacity?
What are the qualitative indicators that characterize adaptive capacity within and between systems, populations groups, and regions?
What is included in the shortlist of realistic options for adaptation and adaptive capacity development for a priority system/population facing a particular hazard or set or hazard?
What is your preferred adaptive capacity development options based on considerations of feasibility, efficacy and acceptability, identified in consultation with stakeholders?
What is the strategy for implementing the preferred adaptive capacity development options involving significant stakeholder involvement, frequent review of progress, and assessment of options for revision?
To what degree is the country vulnerable to climate-related changes?

To what extent have the Maldives adopted climate change adaptation strategies?
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What linkages and barriers to adaptive capacity for climate migration policies in the Republic of Maldives?

Human Development Index Results and Analysis

These arguments are based on my analysis of the accumulation of demographic indicators and literature to highlight the implications of these indicators. I use academic literature to reinforce the accuracy of my analysis. Table 1 below shows the use of demographics as indicators of the government's effectiveness. The results show that the government ensures an overall high quality of life. The nation's development has been a success, as seen by its solid economic growth and the vast improvement of its infrastructure and connectivity. In addition, it provides citizens with quality and affordable public services, resulting in significant health and education indicators, with a literacy rate close to 100% and a life expectancy of over 79 years. These indicators are consistent with high adaptive capacity, as country-level assessments are thought to help conceptualize factors that inhibit or promote climate resilience and prioritise adaptation strategies (Adger and Vincent, 2005; Yohe and Tol, 2002). However, some indicators should be mediated to increase resilience to climate change.

The lack of a significant improvement in the country's economy may hinder adaptive capacity. Currently, the government's expenditures and debt are relatively high. This indicator shows potential problems in the country's ability to deal with finances. Inefficient use of national budgets may indicate that funding for future projects may be mismanaged, leading to exacerbated climate impacts. To illustrate this point, Fresnillo's study reiterates that lack of funding makes it more difficult to respond to an extreme climate event through emergency services, reconstruction,

and economic recovery (Fresnillo, 2020). While the ability to manage finances is a critical skill for a government's adaptive capacity, other indicators show progress. Specifically, climate indicators (i.e., CO2 emissions and disaster risk reduction progress score) show a reduction in vulnerability achievable under new conditions as a measurement of adaptive capacity (Luers et al. 2003). To address climate change deficiencies in the economy and fishery sector, the Maldives could benefit from diversifying agricultural systems to reduce fishery production for environmental purposes (Peterson-Rockney et al., 2021). For example, introducing new food production modes would allow for income diversification as fishing and tourism are the most prominent industries for the Maldives, like many other small islands developing states (Sathiendrakumar and Tisdell, 1989). With the transformation of economic expansion, the country will have more access to finance. Greater access to capital indicates a greater ability to offset potential adverse effects of climate change and recover from material losses (Abdul-Razak and Kruse, 2017; Defiesta and Rapera, 2014).

Table 3: Demographics as Indicators of the government's effectiveness

Table 1 below Shows the use of demographics as indicators of the government's effectiveness (Luers et al. 2003).

Table 1: Data retrieved from World Bank	
<u>Indicator</u>	<u>Value (previous year, current year of study)</u>

GDP (Current US\$)	3.47 billion, 4.89 billion
GDP per capita (current US\$)	6,924.1, 8,994.6
Foreign direct investment, net flows (% of GDP)	17.1, 11.8
Literacy rate, youth total (% of people 15-24)	99, 99
Life expectancy (at birth total years)	79, 79
CO2 emissions (metric tons per capita)	4.1, 4.0
Disaster risk reduction progress score (1-5 scale; 5=best)	2.3
Total fisheries production (metric tons)	135,063, 148,565

<p>Primary government expenditures as a proportion of the original approved budget (%)</p>	<p>79.63, 101.09</p>
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Vulnerabilities and Adaptions to Climate Change in the Maldives

