WILL THE TIDE OF CLIMATE FINANCE FINALLY TURN IN OUR FAVOUR?

THREE ESSAYS ON ACCESSING AND MOBILIZING CLIMATE FINANCE IN OCEANIA POST-PARIS AGREEMENT

by

Jale Samuwai Curuki

A thesis submitted in fulfillment of the
requirements for the degree of
Doctor of Philosophy

Pacific Centre for Environment and Sustainable Development
The University of the South Pacific

March, 2019

ABSTRACT

How can the Pacific Small Island Developing States (PSIDS) access and mobilise predictable climate finance to undertake effective mitigation and adaptation activities in the long-term? This is a key question PSIDS have continuously raised, despite the proliferation of international climate finance sources post - Paris Agreement. An affirming answer is complicated by the sparse and fragmented literature specifically addressing the case of PSIDS. This Thesis will shed light on this current regional discourse from three different, yet closely related climate finance elements: 1) Climate Finance Readiness, 2) Green Climate Fund financing, and 3) the Nationally Determined Contributions. These three elements are currently among the top climate finance priorities of the PSIDS agenda within the United Nations Framework Convention on Climate Change. The three climate finance elements were examined separately as standalone research papers using multiple research techniques and approaches. Collectively, they formed the core arguments and findings of this Thesis. The outcomes of this Thesis promote major policy re-orientations for PSIDS and their donors, regarding how their current approaches towards accessing climate finance are being pursued.

DECLARATION OF ORIGINALITY

Statement by Author

I, Jale Samuwai Curuki, declare that this Thesis entitled, ***Will the Tide of Climate Finance Finally Turn in our Favour? Three Essays on Accessing and Mobilizing Climate Finance in Oceania Post-Paris Agreement*** and the work presented within are both my own and have been generated by me as the result of my original research. I confirmed that;

- This work was done wholly while in candidature for a PhD at The University of the South Pacific;
- I have acknowledged all main sources of help;
- 15% of this Thesis has been published in ranked peer reviewed journals. These publications were made during the term of my PhD candidature.

Signature: …… Date …….....

Name: Jale Samuwai Curuki Student ID: S11011173

Statement by Principal Supervisor

The research in this Thesis was performed under my supervision and to my knowledge is the sole work of Mr. Jale Samuwai Curuki.

Signature……... Date…….

Name……. Designation…….

DEDICATION

This manuscript is dedicated to my three special ladies, my daughters, Merelita Lina Curuki and Georgia Inai Curuki and the love of my life Fay Sutherland Curuki.

A special dedication is extended to you *Fay*. Hun, thank you very much for sacrificing your dreams so that I can pursue mine. I am forever grateful to the Lord Almighty for giving me an understanding and supportive wife. Thank you for holding the fort at home while I burned the midnight oil at the lab trying to complete this manuscript. Without your patience, encouragement and support I would not have been able to complete this program. This piece of work is for you and our children. Nothing that I have achieved is meaningful without you in my life. I thank God every day for your presence by my side.

And to you my daughters, *Lita and Georgia*, let this be an inspiration for you to achieve and aspire for a better future. Education opens doors to a world of opportunities my little girls, be sure to treasure it. Always strive for excellence and never let anyone determine your limitation. Never be afraid to try out new opportunities and expand your capabilities. In whatever profession that you end up in, aim to reach its highest level. You are the mistress of your own fate!

ACKNOWLEDGEMENTS

I want first of all to acknowledge my Lord and Saviour Jesus Christ for blessing me with this opportunity and giving knowledge and the strength to complete this Thesis. His Grace has always been sufficient for me. You alone deserve the Glory and the Honour!

I wish to specifically acknowledge the assistance of Dr. Jeremy Maxwell Hills in the course of writing this manuscript. Sir, I am amazed by your professionalism and your insightful guidance, integrity and kindness in the duration of my PhD program. Thank you so much for the continuous support and the words of encouragement. Thank you for seeing the potential of my work and making yourself available to be a major part in shaping and improving it, even though it was not part of your job description! Thank you for seeing me through till the very end despite being located half way across the globe. The level of your professionalism and dedication to your students are exceptional and is unrivalled. I am, and will be forever grateful to you Dr. Hills!

I also acknowledge the kind support of Dr. Morgan Wairiu, my Principal Supervisor. Thank you for your guidance and ongoing support throughout my study and for the review of the manuscripts and thesis chapters.

I wish also to acknowledge Professor Elisabeth Holland as Director of PaCE-SD for offering me the scholarship in the first place to pursue this study and is grateful for the support given in allowing me to pursue opportunities outside of my research for the purpose of broadening my knowledge on my area of specialization. I acknowledge the continuous support of my parents. *Vinaxa Ta, Vinaxa Na a omudrau tau kacoya a karava a oku vuli. Sa mai vaxavouxana ni xua a vua ni omudrau vei susus xei na masu. Vina'xa sara vaha levu*.

Other people that I wish to also specifically thank include Dr. Carola Kloeck, Dr. Evantharie Michelana, Dr. Peter Nuttall, Dr. Matthew Dornan, the late Professor Michael White and Mr. Filipe Veisa (Thank you for the all the free printing Tovata!).

And to all that I did not mention but who also contributed to the successful completion of this manuscript, I sincerely thank you from the bottom of my heart.

