

Tensions of Adaptation and Disaster Resiliency in the Context of Climate Change: A Case Study of Kiribati

Vidya Nair, Master of Development Practice Candidate, University of Waterloo

vidya.nair@uwaterloo.ca

+1 (613) 859-8990

200 University Ave W, Waterloo, ON N2L 3G1, Canada

Abstract

The accelerating rate of climate change has led to the hope that both developing and developed nations will address the challenge collaboratively with a comprehensive response. In doing so, the relationship between adaptation and disaster resiliency within the climate narrative has been investigated by many researchers. The Republic of Kiribati (also recognized and will be referred to as Kiribati), a small atoll nation in the South Pacific experiences an increase in environmental stress symptoms such as depleted coastal zones, coral reefs, fisheries, fresh groundwater and biodiversity deterioration within its islands¹. For example, Kiribati's fresh water reserves are in jeopardy due to strong king tides and salt water contamination making the island highly susceptible to wave damage, which affects the livelihoods of its people². This is especially challenging with the nation's small population of 110,000³. While climate change issues continue to be investigated in depth for the South Pacific, its links to economic, social, environmental and political circumstances in relation to disaster resiliency have yet to be explored on a national basis. For example, disaster resiliency in Kiribati inherently requires adapting current lifestyles, as if the islands continue to submerge under water, its people will have to leave their homelands and lose a part of their cultural identity⁴. By using Kiribati as a case study, through both primary and secondary data, this paper aims to examine the tensions between adaptation and resilience while raising the issues of vulnerabilities for the nation. In particular, the tensions between staying on their island and building resilience to be able to confront the changes in climate with the possible uprooting of the only homes they have ever known. This is furthered with tensions in accessing financial resources allocated by various international agencies to address visible challenges within Kiribati⁵. Through interviews conducted with the Kiribati's Ministry of Environment, participation at the United Nations Framework Convention on Climate Change's 21st Conference of Parties in Paris and an analysis of the climatic and governance pressures facing small-island developing states in relation to climate change, this paper outlines the journey of Kiribati and its call on the

¹ Government of Kiribati. "Republic of Kiribati: National adaptation program of action (NAPA)". Last modified 2007. <http://unfccc.int/resource/docs/napa/kir01.pdf>

² Barnett, Jon. "Adapting to climate change in Pacific Island countries: the problem of uncertainty." *World Development* 29, no. 6 (2001): 977-993.

³ World Bank. "Kiribati". Last modified 2014. <http://data.worldbank.org/country/kiribati>

⁴ Tschakert, Petra, and Kathleen Ann Dietrich. "Anticipatory learning for climate change adaptation and resilience." *Ecology and society* 15, no. 2 (2010): 11.

⁵ Government of Kiribati. "National framework for climate change and climate change adaptation". Last modified 2013. <http://www.president.gov.ki/wp-content/uploads/2014/08/National-Framework-for-Climate-Change-Climate-Change-Adaptation.pdf>

international community for climate justice. Climate change is inevitable, and the effects on small-island developing states like Kiribati are adverse. Thus, the approach to dealing with the issue must be feasible for the Kiribati government to implement and move forward without surpassing the environmental threshold of the island.

The Republic of Kiribati

Kiribati, a party to the United Nations Framework Convention on Climate Change (UNFCCC), is among one of the most vulnerable countries in the world, as the nation continues to face daily threats of rising sea levels and an increase in king tides. The UNFCCC recognizes the need for international cooperation to combat climate change and the need to minimize global temperature increase and the adverse impacts it poses on respective nations⁶. Climate change as defined in the 1992 UNFCCC Convention is a “means of 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.”⁷ Of all the parties adhering to the Convention, further recognition is given to “the specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change.”⁸

According to UNFCCC, “climate characteristics, combined with their particular socioeconomic situations make [small island developing states-SIDS], among which are 12 [least developed countries-LDC] as, some of the most vulnerable countries in the world to climate change.”⁹ Of which, Kiribati belongs to both categories for their economic situation fails to enable them to meet the costs of adaptation, while their physical location makes them physically susceptible to the effects of climate change¹⁰. With a population of approximately 110,000, Kiribati is composed to 33 atolls, thus making it an archipelago¹¹. Of the 33 atolls, only 21 are inhabited of which Tarawa and

⁶ UNFCCC. “Green Climate Fund”. Last modified 2014.

http://unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5869.php

⁷ UNFCCC. “United Nations framework convention on climate change”. Last modified 1992. https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

⁸ UNFCCC. “The Paris Agreement”. Last modified December 15, 2015.

http://unfccc.int/paris_agreement/items/9485.php

⁹ UNFCCC. “United Nations framework convention on climate change”. Last modified 1992. https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

¹⁰ Government of Kiribati. “Republic of Kiribati: National adaptation program of action (NAPA)”. Last modified 2007. <http://unfccc.int/resource/docs/napa/kir01.pdf>

¹¹ CIA. “The world fact book, Kiribati”. Last modified 2015.