This section aims to answer a broad research question: To what extent the country is vulnerable to climate-related changes? Table 2, along with the analysis, answers Question 2, to what extent Maldives has adopted climate change adaptation strategies. For countries like the Maldives, climate change is an everyday battle. The severity of the storms is increasing, and coastlines are eroding. A range of threats impacts all aspects of life in the Indian Ocean. I will mainly focus on rising sea levels for this paper, but vulnerabilities include coastal erosion, extreme weather events, and soil salinization. Other environmental threats such as water management, loss of biodiversity, soil degradation, invasive species, marine pollution, waste management, and sustainable land use could all be factored into decisions to relocate as these events can then cause damage to homes, lack of food and water security, urban planning, and disruption in economic flows. Increased human mobility is one of the outcomes of sea level rise and coastal erosion. Inland migration to urban areas can cause massive housing and job shortage disruptions (Gungah, 2020). The multifaceted challenge calls for the participation of governments, businesses, and citizens in National Adaptation Action Plans to assess and address the urgent and immediate needs to adapt to climate change. In addition, the country is committed to improving climate change resilience to population movements.

Table 2 below shows current vulnerabilities and adaptation strategies in use. Table 2 was extracted through a review using academic and policy literature to extract the information used. Under a 1.20 M average sea-level rise, the study estimated that by 2100, without adaptation, nearly 5% of the global population will be at risk of annual flooding (Hinkel et al., 2014). These challenges will necessitate extensive and pervasive coastal adaptation measures to prevent such massive impacts. This is especially true for the Maldives, where average land elevations range from 0.5 to 2.3 meters above present-day mean sea level, resulting in land loss and beach erosion vulnerabilities (Woodworth, 2005). There are no lakes or rivers in the Maldives. Hence, the availability of water is a major concern. Variable rainfall patterns, rising sea levels, environmental conditions, and expected population growth threaten underwater resources (Deng and Bailey, 2017; Alsumaiei and Bailey, 2018). The Maldives addressed these vulnerabilities through the National Water and Sewerage Policy in 2017, that updated sewerage and water services. The country also conducted a project under the National Adaptation Plan Process, which targets climate resilience through integrated water resource management. Many scholars have added to the discussion of the vulnerabilities of islands' implications of climate change on health in recent years. Increasing temperatures, changes in rainfall, extreme weather events, and exposure to disease vectors and air and water pollution all contribute to climate change's direct and indirect health effects (Campbell-Lendrum and Woodruff, 2007; Luber and Lemery, 2015; Peter et al., 2018). The Ministry of Fisheries and Agriculture, with assistance from JICA, is currently developing a Master Plan for Sustainable Fisheries (MASPLAN), which recognizes the impacts of climate change as a great concern for the fisheries sector alongside adaptations, another vulnerability for the Maldives population.

An inherent vulnerability for the Maldives is their current national policy for population consolidation. This policy is associated with the voluntary or involuntary movement of people from dispersed rural communities toward concentrated urban centres. It aims to ensure that economic, environmental, and social services are cost-effective for the government (Kothari, 2013). The shortcomings of this policy include the unacknowledged effects on the environment and society. As previously mentioned, most of the Maldives' low-lying coral atoll nation islands are no more than two meters above sea level (Rasheed & Zakariyya, 2017). For them, moving inland and to higher ground, as adaptation measures, are temporary and impractical for various reasons. Owing to the narrowness of the islands and population density, large numbers of the population cannot go much inland, and there are no higher grounds where they may retreat from the rising seas. Beyond that, this policy fails to account for building individual adaptive capacity to make the transition from rural to urban life easy. Changing lifestyles and livelihoods make it critical to provide vocational and technical workforce training and education for those displaced.

The National Strategic Framework reinforces these vulnerabilities to Mobilize International Climate Finance to Address Climate Change in the Maldives 2020-2024 and The Maldives Climate Change Policy Framework 2015. Table 2 does not include the vulnerability of critical infrastructure in the framework because this paper does not consider urban planning and its links to human settlements and population consolidation. The threats of climate change to the Maldives are listed in Table 2 below and were reduced by the government's adaptation projects conducted with supervision and input.

Table 4: Shows current vulnerabilities and their adaptation strategies in use. Table 2 summarizes the adaptations in the National Adaption Action Plans.