ABBREVIATIONS

ADB: Asian Development Bank

AOSIS: Alliance of Small Island States

BAU: Business As Usual

CC: Climate Change

COP: Conference of the Parties

CPEIR: Climate Public Expenditure Institutional Review

CROP: Council of Regional Organisations

CSO: Civil Society Organisations

DFAT: Department of Foreign Affairs and Trade

DPCC: Development Partners in Climate Change

EBRD: European Bank for Reconstruction and Development

EIA: US Energy Information Administration

ESMAP: Energy Sector Management Assistance Program

FAO: Food and Agriculture Organization

FDB: Fiji Development Bank

FEA: Fiji Electricity Authority

GCF: Green Climate Fund

GGGI: Global Green Growth Institute

GIZ: Gesellschaft für Internationale Zusammenarbeit

GNI: Gross National Income

GoF: Government of Fiji

IFC: International Finance Corporation

IIED: International Institute for Environment and Development

INDC: Intended Nationally Determined Contribution

IPCC: Intergovernmental Panel on Climate Change

IPPs: Independent Power Producer

IRENA: International Renewable Energy Agency

LDC: Least Developed Countries

MDGs: Millennium Development Goals

MOE: Fiji Ministry of Economy

NAE: National Accredited Entity

NCF: National Climate Fund

NDC: Nationally Determined Contribution

OECD: Organisation for Economic Co-operation and Development

PCA: Principal Component Analysis

PCCP: Pacific Climate Change Portal

PFM: Public Financial Management

PIFS: Pacific Islands Forum Secretariat

PSIDS: Pacific Small Island Developing States

PSIS: Pacific Smaller Island States

RAE: Regional Accredited Entity

RE: Renewable Energy

SDGs: Sustainable Development Goals

SEFP: Sustainable Energy Financing Projects

SIDS: Small Island Developing States

SOPAC: Pacific Islands Applied GeoScience Commission

SPC: Pacific Community

SPREP: Secretariat of the Pacific Regional Environment Programme

SPSE: South Pacific Stock Exchange

TC: Tropical Cyclones

ToC: Theory of Change

UNDP: United Nations Development Programme

UNEP: United Nations Environment Programme

UNESCAP: United Nations Economic and Social Commission for Asia Pacific

UNFCCC: United Nations Framework Convention on Climate Change

UNU-EHS: United Nations University-Institute of Environment & Human Security

USAID: United States of America AID

WRI: World Research Institute

TABLE OF CONTENT

Chapter 1

Introduction

1.1 Preamble

This chapter provides an overview of the overall Thesis, serving as a guide to the structure of the Thesis. It includes the introductory statements, background, aims and justifications.

This Thesis adopts a *Thesis by Publication* style as per USP's 2017-2018 Research Policy[1] with three (3) core chapters. Streamlined versions of the core chapters have been submitted for publication in internationally ranked and peer reviewed journals, of which one has been published[2], one has been accepted for publication (forthcoming), while one is still currently under review. The core chapters that make up this Thesis are the extended versions of the three published (submitted) papers.

This chapter is structured in the following manner. Section 1.1 outlines the Thesis background. Section 1.2 then explains its overarching aim and its respective objectives. Section 1.3 provides the rationale/motivations. Section 1.4 discusses the three (3) climate finance articles/elements which form the core chapters of this Thesis, including the methods used in these respective chapters, as well as a brief overview of their main findings. Section 1.5 presents the overall structure of the subsequent chapters, and section 1.6 concludes the chapter.

1.1 Background of the Research

The adoption of the landmark Paris Agreement on the 12th of December 2015 was a critical milestone in the global fight against climate change. It is the first multilateral agreement on climate change covering almost all of the worlds' greenhouse gas

[1] **Section 7.5** (pg.40) of USP's 2017-2018 Postgraduate Research Handbook outlines the requirements of a PhD Thesis by Publication.

[2] Samuwai, J., Hills, J.M. 2018. Assessing Climate Finance in the Asia Pacific Region. *Sustainability*, *10* (4), 1-18. doi:10.3390/su10041192

emissions[3]. Hailed as an international success, the Paris Agreement has been widely perceived as a "*lifeline, a last chance to hand over to future generation a world that is more stable, a healthier planet, fairer societies and more prosperous economies by steering the world towards a global clean energy pathway"* (European Commission, 2016).

The Pacific Small Island Developing States (PSIDS) like other countries that are particularly vulnerable[4] to climate change played a critical role in the successful negotiation of the Paris Agreement, and were amongst the first countries to ratify it. Recognised as the frontline victims of climate change, (Ferris et al., 2011; Robie & Chand, 2017), PSIDS see the Paris Agreement as a "*timely saviour"* (GCF, 2017a) because of its commitment to not only coordinate and accelerate ambitious global actions that are essential to limiting the rise of the global mean temperature to below 1.5^0C[5], but also to provide financial resources to support developing countries climate change related initiatives (PIDF, 2016; GCF, 2017a). The Paris Agreement aims to make all climate finance flows consistent with a pathway towards low emission and climate resilient development (UNFCCC, 2015), and has re-affirmed the finance target developed countries set in Copenhagen in 2009 to mobilize up to USD 100 billion[6] of climate finance to developing countries each year by 2020.

[3] The Paris Agreement does not cover the emissions from the aviation and shipping industry.

[4] The Least Developed Countries (LDCs), Small Island Developing States (SIDS) and Africa are specifically identified as particularly vulnerable countries by the UNFCCC in the 2007 UNFCCC Bali Action Plan and the 2009 Copenhagen Accord. However, in the Paris Agreement, only the LDCs and the SIDS have been recognized as particularly vulnerable.

[5] A major objective of the Paris Agreement is to hold the increase of global average temperature to well below 2^0C and to pursue efforts to limit temperature to 1.5^0C above pre- industrial level. The inclusion of the 1.5^0C in the Agreement was a major demand of SIDS during the COP 21 negotiation.

[6] It is important to note that the USD 100 billion climate finance goal is very ambiguous and lack concrete details on how it is going to be sourced (public or private) and delivered (grants, loans, equity, insurance etc.). The amount was conjured up by developed countries during the Copenhagen Meeting as a baseline (floor) for financing global actions. No empirical analysis were done when determining this amount, and developed countries have successfully managed to keep this financial goal in the Paris Agreement during the negotiations. The progress towards this financial goal will be reviewed in 2025.

It is also important to note that the question of whether the USD 100 billion goal will be achieved or not is still a matter of debate. Developing countries have argued that the goal will not be achieved and that there will be gaps comes 2020, however, developed countries parties through their report titled the *Roadmap to* the *US100 Billion* argue that they are on track on

The term climate finance was coined during the United Nations Framework Convention on Climate Change (UNFCCC) negotiations, and is regarded as one of the most contentious negotiating issues, producing a long standing divergence in the Conference of the Parties (COP) between developed and developing countries (Urpelainen, 2012; Dimitrov, 2016). While differing political postures have been identified as the main cause of this divide, there is nevertheless a common understanding that climate financing is critical in curbing the effects of climate change (Chaum et al., 2011; Gomez-Echeverri, 2013; Duus-Otterström, 2016; Maclellan & Meads, 2016; UNEP, 2016b; Markandya et al., 2017). It would be impossible to implement ambitious climate actions without access to climate finance.

A universally agreed definition of climate finance is yet to be determined. While numerous understandings of climate finance exists, the literature tend to approach the concept from either a narrow or a broader perspective. The narrow definition of climate finance is as per Article 4 of the 1992 UNFCCC (i.e. the Convention) which tends to view climate finance as financial flows from developed to developing countries. This interpretation of climate finance is founded on the principle of common but differentiated responsibilities (CBDR) and the polluter pays principle, which promotes the ideals that developed countries have an obligation to help developing countries transform their economies to become less carbon-intensive and more resilient to climate change. The CBDR and the polluter pays principle places the burden of responsibility of climate change on developed countries because of their historical emissions that occurred in their progress to become rich; a process that over time resulted in the current global climate change situation.