<https://www.cia.gov/library/publications/the-world-factbook/geos/kr.html>

Kiribati (Christmas Island) are the most populated¹². According to the 2010 Census, the population of South Tarawa was estimated to be 50,182¹³.

According to the Intergovernmental Panel on Climate Change (IPCC), “because of their low elevation and small size, many small island states are threatened with partial or virtually total inundation by future rises in sea level.”¹⁴ The mean sea-level trend as calculated by the National Oceanic and Atmospheric Administration (NOAA) is set to be 0.58-millimeters/ year for the country, with Kiribati’s atolls’ set to be 3-4 metres above mean sea level¹⁵. Moreover, with severe and extensive coastal erosion and a continued loss of biodiversity, Kiribati and nations similar will be destroyed by the events of climate change. A study conducted by Aung, Singh and Prasad note that while it is difficult to predict sea-level rise accurately, the trends from the later part of the last century and studies of early 2000s do indicate that the mean sea-level is expected to rise with some regional variations¹⁶.

Adaptation and resiliency: The tensions

The United Nations Office for Disaster Risk Reduction declares adaptation as “the adjustment in natural or human systems in response to actual or expected climate stimuli or their effects, which moderates harm or exploits beneficial opportunities.”¹⁷ Thus, leaving the nature of the adaptation process to be socio-political that mediates the needs of individuals and collectives within a particular system¹⁸. The process extends beyond just the human-dimension but also affects key infrastructure and environmental resources. Discussions surrounding access and control over resources are bound to surface based on the population’s requirement to adjust or just “adapt”.¹⁹ The requirement to adapt presents further unequal vulnerability for the people of Kiribati, also known as I-Kiribati, to seek protection from the climatic events ever present on their homeland.

¹² Government of Kiribati. “National framework for climate change and climate change adaptation”. Last modified 2013. <http://www.president.gov.ki/wp-content/uploads/2014/08/National-Framework-for-Climate-Change-Climate-Change-Adaptation.pdf>

¹³ Government of Kiribati. “National framework for climate change and climate change adaptation”. Last modified 2013. <http://www.president.gov.ki/wp-content/uploads/2014/08/National-Framework-for-Climate-Change-Climate-Change-Adaptation.pdf>

¹⁴ IPCC. “Working group 2: Impacts, adaptation and vulnerability”. Last modified 2009. <http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=671>

¹⁵ NOAA. “Sea level trends: Kiribati.” Last modified 2013. http://tidesandcurrents.noaa.gov/sltrends/sltrends_global_station.htm?stnid=750-012

¹⁶ Aung, Than, Awnesh Singh, and Uma Prasad. “A study of sea-level changes in the Kiribati area for the last 16 years.” *Weather* 64, no. 8 (2009): 203-206.

¹⁷ UNISDR. “Terminology”. Last modified 2007. <https://www.unisdr.org/we/inform/terminology>

¹⁸ Eriksen, Siri H., Andrea J. Nightingale, and Hallie Eakin. “Reframing adaptation: the political nature of climate change adaptation.” *Global Environmental Change* 35 (2015): 523-533.

¹⁹ Eriksen, Siri H., Andrea J. Nightingale, and Hallie Eakin. “Reframing adaptation: the political nature of climate change adaptation.” *Global Environmental Change* 35 (2015): 523-533.

Disaster resiliency on the other hand has its roots entrenched in policy arenas and discourses²⁰. In many UNFCCC conventions, government publications and international community drafts, the concept of disaster resiliency is alluded to, highlighted and emphasized, yet meaningful and tactful next steps to address the its ideas fail to be discussed at length²¹. Moreover, the term does not show nor clarify proper management techniques in the context of climate change²². The ambiguity of its values provides more confusion and further challenge when discussing the building and management of resilience.