Table 4: Current Vulnerabilities and their adaption strategies in use

Vulnerability	Adaptation
Land loss and Beach erosion	Hard and soft engineering measures
Water Resource	Groundwater protection, storm water management, desalination
Coral Reefs	Coral reef monitoring, coral reef valuation, marine protected areas
Food Security	Increased local production and reduce import dependency, storage and distribution
Fisheries	Improve fish finding and fish handling, establish aquaculture, live bait sustainability, integrated reef fisheries management
Human Health	Public health surveillance, control of vector borne illness, access to healthcare
Populations and Development Consolidation	-
Tourism	Community based adaptation, introduction of climate proof technologies, risk management.

Frameworks and Policies for Climate Migration

The institutions and policies the Maldives are involved in will make a significant difference if a citizen wants to migrate for environmental reasons. The country has a long rapport of cooperation for migration, but environmental stressors will add a need for collaborative leadership

when discussing possible avenues of relocation. Immediate and future social and economic concerns and susceptibility to climate impacts may lead to the Maldives using migration as an adaptation strategy. To demonstrate their commitment to safe migration and addressing climate change, the Maldives have been signatories to many international agreements, often implementing their recommendations locally.

The Maldives' National Strategic Action Plan 2019- 2023 is a central development plan that covers a wide range of topics, including social protection, service reforms and economic diversification. Branching off from the national development goals, many other government committees introduced their specific plans. One of which is The Maldives National Strategic Framework for Mobilizing International Climate Finance to Address Climate Change which aims to promote the climate-related objectives of the National Strategic Action Plan. For example, the following areas were addressed in The Maldives National Strategic Framework for Mobilizing International Climate Finance to Address Climate Change: fisheries and agriculture, tourism, small and medium enterprises, health, housing, transportation, environment, clean energy, waste, water and sanitation, and resilience. After a review of the national climate change-related policies, migration caused by climate change has not been adequately addressed by any single national policy. Some reviewed policies include the Maldives Climate Change Policy Framework 2015, the Maldives Climate Change Bill, the National Adaptation Programme of Action 2007, and the Nationally Determined Contribution (NDC) of Maldives. Please see the annex for a full list of national climate-related policies.

International Cooperation and Agreements

Launched in 2021, the UN Migration Network aims to facilitate the implementation of the Global Compact for Safe, Orderly, and Regular Migration (GCM) in line with national priorities.

The GCM seeks to: support international cooperation on the governance of international migration, provide a comprehensive menu of policy options from which states can choose to address some of the most pressing issues surrounding international migration, and give states the space and flexibility to pursue implementation based on their migration realities and capacities (IOM, 2022). Participation in international migration agreements demonstrates the country's potential to leverage the international community to regulate and plan for future migration. In the annex, a list of international agreements (both legally binding and not) depict a possible pathway to future agreements that would include climate migration to another country. An example of a signatory of the Maldives to an international agreement is the Paris Agreement. The legally binding international climate change treaty aims to limit global warming to below 2 degrees Celsius, preferably 1.5 degrees Celsius, by reducing greenhouse gas emissions (Ministry of the Environment, 2020). An international agreement in action at the national climate policy level is the Maldives' Nationally Determined Contribution (NDC). The Maldives has set ambitious goals to reduce emissions by 26% by 2030 and achieve net zero emissions as a contribution to the Paris Agreement. It also places equal emphasis on enhancing adaptation and building climate resilience for the future to reduce climate risks to our communities and way of life.

The possibility of using international agreements and finance as catalysts for adaptation is a key conversation when understanding a government's adaptive capacity. To appropriately enact these changes, low-income countries need adequate international support and assistance to achieve these goals (Ministry of Environment, 2020). In response to the increasing severity and frequency of natural disasters, SIDS need access to funding for adaptation and risk management to reduce losses. For example, the Maldives rarely experienced large-scale disasters until December 2004, when the Indian Ocean tsunami caused \$470 million in economic losses. This natural disaster led

to one-third of the population being affected by the destruction or loss of homes, livelihoods, and local infrastructure. The Maldives' Strategic National Action Plan (SNAP) was implemented to address changing weather patterns and disaster risks. It incorporates climate change adaptation and disaster risk reduction into all aspects of its development to build the country's and communities' resilience to natural disasters (The Republic of the Maldives, 2020). If the appropriate financing and attention at the international level were given to plan for such events proactively, an economic and social loss could have been decreased.