A much narrower definition of climate finance also exists. Some scholars have argued that climate finance only refers to the '*new and additional'* component of finance flows developing countries receive from developed countries (Brown et al., 2010; Stadelmann et al., 2011; Kharas, 2015; UNCTAD, 2015). The Fast-Start Finance as stipulated in the 2010 Cancun Agreement adopted this narrower view of climate finance where developed countries pledged to mobilize up to USD 30 billion of new

delivering this obligation. The lack of an agreed definition to climate finance is the major reason of such disagreement.

and additional resources for 2010-2012 period. Under this definition only finance flows that are beyond the business as usual (BAU) official development aid (ODA) are recognised as climate finance. However, there is still little agreement on what qualifies as 'new and addition' as well as how to quantify it.

The broader interpretation of climate finance posits that it refers to "…*local, national or transnational financing, which may be drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change*…" (UNFCCC, 2018a). From this vantage point, climate finance refers to any finance flows towards activities that reduce greenhouse gas emissions or help societies adapt to climate change impacts. In other words, climate finance is the totality of flows directed to climate change related projects (Venugopal & Patel, 2013; Falconer & Stadelmann, 2014; UNEP, 2016a,b; Buchner et al., 2017).

This study adopts a broader interpretation of climate finance in line with the Paris Agreement, interpreting climate finance as "…*financial resources provide to assist developing countries with respect to both mitigation and adaptation*." (UNFCCC, 2015: pg. 13). The Paris Agreement, while reaffirming the obligations of developed countries to assist developing countries, has at the same time called for, and encouraged the sourcing of climate finance from other avenues. Thus, climate finance as per this Thesis encompasses finance flows from any sources for the purpose of advancing mitigation and/or adaptation initiatives of developing countries.

It is important to note that the absence of an established definition of climate finance is largely political as agreeing on an international definition would have political and economic repercussions. This implies attributing rights and duties of considerable value to different parties – a situation which rich developed countries would rather avoid (Brunner & Enting, 2014). Developed countries would rather prefer that the term remains ambiguous, as it allows them more leeway to define the concept in a manner that will continue to enhance their interest and avoid their obligations. Thus, it is highly unlikely that a unanimous definition will be achieved soon in light of the heterogeneity of global political interests.

Accessing climate finance has always been a continuous challenge for PSIDS (Fry, 2007; Maclellan, 2011; Smith & Hemstock, 2012; Pasisi et al., 2013; PIFS, 2017). Given their special and unique circumstances, PSIDS are highly dependent on external climate finance, and their inability to effectively access external climate finance risk exacerbating their vulnerability to climate change – when climate change for some has already become a real existential threat (Fry, 2007; Maclellan, 2012; Smith & Hemstock, 2012; Atteridge & Canales, 2017; Robie & Chand, 2017). Following the ambitious commitments[7] PSIDS have made to the UNFCCC process, access to climate finance is critical in ensuring the achievement of the Paris Agreement's goals. Fulfilling these commitments is not only critical in maintaining the 'privileged' position of the PSIDS as the moral compass of the UNFCCC efforts (Dornan & Shah, 2016), but also in achieving PSIDS sustainable development goals, as these commitments are intrinsically linked to PSIDS development needs (Goundar et al., 2017).

The PSIDS' difficulty to effectively access climate finance is driven by both internal and external factors. Internally, PSIDS suffer from a chronic lack of resources and capacity to effectively navigate the international climate change architecture (Fry, 2007; Barnett & Campbell, 2010; Pasisi et al., 2013; USAID, 2016). They also lack the institutional capacities needed to effectively absorb large inflows of external finance (Barnett & Campbell, 2010; The Commonwealth, 2013; Hemstock et al., 2016; Hemstock et al., 2017). These climate finance access challenges are unsurprising because of the PSIDS' geography, which has been recognised as being 'special' and unique' (Briguglio, 1995; Nurse et al., 2014; The World Bank, 2017d). PSIDS, like most SIDS, share common characteristics such as very small and undiversified economies, insularity and remoteness, proneness to natural disasters, high degree of environmental degradation and natural resource depletion, and high dependence on external assistance (Briguglio, 1995; Nurse et al., 2014). However, compared to other SIDS, PSIDS circumstances are unique because of their very remote geographic

[7] PSIDS have shown incredible leadership in submitting some of the most ambitious NDCs to the UNFCCC. Fiji's NDC for example states that they will source 100% of electricity from renewable energy by 2030.

location. PSIDS are scatted over an area which is equivalent to 15% of the globe's surface and large distances away from major economic markets (The World Bank, 2017d). The high degree of insularity and remoteness further exacerbates PSIDS' ability to access and mobilize international climate finance. Accessing and mobilizing climate finance in the Pacific is expensive compared to other parts of the world. Scaling up of activities is difficult as the per capita costs are not only high, but PSIDS economies are also very small, making scaling up of climate finance physically impossible for some (Maclellan & Meads, 2016).

Externally, the biggest challenge that hinders access to climate finance of PSIDS is the fragmented and complex nature of the international climate finance architecture (Pickering et al., 2015; Buchner et al., 2017). Sources of external climate finance are numerous, and accessing these sources not only requires adherence to robust gender, social and fiduciary standards, but also specialized technical knowledge (The Commonwealth, 2013; Buchner et al., 2017). PSIDS are therefore disadvantaged by their very limited resources and struggle to effectively compete with larger, more affluent developing countries in accessing external climate finance (Caravani et al., 2016). The 'playing field' that they are participating in is largely uneven. PSIDS have been urging donors to facilitate access-modalities that will provide ease of access to climate finance; access-modalities that are less burdensome and takes into consideration the special circumstances of PSIDS. PSIDS have high hopes that the Paris Agreement will deliver on its commitments of enabling countries like them to effectively access and mobilize the climate financial resources they urgently need (PIDF, 2015; COP23 Secretariat, 2017).

This Thesis explores the possible financial ramifications that the PSIDS may be confronted with in the post-Paris Agreement environment. The post-Paris agreement with-in the context of this Thesis, refers to the timeline after the adoption of the Paris Agreement. It refers to the present as well as the future.

The Paris Agreement, a recent phenomenon in the climate finance domain and a critical analysis of its potential financial implications to particularly vulnerable countries such as the PSIDS, is largely absent, despite the chorus of positive high-level

rhetoric towards it. This Thesis, in presenting its argument, will analyse three contemporary financing elements that are currently dominating the climate finance discourse. These factors revolve around 1) the readiness[8] issue, which has been strongly advocated by climate finance sources as the main pre-requisite for accessing climate finance post-Paris (UNFCCC, 2015: Article 9, §9); 2) the allocation procedures of Green Climate Fund (GCF) – the Fund that has been earmarked by the Paris Agreement to play a dominant role in delivering future climate finance to developing countries (UNFCCC, 2015: Decision 1/CP.21); and 3) the Nationally Determined Contributions (NDC) – the national investment blue print that developing countries will use to attract and mobilize climate finance for climate change activities that will contribute to the achievement of the Paris Agreement's long term goals (UNFCCC, 2015: Article 4, §5). While the three financing elements explored in this Thesis focus on separate climate finance aspects, they converge on the overall issue of climate finance access – the overarching theme of this Thesis.