Kiribati's Joint National Action Plan on Climate Change and Disaster Risk Management (KJIP), which was enacted in 2013, holds the goal to marry disaster resiliency and adaptation. With the purpose of "increasing resilience through sustainable climate change adaptation and disaster risk reduction using a whole of country approach"²³ the nation prioritizes the needs of building resilience at the individual level through government action. Moreover, by mobilizing the country system through government efforts it ensures responsibilities to access and distribute developmental aid for climate change and governance purposes²⁴. Assessing climate change, prioritizing disaster relief and developing solutions to mitigate additional vulnerabilities facing I-Kiribati were promoted by KJIP.

However, while the international community prioritizes the building of resilience and managing the disaster of climate change in Kiribati through concepts of environmental migration and skilling the national labour force, the I-Kiribati have another vision which prioritizes preserving their culture, heritage and identity that it upheld and safeguarded through enhanced resilience and sustainable development²⁵. Thus, the tension of defending their homes and preserving cultural practices may conflict with the international community's plans for environmental migration. Migration and relocation in this case, prove to be adaptation "solutions" discussed and proposed to the low-lying atoll nation as a means to build resilience and foster disaster risk management²⁶.

²⁰ Aldunce, Paulina, et al. "Resilience for disaster risk management in a changing climate: Practitioners' frames and practices." *Global Environmental Change* 30 (2015): 1-11.

²¹ Adger, W. Neil, et al. "Adaptation to climate change in the developing world." *Progress in development studies* 3, no. 3 (2003): 179-195.

²² Djalante, Riyanti, and Frank Thomalla. "Community resilience to natural hazards and climate change: a review of definitions and operational frameworks." *Asian journal of environment and disaster management* 3, no. 3 (2011).

²³ Government of Kiribati. "National framework for climate change and climate change adaptation". Last modified 2013. <http://www.president.gov.ki/wp-content/uploads/2014/08/National-Framework-for-Climate-Change-Climate-Change-Adaptation.pdf>

²⁴ UNFCCC. "The Paris Agreement". Last modified December 15, 2015. http://unfccc.int/paris_agreement/items/9485.php

²⁵ Smith, Roy, and Karen E. McNamara. "Future migrations from Tuvalu and Kiribati: exploring government, civil society and donor perceptions." *Climate and Development* 7, no. 1 (2015): 47-59.

²⁶ O'Brien, Karen, et al. "Disaster risk reduction, climate change adaptation and human security." *Report prepared for the Royal Norwegian Ministry of Foreign Affairs by the Global Environmental Change and Human Security Project, GECHS Report 3* (2008).

Building disaster resiliency through migration

Part of the environmental migration argument is to skill Kiribati's youth as hard protection measures against climate volatility²⁷. Former President of Kiribati, His Excellency Anote Tong, coined the phrase "migration with dignity". Migration with dignity implies skilling and training the youth population should they want to migrate abroad²⁸. The initiative adheres to adapting to new ways and circumstances facing the country. Kiribati experiences a relatively fast growing population and rather high unemployment²⁹. This is due to most islanders engaging in subsistence activities; Kiribati's agricultural output, copra, for example has been severely affected by climate change³⁰. Therefore, with very little economic prospect and job security on the island, the new environmental migration strategy that is framed as an adaptation measure to enable disaster resiliency identifies itself as a solution. According to Kiribati, the country set out a strategy to "invest in its main assets- its people - and to transform the lives of I-Kiribati through further development of the economy and their capabilities"³¹ through the Australian- Kiribati Partnership for Development. Investing in people does prove to inherently build resilience; Kiribati continues to advocate for its people to gain skills and be able to live in their respective homes should they want to³². Long-term adaptation is a national priority to ensure that additional vulnerabilities are mitigated and the I-Kiribati have a future. Investing in human capacities to undertake coastal protection and sustainable food sourcing are means to build resilience inherently³³. For example, sourcing seedlings that can grow in saline water and implementing them on the shores of the islands could contribute to the nation becoming more food secure³⁴.

Climate financing within adaptation and resilience

Authors Donner & Webber note that international aid since the early 2000s has shifted towards climate change adaptation for Kiribati³⁵. However, while Kiribati is allocated both bilateral and multilateral funding from international non-governmental organizations, United Nations agencies and respective governments, accessing the financing is

²⁷ Donner, Simon D., and Sophie Webber. "Obstacles to climate change adaptation decisions: a case study of sea-level rise and coastal protection measures in Kiribati." *Sustainability science* 9, no. 3 (2014): 331-345.