Qualitative Findings

Guiding questions in Technical Paper 7 help to identify a case study based on current needs, existing literature, and capabilities. A prerequisite for measuring adaptive capacity in the Maldives is the collection of previous and existing relocation policies and specific indicators to measure the challenges and benefits of implementing climate migration policies as an adaptation strategy. The third overarching question can be answered by answering these guiding questions: What are the linkages and barriers to climate migration policy adaptation in the Republic of Maldives?

1. What are the priority systems and target groups most need adaptive capacity?

The first step to understanding those in most need of adaptive capacity is understanding adaptation priorities from existing vulnerability assessments. The prioritization of the Maldives was due to high vulnerability and the high likelihood of many potential impacts from climate change. Maldives is the 39th most vulnerable country and the 83rd most prepared country, ranking 106 on the ND-GAIN Country Index. It considers a country's vulnerability to climate change and other global issues and its preparedness to increase resilience. One estimates a worst-case scenario

in which rising sea levels could push up to 2 billion people off their land by 2100 (Farbotok, 2009). Due to the risk of rising sea levels, most atolls will likely be uninhabitable by mid-century (Storlazzi et al., 2018). These scenarios emphasize the urgency of successful strategies to adapt in place, but it still needs to be determined how feasible these adaptation strategies are for SIDS. I argue that migration pathways should be planned as a preemptive measure for safe and dignified relocation. The current policy for relocation does not discuss a direct relationship between migration and climate change in the Maldives. The growing economy on the islands and the unwillingness of policymakers and communities to move to show that relocation could be more difficult in the future (Gussmann & Hinkel, 2020). In contrast, several studies suggest that those who attribute their migration decision to environmental factors frequently reject the victim label, insisting that their resourcefulness and initiative also contribute to their upward mobility. (Farbotko 2005; Stark and Taylor 19991; Gemenne 2011). Gemenne's study suggests that managed migration is a new climate change adaptation policy method (Gemenne, 2017). There are previous examples of government policies in other countries connecting migration and climate change. (e.g. Kiribati's Migration with Dignity). Even though there are no direct links from the population consolidation policy in the Maldives, increasing vulnerabilities and costs to current adaptation strategies could lead to a tipping point leading more people to relocate. Furthermore, the priority system identified is climate migration policy due to a lack of preemptive planning and increasing vulnerabilities in the target group of the Maldives.

2. What are the qualitative indicators that characterize adaptive capacity within and between systems, populations, groups, and regions?

The adaptive capacity of the government to make climate migration policies can be indicated by environmental policies, the extent of integration of economic and environmental policies, and the planned state reforms. The government's focus on tackling climate change ranges from international commitments to national development and risk programs (Malone & LaRovere, 2004). As for adaptation, their primary focus uses the National Adaptation Program of Action (NAPA) to identify urgent actions for climate change adaptation. The Strategic Action Plan 2019-2023 focuses on infrastructure, development, and investment (Ministry of Environment, 2006). The National Community-Based Disaster Risk Reduction Framework specifies the standard procedure that will be followed across the nation to establish effective, efficient, and sustainable community-level programs that reduce local vulnerabilities and enable communities to assume responsibility for their own well-being (National Disaster Management Center, 2014). The Maldives Climate Change Policy Framework provides a blueprint to build resilience in partnership with regional and global partners. The government of the Maldives is also involved in National Communications with the UNFCCC. With the implementation of the seventh National Disaster Management Plan and the National Emergency Operations Plan, it continues to demonstrate its ability to implement proactive measures to prevent future disasters. This suggests a shift in strategies for managing climate risk from reactive to more comprehensive.