The next subsection discusses the overarching aim of this Thesis.

1.2 The Aim of the Thesis

The main aim of this Thesis is to understand how the post-Paris Agreement environment may impact PSIDS ability to effectively access and mobilize external climate finance. Put differently, the central research question of this Thesis is:

[8] The concept of readiness was introduced pre-Paris Agreement by the Adaptation Fund. However the concept failed to gained momentum as the Adaptation Fund was tied to the Kyoto Protocol - a mechanism that was not fully supported by donor countries. The Adaptation Fund was to be funded primarily from the proceeds of the Clean Development Mechanism (CDM) and voluntary contribution from donors. The CDM has failed because of the collapse of the carbon markets and donors have been hesitant to contribute. The Adaptation Fund faces serious financial sustainability, adequacy and predictability due to lack of revenue stream. Unlike the Green Climate Fund, the Adaptation Fund is not an operating entity of the Paris Agreement. The Adaptation Fund 'foot print' is minimal in the Pacific. Only Fiji, Cook Islands, Samoa and the Solomon Islands have managed to access funding. The Cook Islands and the Federated States of Micronesia have managed to gain national accreditation to the Adaptation Fund.

"*What does the Post Paris Agreement financing landscape mean for PSIDS in accessing climate finance in the future?*"

To answer this central question, this Thesis undertook a multidisciplinary and multi-dimensional research approach. Three critical climate finance elements of the Paris Agreement – 1) climate finance readiness; 2) the GCF Allocation Policy; and 3) the resourcing of the NDCs – were researched in-depth for the purpose of clarifying this overarching research question. These three climate finance elements are currently dominating the climate finance discourse, and are closely linked to the overall issue of climate finance access for developing countries (COP23 Secretariat, 2017).

The primary objectives of this Thesis are to comprehensively understand

1) *how the readiness status of a country is related to its ability to access climate finance from external sources*;

2) *how an equitable GCF allocation policies may impact climate finance flows to PSIDS post-2020;*

3) *how PSIDS could effectively mobilize domestic private finance to sustain their NDC implementation.*

1.3 Research Motivations

1.3.1 The Practical Rationale

PSIDS considered the Paris Agreement a 'game changer', signaling not only accessibility of resources to developing countries, but also facilitation of simplified access procedures to international funding (Hoad, 2016). PSIDS leaders like many others have lauded the Paris Agreement as "*historic*" (Doyle & Rampton, 2016), a "*landmark*" (WRI, 2015), and an "*important turning point for the World*" (European Commission, 2016). The Prime Minister of Tuvalu, Honorable Enele Sosene Sopoaga, labelled it the *Sipikana* Agreement 'the beautiful agreement' (PIDF, 2016). However, despite these acclamations, the Paris Agreement has also been heavily criticized by

nongovernmental organizations as being "*too weak*" (Bawden, 2016), a "*mixed bag*" (Oxfam, 2015), and "*not enough*" (Reuters, 2017). In light of these contrasting viewpoints, this Thesis seeks to shed light on the climate finance implications (especially on the issue of access) of the Paris Agreement to the PSIDS.

The climate finance literature that specifically focuses on the Pacific region is still relatively minimal and disparate, if growing. While this can be considered as a general shortcoming for knowledge in the region, this Thesis will specifically look at the 'knowledge gap' that currently exists with regard to the lack of academically driven scholarship on the potential impacts of the Paris Agreement to the PSIDS from a financial perspective. Understanding this discourse is critical not only for the purpose of advancing knowledge in the climate finance domain, but most importantly for strengthening the interphase between policy development and research. This Thesis also contributes to the climate finance policy debate in the PSIDS especially amongst PSIDS' development partners who are working in the climate change and development space. This Thesis seeks to promote the development of more informed national climate finance policies that are relevant to the region that will ultimately facilitate effective access to predictable and sustainable climate finance.

The bulk of existing climate finance knowledge for the Pacific is driven by grey literature, which although useful in giving recent understanding of a research phenomenon, and prepared by experts, still lacks the 'rigor and the robustness' of scholarly (academic/peer-reviewed) literature in advancing knowledge in a particular area (Pappas & Williams, 2011). External organizations and major development partners such as the United Nations Development Programme (UNDP), the Asian Development Bank (ADB), Oxfam, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Australian Department of Foreign Affairs and Trade (DFAT), the United States of America Aid (USAID) have been the major authoritative sources of climate finance knowledge in the Pacific. In addition, an array of knowledge driven by other grey sources such as blogs, short reviews, opinion pieces, and short analysis also exists.

With reference to the post-Paris Agreement climate finance environment, the discussion have been limited so far to institutional reports prepared by Oxfam (Maclellan & Meads, 2016), the Economic and Social Commission for Asia and the Pacific (UNESCAP) (Yu, 2016), the Food and Agriculture Organization (FAO, 2016), the World Bank (Tortora & Soares, 2016) the Stockholm Environment Institute (Atteridge & Canales, 2017) as well as evidence from opinion pieces, blogs and news articles. Scholarly work which has been critically peer-reviewed on the subject matter is practically absent. A review of the existing PSIDS climate finance literature landscape indicates the discussions majorly revolving around the tracking of climate finance flows (Donner et al., 2016; Atteridge & Canales, 2017), the politics of climate finance (Barnett, 2001; Barnett & Campbell, 2010; Williams & McDuie-Ra, 2017), its effectiveness (Barnett, 2008; Maclellan et al., 2012; McNamara, 2013), its sources and distribution (Betzold, 2016a,c; Betzold & Weiler, 2017) and the barriers to climate finance (Mitchell et al., 2006; Robinson & Dornan, 2017).

A thorough review of the literature revealed that so far only one (1) scholarly article by Hoad (2016) has attempted to analyze the impact of the Paris Agreement from the specific viewpoint of SIDS. The analysis carried out by Hoad (2016) was, however, very brief, and tends to make broad arguments and assertions on the impacts of Paris Agreement to SIDS. In fact, Hoad (2016) wrote a 6 pager review essay which provides a reflection on the outcomes of the Paris Agreement that were key to SIDS in terms of the temperature goal, climate finance and loss and damage. He however, did not provide a detail analysis on the implications of these issues. However, the study offers a first critical step in deconstructing the impacts of the Paris Agreement on SIDS. Specific to climate finance, Hoad (2016) argued that while the "…*ability to access* [climate finance] *might be considered a victory for SIDS* [under the Paris Agreement]…*there is still a general lack of clarity* [on the issue]…" (Hoad, 2016:p.318). Hoad (2016) also highlighted that the Paris Agreement in general still has many unanswered questions regarding climate finance and thus, that there is a need and urgency to 'unpack' and explore these issues given the existential reality that some SIDS are now confronted with.