²⁸ Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

²⁹ Hughes, Terry P., et al. "Climate change, human impacts, and the resilience of coral reefs." *Science* 301, no. 5635 (2003): 929-933.

³⁰ Majumdar, Prabir, and Teweiariki Teaero. "Research into the financing of technical and vocational education and training (TVET) in the Pacific: Kiribati: country report." (2015).

³¹ Majumdar, Prabir, and Teweiariki Teaero. "Research into the financing of technical and vocational education and training (TVET) in the Pacific: Kiribati: country report." (2015).

³² Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

³³ Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

³⁴ Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

³⁵ Donner, Simon D., and Sophie Webber. "Obstacles to climate change adaptation decisions: a case study of sea-level rise and coastal protection measures in Kiribati." *Sustainability science* 9, no. 3 (2014): 331-345.

difficult. The UNFCCC's Green Climate Fund (GCF) operates to support initiatives, programmes and policies within developing country Parties³⁶. While priority is given to developing countries to secure financial contributions for climate change efforts, Kiribati experiences difficulty in accessing the funds in a timely manner. The nation requires funding for loss and damage and acquires innovative technologies to develop feasible environmental solutions for them to stay on their island despite the rising sea levels³⁷. Kiribati continues to be successful in accessing UNFCCC's Least Developed Country Fund (LCDF) and Standing Committee of Finance; however remain limited in attracting wider funding pools³⁸. This is due to limited capacity and resources within Kiribati. While funding boards are to assist in the challenge, the support is untimely. This is especially challenging when the atoll nation adopts a whole-island approach, where high priority is given to assessing and mapping high vulnerability. The task is often time consuming and resource dependent³⁹.

The model for accessing the GCF requires for nations to be accredited. The accreditation framework is lengthy as a three-step process assessment tool for "fiduciary principles and standards, environmental and social safeguards and gender policy."⁴⁰ Therefore while the fund's establishment is to channel resources to climate change adaptation and mitigation programs initiated by small, developing countries, the operationalization of the intended framework is demanding. Thus, the GCF fails to distribute financial resources tactically and build disaster resiliency within nations that require the most climate change assistance.

Conclusion

Kiribati continues to struggle for environmental justice due to a number of limiting factors. Through primary data in the form of expert interviews and literature review it is evident that climate change induces disasters in various forms. Firstly, Kiribati continues to plea for the international community to recognize that to the island adaptation means long-term investment in climate-smart solutions, building resiliency to be able to confront the impacts of climate change and the possibility of staying in their homeland. While king tides, coastal erosion and a loss of biodiversity continue to add to the pressures of Kiribati's development, the country continues to prioritize resiliency and the concepts of loss and damage. During the 21st Conference of Parties negotiations, SIDS championed

³⁶ Green Climate Fund. "Accreditation to the Green Climate Fund (GCF)". Last modified 2016. http://www.greenclimate.fund/documents/20182/319135/1.3_-_Introduction_to_Accreditation_Framework.pdf/4d44997c-6ae9-4b0e-be5d-32da82e62725

³⁷ Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

³⁸ Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

³⁹ Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

⁴⁰ Green Climate Fund. "Accreditation to the Green Climate Fund (GCF)". Last modified 2016. http://www.greenclimate.fund/documents/20182/319135/1.3_-_Introduction_to_Accreditation_Framework.pdf/4d44997c-6ae9-4b0e-be5d-32da82e62725

for the loss and damage clauses to remain in the Paris Agreement⁴¹. Through this case study it remains evident that Kiribati continues to experience tensions between adaptation and disaster resiliency along with challenges in accessing financial assets. Kiribati continues to highlight its vulnerable position within the international community while calling for environmental justice. However, it is critical that in order for the journey to be successful, collective action is required to ensure social, economical, political and environmental determinants are emphasized⁴².

⁴¹ Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

⁴² Adger, W. Neil, et al. "Adaptation to climate change in the developing world." *Progress in development studies* 3, no. 3 (2003): 179-195.

References

Adger, W. Neil, et al. "Adaptation to climate change in the developing world." *Progress in development studies* 3, no. 3 (2003): 179-195.