Following this notion, national strategies have been implemented to provide acceptable quality of living to all citizens. The 2004 tsunami made disaster relief difficult for people living on remote islands (Mimura et al., 2007). The Maldives' National Spatial Plan (NSP) is a road map for infrastructure, spatial development, and decentralization. The NSP envisions the creation of regional hubs, sub-regional centres, and other islands, all of which will have access to basic services (Ministry of Environment, 2020). A population consolidation program, Safer Island

Development Program (SIDP), to relocate populations to Safe Islands to reduce vulnerability to extreme weather events and rising sea-level. Moreover, the absence of any measure to control or regulate the future climate risk to migration shows a clear gap, but demand is presently based on my assessment.

3. What is included in the shortlist of realistic options for adaptation and adaptive capacity development for a priority system/population facing a particular hazard or set of hazards?

In this case, the theme of mobility is prevalent in most realistic options for adaptations. It is evident that climate change is directly and indirectly linked to mobility. The options would be to adapt in place, migrate/relocate by choice, or be forced to migrate/relocate. Currently, the Maldives is using the options to adapt in place (e.g., building seawalls) and relocate by choice (e.g., population consolidation) as adaptation strategies to rising sea levels and coastal erosion. Other feasible options would be forced relocation to the entire population or certain islands, due to immediate threats. The last option would be to implement a policy to relocate by choice, with government reinforcements to guide the process.

4. What are your preferred adaptive capacity development options based on consideration of feasibility, efficacy, and acceptability identified in consultation with stakeholders?

After the 2004 tsunami, the government fast-tracked the process of population consolidation, which it had a history of doing since 1968. The Maldives implemented a population consolidation program. The idea of the Safe Islands is to extend the population consolidation approach to

incorporate the aspect of extreme vulnerability and develop measures to reduce ecological disasters (Riyaz & Park 2010). However, this government policy remains unpopular (Kothari, 2014) as it plans to consolidate remote populations onto 10-15 islands instead of 200. It is important to remember that mobility can involve legal and illegal coercion. Although the government has re-stated its policy against forced resettlement in a recent communication to donors, some could view this as an inadequate intervention. The lack of prioritization and commitment to cultural integrity and land heritage is under scrutiny (Gussmann, 2020). It is essential to understand that connection to place – for cultural, ancestral, spiritual, or indigenous critical linkages – can override a practical choice to move for some. The emphasis on individual agency and the feeling of control over actions and consequences will remain of immense importance as climate change continues to affect human mobility (Moore, 2016). These independent self-determining sovereign nation-states have the right to make their own decisions based on solid principles of international law. The forced movement will undoubtedly encounter criticism from external sources, especially because those living in SIDS have contributed so little to the climate change problem. The complex issue that governments may warrant is that it is too expensive for citizens to live where they are, but it is essential to remember that they have the right to choose to stay.

5. What is the strategy for implementing the preferred adaptive capacity development options involving significant stakeholder involvement, frequent review of progress, and assessment of options for revision?

The preferred option is to implement a policy that helps promote migration through job and educational opportunities, like Kiribati's "Migration with Dignity" policy. At the same time, it incentivises the population to diversify their livelihoods and skills to adapt to globalization. Those living in isolated islands will not have the same opportunities to access market extension services and government programs. Hence, this disadvantage requires them to acquire new skills, capacities, and knowledge to deal with the rising sea-level challenges. Lack of understanding and access to technical inputs on investing in low-cost disaster preparedness and livelihood diversification options makes it difficult for the government to manage climate change. There is a clear need for preventative and early intervention to assist in the peaceful management of migration dynamics and to build resilience on the ground. This must be grounded in a better understanding of the complex impacts of climate change. Using household income, government schemes, and international financing mechanisms to help the adaptation of migrants is a feasible first step in addressing the challenges of climate migration in the Maldives.