There is also a growing call by PSIDS for more research to deconstruct the impacts of the Paris Agreement. In 2016, a High Level Pacific Leaders Regional Meeting was held in Samoa, where the PSIDS leaders tried to make sense of the potential impacts of the new climate agreement that they have ratified (SPREP, 2016). This Thesis to some extent heeds the call that was made during that meeting where leaders asked "*….what do we do next?... this is what is important for us now…This is the time to flesh out and unpack the Paris Agreement and map out the next steps for us in the Pacific"* (SPREP, 2016). Taking a climate finance perspective, specifically on the issue of 'climate finance access', this Thesis contributes to this discussion on how the Pacific could effectively navigate the post-Paris Agreement landscape.

1.3.2. The Theoretical Rationale

This Thesis is driven by two theoretical lenses: 1) the theory of climate justice, and 2) the theory of change. These two theoretical frameworks will enable the readers to understand the Thesis core arguments. These theoretical frameworks clarify the author's 'world view' and the set of beliefs adopted when conducting this research. The theoretical frameworks adopted, will allow the readers to understand this Thesis core arguments, approaches and recommended solutions to the main research problem.

1.3.2.1 The Theory of Climate Justice

The choice to focus the study on the PSIDS is strongly motivated by the theory of climate justice[9]. The theory of climate justice is rooted on the overall assumption of

[9] The term climate justice is still under debate and tend to have multiple understanding. There is however, a consensus amongst scholars that the concept of climate justice was born from the environmental justice movement which advocates for the fair treatment, and meaningful involvement of all people regardless of ethnicity, income levels and social status with respect to the development, implementation, and enforcement of environmental laws, regulations and policies (Thomson, 2014). Climate justice is the politicisation of climate change- it is the understanding that climate change results from human beings current and historical social relations and that in order to address it we need fundamental changes to our economic and political systems (Cabello, 2015). The articulation of climate justice and environmental justice is most consistent at the grass-root level (Schlosberg & Collins, 2014). Thomson (2014) argued that climate justice while providing the new framing of climate change activism, actually draws its energy from the environmental justice grass-root movements on the issue of climate change (the area of convergence of these two discourse). The discourse of climate

the Justice Theory as advanced by Rawls that equates the notion of justice with fairness and equity as the ideal solution to the problem of the distribution of goods in society (Rawls, 2009; Nussbaum, 2012). The notion of climate justice affirms the fact that climate change is an issue of injustice brought about by a combination of market failure and distributional failure (Kanbur, 2015). The climate justice theory frames the issue of climate change as an ethical and a political issue, rather than one that is purely environmental and physical in nature by examining issues such as equality, human rights, collective rights and the historical responsibilities for climate change (Kanbur, 2015). While climate justice theory is based on several premises, one of its fundamental starting points is that those who are least responsible of climate change suffer its gravest consequences (Baxi, 2016). Climate justice theory argues that these are the group of people whose interest should be prioritized, and that the global climate change discourse should revolve around an equitable and fair solution of how to resolve their difficult circumstances (Cameron et al., 2013). This notion that the most vulnerable need to be fairly considered is enshrined in the preamble of the Paris Agreement where "…*the importance of the concept of "climate justice,* [should be taken into account] *when taking action to address climate change*…" (UNFCCC, 2015: p.2), underscoring the fact that conducting a study that focuses on particularly vulnerable countries like the PSIDS is not only important, but also morally justified.

Within the context of climate finance access, the theory of climate justice also provides justification of why this issue is critical when viewed from the perspectives of particularly vulnerable countries such as the PSIDS. The climate justice theory provides the basis of burden and benefit sharing of climate change and its fair and

justice at the grass-root tend to emphasize local impacts and experiences, inequitable vulnerabilities, the importance of the communities voice, and demands for community sovereignty and functioning (Schlosberg & Collins, 2014). The concept of injustice that underpins the climate justice movement is that industrialised countries in the West are disproportionately (historic and current) responsible for the emissions that are causing climate change and are now using it as an excuse accumulate wealth further through the implementation of false market-based solutions. Meanwhile, the geographic and political South are suffering the worst effects of climate change; their territories being plundered and polluted to satisfy the growing economic needs of the West, and now climate change is being used as an excuse to colonize, privatize and dispossess further through the creation of new markets to 'solve' the crisis (Cabello, 2015).

equitable resolution (Kanbur, 2015). It is the foundation of the common but differentiated responsibilities (CBDR) – the equity principle which underpins the UNFCCC. The CBDR principle acknowledges that all Parties have a shared obligation to address environmental destruction, but denies equal responsibilities with regards to the safeguarding of the environment. The CBDR advances the 'polluter pays principle', which calls on countries whose historical emissions (developed countries) contributed to the problem of climate change to mobilize financial resources to those countries that are the main victims of climate change (developing countries) despite their minimal historical emissions.

Climate justice theory argues that developed countries have an 'obligation' to provide finance and support to developing countries' mitigation and adaptation efforts and that 'access' to climate finance is a 'right' that needs to be respected (Dagnet & Bevis, 2013). In other words, climate justice theory advocates the notion that these particularly vulnerable countries have the right to access resources to meet their climate change needs, and developed countries because of their historical responsibilities, have an obligation to facilitate ease of 'access' to these financial resources. Emphasis on facilitating access to climate finance to countries like the PSIDS is also based on the notion that these countries lack the capacity and the resources to effectively protect themselves from the impacts of climate change, hence the urgency to address this equity challenge.

Climate justice has been advanced using three different approaches- 1) as an ideal theory (within the academic discourse), 2) as the basis for pragmatic policies (within the development agencies), and 3) social movement concerns (within the grass-root movements) (Schlosberg & Collins 2014). Most articulations of climate justice tend to emphasize the social concerns (grass-root perspective), focusing on local struggles such as dispossession, exploitation, contaminations and industrial expansions (Cabello, 2015). This Thesis on the other hand, advances the climate justice discipline in advocating the need for more pragmatic approaches to climate finance in addressing the concerns of small and vulnerable countries like the PSIDS. This Thesis brings to the fore the struggle of vulnerable countries like the PSIDS against an unjust global climate finance architecture that continues to place the interest of polluters at the

expense of the most vulnerable. This Thesis argues (see the three core chapters) that while pragmatic policies are important, it is the most vulnerable of countries to climate change impacts which should be at the center of global climate change solutions. Additionally, this Thesis in line with the arguments of climate justice, supports the notion that climate change is more than just a technical problem but rather a political one and thus, appropriate transformations of existing systems, processes and power structures must occur to ensure that those that are most vulnerable are not left behind.