Aldunce, Paulina, et al. "Resilience for disaster risk management in a changing climate: Practitioners' frames and practices." *Global Environmental Change* 30 (2015): 1-11.

Aung, Than, Awnesh Singh, and Uma Prasad. "A study of sea-level changes in the Kiribati area for the last 16 years." *Weather* 64, no. 8 (2009): 203-206.

Barnett, Jon. "Adapting to climate change in Pacific Island countries: the problem of uncertainty." *World Development* 29, no. 6 (2001): 977-993.

Barnett, Jon, and W. Neil Adger. "Climate dangers and atoll countries." *Climatic change* 61, no. 3 (2003): 321-337.

CIA. "The world fact book, Kiribati". Last modified 2015.
<https://www.cia.gov/library/publications/the-world-factbook/geos/kr.html>

Djalante, Riyanti, and Frank Thomalla. "Community resilience to natural hazards and climate change: a review of definitions and operational frameworks." *Asian journal of environment and disaster management* 3, no. 3 (2011).

Donner, Simon D., and Sophie Webber. "Obstacles to climate change adaptation decisions: a case study of sea-level rise and coastal protection measures in Kiribati." *Sustainability science* 9, no. 3 (2014): 331-345.

Eriksen, Siri H., Andrea J. Nightingale, and Hallie Eakin. "Reframing adaptation: the political nature of climate change adaptation." *Global Environmental Change* 35 (2015): 523-533.

Farran, Sue. "At the Edges and on the Margins: Hearing the Voices of Young People in South Pacific Island Countries." *The Round Table* (2016): 1-14.

Hughes, Terry P., et al. "Climate change, human impacts, and the resilience of coral reefs." *Science* 301, no. 5635 (2003): 929-933.

Government of Kiribati. "Republic of Kiribati: National adaptation program of action (NAPA)". Last modified 2007. <http://unfccc.int/resource/docs/napa/kir01.pdf>

Government of Kiribati. "National framework for climate change and climate change adaptation". Last modified 2013. <http://www.president.gov.ki/wp-content/uploads/2014/08/National-Framework-for-Climate-Change-Climate-Change-Adaptation.pdf>

Government of Kiribati. "Kiribati joint implementation plan for climate change and disaster risk management (KJIP)". Last modified 2014.
<http://reliefweb.int/sites/reliefweb.int/files/resources/KJIP-BOOK.pdf>

Government of Kiribati. "Interview with Ministry of Environment, Lands and Agricultural development", March 9, 2015.

Green Climate Fund. "Accreditation to the Green Climate Fund (GCF)". Last modified 2016. http://www.greenclimate.fund/documents/20182/319135/1.3_-_Introduction_to_Accreditation_Framework.pdf/4d44997c-6ae9-4b0e-be5d-32da82e62725

IPCC. "Working group 2: Impacts, adaptation and vulnerability". Last modified 2009. <http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=671>

Majumdar, Prabir, and Teweiariki Teaero. "Research into the financing of technical and vocational education and training (TVET) in the Pacific: Kiribati: country report." (2015).

NOAA. "Sea level trends: Kiribati." Last modified 2013. http://tidesandcurrents.noaa.gov/sltrends/sltrends_global_station.htm?stnid=750-012

O'Brien, Karen, et al. "Disaster risk reduction, climate change adaptation and human security." *Report prepared for the Royal Norwegian Ministry of Foreign Affairs by the Global Environmental Change and Human Security Project, GECHS Report 3* (2008).

Smith, Roy, and Karen E. McNamara. "Future migrations from Tuvalu and Kiribati: exploring government, civil society and donor perceptions." *Climate and Development* 7, no. 1 (2015): 47-59.

Tschakert, Petra, and Kathleen Ann Dietrich. "Anticipatory learning for climate change adaptation and resilience." *Ecology and society* 15, no. 2 (2010): 11.

UNFCCC. "United Nations framework convention on climate change". Last modified 1992. https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

UNFCCC. "Green Climate Fund". Last modified 2014. http://unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5869.php

UNFCCC. "The Paris Agreement". Last modified December 15, 2015. http://unfccc.int/paris_agreement/items/9485.php

UNISDR. "Terminology". Last modified 2007. <https://www.unisdr.org/we/inform/terminology>

World Bank. "Kiribati". Last modified 2014. <http://data.worldbank.org/country/kiribati>