Summary and Key Findings

This study aims to understand the adaptive capacity of the Maldives government to implement climate migration policies. The adaptive capacity can range from the significant (such as the previous track record of political stability or a government's diplomatic abilities) to the trivial (such as how many people keep up with current events) – but all of which have a large impact on lives. In addition to the direct physical damage that climate change can have, the consequences of physical damage can also manifest in social impacts, as the literature shows. These impacts can serve as indicators or stressors leading to stunted adaptive capacity or migration. This exploratory

study aims to identify adaptive capacity by investigating positive indicators, including past and current climate change policies, human development indicators, country-specific vulnerabilities, and the adaptation programs they have undertaken to address the vulnerability.

The findings of this study suggest that much of the academic and policy discourse surrounding climate change in the Maldives does not look at it from a mobility perspective. There is a lack of conversation and proactive planning for safe and dignified migration due to climate change or natural disasters. When examining climate vulnerabilities, the discussion focuses on advocating for an urgent reduction in greenhouse gas emissions and resource-intensive adaptations. These interventions and discussions can be found in the national policy agenda and through the signatory agreements on the international level. Few scholars and countries are advocating for preemptive policies for those displaced due to environmental impacts, especially those whose national sovereignty is threatened. Kiribati introduced the most notable example of “Migration with Dignity,” a human-centered adaptive approach (McClain & Burch, 2021). The narrative of people with no choice is not something that islanders want to continue. Building adaptive capacity on the individual level to complement national government adaptive capacity would be the best way to ensure a coherent climate migration policy. Increased advocacy for migration as a long-term strategy to address the impacts of climate change is necessary to activate international, regional, and bilateral agreements and funding with other SIDS.

Based on this study, the unique scenarios of low-lying island states convey a need for options for carefully planned migration choices. Country-specific vulnerabilities should be examined for a holistic approach to climate migration policy. This research suggests that a multi-stakeholder approach would be most successful in a coherent national policy. Despite the best efforts of small island developing States, the engagement and financing of the international

community are still necessary for sustainable adaptation to climate change (UN, 2022). Knowledge sharing and innovation are needed to enable a safe migration policy in the wake of climate change. Lastly, this study also demonstrates opportunities for further research, which could cover both the breadth and depth of the consequences and advantages of the previous government-led relocation schemes in the Maldives to gain more insight into the risks and benefits of a future climate migration policy.

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Fifth Tourism Master Plan

Global Compact for Safe, Orderly, and Regular Migration

Maldives Climate Change Bill

Maldives Climate Change Policy Framework 2015

Maldives Fisheries Act 2019

Maldives Tourism Act

National Adaptation Action Plan

National Adaptation Programme of Action 2007

National Emergency Operations Plan

National Strategic Framework to Mobilize International Climate Finance to Address Climate
Change in the Maldives 2020- 2024

Nationally Determined Contribution (NDC) of Maldives

Second National Communication of Maldives to the United Nations Framework Convention on
Climate Change

Seventh National Disaster Management Plan

Strategic Action Plan 2019-2013

Annex

Annex 1:

National Climate Related Policies provided by National Strategic Framework to Mobilize International Climate Finance to Address Climate Change in the Maldives 2020- 2024 (World Bank, 2020).

National Climate Related Policies
Maldives Climate Change Policy Framework 2015
Maldives Climate Change Bill
National Adaptation Programme of Action 2007
Nationally Determined Contribution (NDC) of Maldives
Strategic Action Plan 2019-2033
Maldives Energy Policy and Strategy 2016
National Action Plan on Air Pollutants 2019
National Water and Sewerage Policy 2017
Environmental Protection and Preservation Act 4/1993 and its Amendments 12/2014
Gender Equity Act 2016
Maldives Tourism Act
Fifth Tourism Master Plan
Maldives Fisheries Act 2019
Coastal Protection Guideline 2011

Annex 2

International Climate Contributions provided by National Strategic Framework to Mobilize International Climate Finance to Address Climate Change in the Maldives 2020- 2024 (UNWTO, 2022).

International Climate Contributions

UNFCCC ratification 1992

Kyoto Protocol ratification 2998

First National Communication 2001

Technology Needs Assessment for Energy and Transportation Sector 2006

Doha Amendment ratification 2015

Nationally Determined Contribution 2015

Paris Agreement ratification 2016

Nationally Determined Contribution Implementation Plan

Second National Communication