1.3.2.2 Theory of Change

This Thesis is also strongly motivated by the theory of change (ToC). While a uniform definition is yet to be settled upon, the ToC is basically understood as an explanation on how and why a desired change is expected to happen in a particular context (Bours et al., 2014). The ToC is a critical thinking approach that is increasingly being used in the field of international development. It is considered to be a guide to strategic thinking and action for solving complex issues. The approach to 'change' as advanced by the ToC is one that will require the establishment of long-term outcomes that need to be achieved, and the process of 'back-casting'. In other words, for one to solve a problem at hand, one must begin with defining the long-term goal to be achieved, and work backwards in time to the present. The ToC is especially particular about the 'missing middle', or the 'future changes' which need to be undertaken, to ultimately contribute to the achievement of the desired goals. Within the context of solving development issues, the end result of the ToC is a 'change map' that allows users to visualize and specify how they can create and develop the right kind to policies and strategies in order to achieve the desired future goal (Bours et al., 2014).

The association between this Thesis and the ToC is underpinned by its broader vision which seeks to promote a 'transformational change' on how PSIDS currently engage the climate finance architecture for the purpose of accessing the climate finance they need. This Thesis argues that the resolution to the current climate finance access conundrum of PSIDS will require radical changes to the current approach and strategies to climate finance. The transformative changes alluded to in this Thesis are not only limited to national climate change policies, but also apply to PSIDS' donors,

specifically on how donors approach PSIDS climate change issues. Genuine consultations between the PSIDS and their donors on how to mobilize and deliver climate finance in the region is a necessity. Given the urgent and growing climate change needs of PSIDS, both parties need to make certain changes on their approaches to climate finance, as well as how they engage each other, as the 'access' to climate finance status quo of the region is not feasible, and might prove too costly for some PSIDS.

As advanced by this Thesis, the critical platform of changes or the 'missing middle' that the PSIDS and donors will need to concentrate on are 1) Climate Finance Readiness, 2) the GCF Allocation Policy and 3) the resourcing of the NDC, because they are intrinsically linked to the issue of climate finance access. The arguments and finding of this Thesis provide the narrative that articulates the 'change map' that PSIDS as well as its donors could adopt in directing the region towards a future where the PSIDS can effective access equitable and sustainable climate finance to effectively meet their climate change needs.

The next subsections will provide a brief overview of the Thesis core chapters, their respective objectives, the methodology adopted and a summary of their key findings.

1.4 Overview of Core Chapters

1.4.1 Chapter 2: Assessing Climate Finance Readiness

The first core chapter focuses on readiness in the Asia-Pacific region and specifically seeks to:

- *Develop a climate finance readiness appraisal framework where the PSIDS can evaluate and compare their progress with that of other developing countries in the Asia-Pacific;*

- *Empirically assess whether the readiness progress of countries have a significant relationship with the total climate finance accessed.*

1.4.1.1 Abstract of Chapter 2

Readiness is the current mantra in the climate finance discourse and is a key determinant for accessing climate finance. Readiness refers to the process of enhancing the capabilities of developing countries to receive and spend climate finance in a wise manner as well as to report on its transformative impacts. The main aim of readiness initiatives is to provide a 'level playing field' so that all countries have a fair opportunity of accessing and mobilizing climate finance. Readiness activities are aimed at strengthening the investment environment through initiatives that contribute to institutional and capacity building, regulatory and policy frameworks.

The adoption of the Paris Agreement has resulted in proliferation of climate finance sources (Nakhooda et al., 2015), and as a consequence, there is a 'race' for readiness amongst developing countries to access and leverage these climate financing opportunities. The Asia-Pacific region is currently witnessing such a 'race' with many countries in the region mobilizing and committing resources towards readiness activities. Readiness has become a priority for many PSIDS and they are also committing significant domestic resources and time towards readiness initiatives in the hope that they will be finally be able to have ease of access to climate finance.

This chapter will explore whether readiness is the panacea to the climate finance access conundrum of the PSIDS. It seek to demystify the relationship between a country's readiness status with its ability to access climate finance from external sources. The lessons learnt in this chapter hope to ensure that the readiness strategies being pursued 'fit' the PSIDS' circumstances. The results of this chapter serves as the basis for better policy formulation decisions on how PSIDS could effectively approach the issue of readiness.

The next subsections will outline the methodology used in this chapter.

1.4.1.2 Chapter 2 Methodology

A three-phased structured research approach was adopted by this chapter to answer the two objectives. Each research phase is intrinsically linked and employs different research techniques.

The first phase of the research involved the development of a Readiness Appraisal Framework where the readiness progress of developing countries in the Asia-Pacific region were appraised and compared. The Climate Public Expenditure and Institutional Reviews (CPEIR) provided the basis for the proposed readiness appraisal framework[10].

Phase 1 employed a thorough desk review of available CPEIRs Asia-Pacific countries to develop a common measurement scale. The common measurement scale adopted by this study was the 'readiness problems/challenges' that are specifically mentioned in country's CPEIRs.

The Phase 1 results then served as the basis of Phase 2. Phase 2 employed the Principal Component Technique (PCA) to extract the main dimensions of the readiness appraisal framework. Three main dimensions were derived: *Institutions and Policies*, *Knowledge Management and Learning,* and *Fiscal Policy Environment.* Sixty (60) indicators (20 per dimensions) were then developed for the purpose of evaluating countries' readiness progress.

Phase 3 then linked the readiness scores of each country to the climate finance accessed. A multivariate model using SPSS was used to analyse whether countries' readiness progress as per the framework had a positive and significant relationship with climate finance accessed after controlling for confounding factors. Climate finance data was derived from the Organisation for Economic Co-operation and Development (OECD) database of 2016.

[10] The CPEIRs are available on https://www.climatefinance-developmenteffectiveness.org/about/what-cpeir

1.4.1.3 Chapter 2: Summary of Key Findings

- Readiness plays a predictable but a small role in influencing a country's ability to access climate finance. This provides indication that access to climate finance cannot be improved simply by focusing on readiness alone because access is inextricably linked and influenced by other factors.
- Readiness does not exist in isolation, permitting a dramatic improvement through appropriate inputs by governments and donors.
- The current approach to readiness does not differentiate between adaptation and mitigation finance. The current readiness focus however, is heavily biased towards mitigation finance as it emphasizes the mobilization of private sector finance. This might be problematic for PSIDS whose finance priorities tend to focus more on adaptation.
- A massive readiness gap exists between PSIDS and other Asian countries and there is high uncertainty if PSIDS will ever gain the readiness status of Asian countries given their small economies.
- The current readiness approach pursued by the PSIDS, which is focused on accessing private finance and multilateral finance, may not result in predictable long-term climate finance in the future.
- There is a need for PSIDS and its donors to consider extending the scope of their readiness activities to also target sources such as bilateral sources and remittances. These two sources offer uncomplicated access requirements relative to private and multilateral sources and have traditionally been the main source of external finance to PSIDS. Moreover the flow of finance from these two sources are not influenced by the current climate finance readiness of a country.

1.4.2 Chapter 3: The Green Climate Fund (GCF) Allocation Impact

The second core chapter focuses on the allocation policy of the GCF and specifically seeks to:

- *Assess how an equity/fairness based GCF allocation policy will impact the flow of climate finance post-2020 to PSIDS.*

1.4.2.1 Abstract of Chapter 3

The establishment of the Green Climate Fund (GCF) in which a significant portion of the ambitious USD100 billion per year goal by 2020 should be channelled, has increased expectations and optimism amongst developing countries, specifically the PSIDS. PSIDS consider the GCF as a '*timely saviour'* (GCF, 2017a) to the financing of their climate change needs. However, the existing GCF allocation policy is a cause of concern. The GCF currently adopts a '*geographical balance'* approach (see GCF Decision B.06/06) to allocate its finance among developing countries. This broad allocation policy increases the possibility that particularly vulnerable countries who have struggled to access their 'fair share' of climate finance under the operating entities[11] of the United Nations Framework Convention on Climate Change (UNFCCC) will continue to face such challenges.

This chapter explores the potential implications of an equitable/fairness allocation policy to PSIDS in a post 2020 environment. The post 2020 environment is a significant time period within the climate finance domain because there is global expectations that the USD100 billion goal will already be mobilized each year (i.e. from 2020-2025). This chapter specifically investigates how potential GCF equitable/fairness allocation criteria can affect the predictability and the magnitude of adaptation finance flows to the PSIDS in the post-2020 environment. Lessons learnt from this chapter have critical implications on how the PSIDS should engage the GCF as well as other important climate finance policies such as the issue of readiness in the region.

The next subsection describes the methodology used in this chapter.

[11] The operating entities of the UNFCCC include the Global Environment Facility (GEF), the Least Developed Countries Fund (LDCF), the Special Climate Change Fund (SCCF), the Adaptation Fund, and the GCF.

1.4.2.2 Chapter 3: Methodology

Chapter 3 adopts the exploratory scenario technique. The explorative scenario approach addresses future questions that relates to *what can happen* (in the context of this study, *what can happen* to climate finance flows to PSIDS should the GCF adopts an equitable/fair allocation basis for adaptation finance post-2020).

Using the justice theory as the basis for equitable and fair adaptation finance allocation, this chapter then developed possible GCF allocation scenarios with a specific focus on PSIDS. These allocation scenarios highlight different 'finance flow futures' on *what can happen* to PSIDS should the GCF adopts equitable/fairness criteria to allocate the adaptation finance that the GCF has 'reserved' for particularly vulnerable countries. Four specific criteria were adopted to illustrate the allocation scenarios and these were (1) per country bases and (2) the physical size of countries, (3) total population, and (4) weighted-vulnerability. Criteria (1) relates to the equity principle of *equality* while, (2-4) were related to the equity principle of *prioritarianism* – the two widely used equity principles of allocating adaptation finance currently adopted by many multilateral climate funds.

1.4.2.3 Summary of Key Findings of Chapter 3

- PSIDS are very sensitive to any allocation criteria adopted by the GCF.
- The current allocation policy of the GCF – '*geographically balanced approach'* – is too broad to effectively address the need of the PSIDS in securing access to predictable climate financing.
- Adaptation finance is best allocated within the context of climate justice theory because it advances the notion of equity and fairness.
- Equity, however, has a number of principles (i.e. assumptions) that produce different 'fairness' outcomes.
- Of the four equity principle that exist, only two – *prioritarianism* and *egalitarianism* (equality) – are currently being adopted to a certain extent by

multilateral climate funds to allocate aspects of climate finance including adaptation finance to developing countries.

- The *prioritarianism principle* advances the need to prioritize the allocation of climate finance to those that really need it (i.e. the most vulnerable), while the *equality principles* argues that climate finance is best distributed on the basis of neutrality (i.e. no preconditions).
- Allocations based on the *prioritarianism principle* tend to disadvantage PSIDS, specifically the smaller PSIDS in accessing climate finance relative to other particularly vulnerable countries.
- Only an allocation criterion that is based on *equality* will support PSIDS' position to access predictable climate finance flows from the GCF.
- If the allocation policy of the GCF does not guarantee predictable finance flows to PSIDS, then the feasibility of pursing accreditation of national accredited entities (NAE) is questionable for most PSIDS, especially for smaller PSIDS.

1.4.3 Chapter 4: Financing the Nationally Determined Contributions (NDC)

The third core chapter focuses on the resourcing of PSIDS' NDC and specifically seeks to:

- *Develop an alternative resourcing roadmap that can enable PSIDS to attract and mobilize domestic private sector investments towards implementing their NDCs.*

1.4.3.1 Abstract of Chapter 4

Private finance is seen as the financing panacea for resourcing Nationally Determined Contributions (NDC). The NDC is regarded as the heart of the Paris Agreement and is the primary vehicle through which the Paris Agreement's ambitious objectives of limiting the global mean temperature to below 2^0C and towards 1.5^0C will be achieved.

Mobilizing private finance is challenging, especially for particularly vulnerable countries such as PSIDS. The fifteen PSIDS have submitted ambitious NDCs in which the transition towards a sustainable energy environment through investments in renewable energy (RE) is central. Presently RE investments in PSDIS are primarily driven by external donor finance with very little participation from the private sector. However, continued reliance on limited and uncertain external finance is unlikely to deliver the required energy transition in PSIDS.

Using the case of Fiji's NDC, this chapter focuses on how the domestic private sector could be leveraged as a complementary financing/investment source for the implementation of the NDC targets. This chapter provides a 'resourcing framework' on how donors and the Fiji Government could effectively utilize their limited public resources to unlock the investment potential of the domestic private sector, shifting private investments towards the 'energy future' envisioned in the NDC.

The next subsection will outline the methodology used in this chapter.

1.4.3.2 Methodology of Chapter 4

Two methodologies were adopted in this chapter; 1) the case study method, and 2) the normative scenario technique. Fiji's NDC served as the case study for this chapter. The issue of emphasis of this chapter is the promotion of Fiji's domestic private sector investments in renewable energy (RE). RE investments form the crux of Fiji's NDC target and is the main priority of the Government of Fiji (GoF) in attracting climate related investments from other sources (including the domestic private sector).

The normative techniques adopted in this chapter entailed five key steps: 1) identification of critical investment barriers in RE, 2) plotting of barriers on an axis of significance and uncertainty, 3) identification of new emerging axes, 4) development of scenarios, 5) and validation of the scenarios. Normative scenario addresses the question of *how can a specific target be reached.* Normative scenario employs the back-casting technique where the research takes a look back from a future point in

time towards the present, and describe incremental actions (changes) that needs to take place so that the desired future event is achieved.

Chapter 4 also involved inputs from 20 climate finance experts and private sector actors in Fiji.

1.4.3.3 Summary of Key Findings of Chapter 4

- Domestic private sector has a critical role in bridging the Fiji's NDC finance gap.
- The current RE resourcing strategy as stipulated in Fiji's NDC Implementation Roadmap demonstrates a '*victim mentality'* approach where there is over reliance and dependence on external donor finance to drive RE investments in-country.
- Organically growing Fiji's domestic private sector is key to unlocking private financing towards investments in RE.
- Achieving a future where Fiji can organically grow its domestic private sector, will require a progressive transformation of Fiji's RE investment environment.
- There is a need for donors and the GoF (Government of Fiji) to re-orient their resourcing priorities from investing in hard RE projects to one that transcends the current readiness initiatives, towards initiatives that will promote the endogenous growth of the domestic private sector.
- Unlocking of domestic private finance is possible when the role of the domestic private sector is transformed from mere RE 'up-takers' (i.e. product of the readiness phase) to 'initiators' of RE (product of an enhanced enabling investment environment).
- Investments should be targeted at initiatives that advances RE innovations and this include sustained support for follow-up RE projects that have proven to be successfully locally, and targeted technology transfer.
- Donors as well the GoF should pursue a long term view of channelling their public resources towards strengthening the domestic private sector in the RE sector for Fiji to successfully achieve its RE targets as stipulated in their NDC.

1.5 Thesis Structure

This Thesis is organized as follows;

Chapter 1 provides an overview of the Thesis and introduces the climate finance access conundrum of PSIDS in a post-Paris Agreement environment. It outlines the main research question and the main research motivations. The chapter also provides an overview and summary (*what was researched, how it was researched, and what were the main findings*) of this Thesis's three core chapters.

Chapter 2 is the first core chapter of this Thesis. Chapter 2 critically assesses the readiness progress of developing countries in the Asia-Pacific region and analyzes the relationship between countries' readiness progress and the climate finance accessed.

Chapter 3 is the second core chapter of this Thesis. Chapter 3 critically examines the GCF allocation policy and the possible climate finance flow implications to PSIDS should the GCF adopt an equity based allocation policy post 2020.

Chapter 4 is the third core chapter of this Thesis. Chapter 4 provides analyses on how Fiji; a PSIDS, could effectively mobilize domestic private sector investments towards the implementation of its NDC.

Chapter 5 is the concluding chapter. Chapter 5 reaffirms the findings of this Thesis. It also discusses the limitations of this study as well as areas for future research. Concluding remarks end this chapter.

1.6 Conclusion

The aim of this chapter is to set the scene of this Thesis and outlines the main research problem of the Thesis and its respective objectives. The practical and theoretical rationales that drive the study were also discussed in detail. The main contribution of this Thesis is to advance knowledge in the climate finance domain by contributing to the climate finance discourse by examining the PSIDS context. More importantly the outcomes of this Thesis are directed towards PSIDS and donors for the purpose of promoting a regional discussion on how policies and strategies could be developed and

oriented to ensure effective responses to the new state of climate finance environment brought about by the Paris Agreement

Chapter 2

Assessing Readiness in the Asia Pacific Region

2.1 Introduction

The global financing environment is currently experiencing a surge in commitments and pledges of climate finance from both public and private actors (Nakhooda, et al., 2015; Thwaites & Amerasinghe, 2018). The proliferation of climate finance is primarily driven by the increasing global realization and acceptance that climate change has arguably become the most profound problem currently facing humanity, which will require the mobilization of significant amounts of resources if its impacts are to be minimized (IPCC, 2014). Others have also argued that the increase in climate finance sources could also be explained by the prospect of new investment opportunities associated with climate related efforts to the private sector (EY, 2016; Hares, 2017; DeMasters, 2018). In the accompanying Decisions of the Paris Agreement[12] (i.e. Decision 1/CP 21) developed countries that are parties to the United Nations Framework Convention on Climate Change (UNFCCC) reaffirmed the financial commitment that they made in the 2009 Copenhagen Accord, to mobilize a climate finance goal of USD100 billion per year by 2020 for the purpose of supporting mitigation efforts, and building climate resilient communities (see paragraph 53). Outside of the UNFCCC systems, other stakeholders, especially private sector actors, have also ramped up their efforts in raising and mobilizing climate finance through targeted, climate related investment opportunities in developing countries (Nakhooda et al., 2015).

Such proliferation of climate finance sources can be both a blessing and a curse for poorer and smaller, particularly vulnerable countries (Jakob & Steckel, 2014). It can be a blessing on one hand because it has increased the number of available funding opportunities. However, it can simultaneously be a curse, as it has further fragmented

[12] The Paris Agreement is a 11 page treaty consisting of 29 articles and 16 preambular paragraphs. The Paris Agreement is annexed to a 20-page COP Decision (Decision 1/CP 21) that formally adopts the agreement and addresses a number of technical and substantive matters to give effects to it. Decision texts are non-binding in nature.

the already convoluted international climate-financing environment, increasing the difficulty of navigating such an institutional landscape (Jakob & Steckel, 2014).

Furthermore, the proliferation of climate financing sources has triggered a race for climate finance readiness amongst developing countries as they compete to access and leverage the most from these opportunities (Nakhooda & Calland, 2013). While a definitive understanding of the concept is yet to be established, climate finance readiness is generally understood as the process of enhancing the capabilities of developing countries to receive and spend climate finance wisely, as well as report on its transformative impacts (Nakhooda & Calland, 2013). Climate finance readiness has become the common currency in the international discourse of climate finance because it is largely regarded as the prerequisite that a potential recipient country must exhibit in order to effectively access consistent climate finance flows (Nakhooda, 2012).

The process of readying a country is not only complex (Gold, 2012), but can also be a painful endeavour, especially for poor and small developing countries that are particularly vulnerable to climate change (Lo, 2016). To be perceived as ready, recipient countries must first exhibit a reasonable degree of knowledge to navigate the complex international climate finance environment, so that they can be able to identify those potential sources of funds relevant to their circumstances (Brown et al., 2013; The Commonwealth, 2013; OECD, 2015b). Once the sources of funds are identified, developing countries must show that they have the necessary capacities, institutions, systems and processes to be able to meet the stringent and robust fiduciary standards, and social and environmental safeguards, demanded by international sources of finances (Ford & King, 2015).

Considering the already chronic resource and capacity constraints of most poor and developing countries, especially those that are recognized as the most vulnerable to climate change, attaining such specialized knowledge and investing additional resources to build existing national capacities in order to comply with climate funding sources' robust expectations can be overwhelming (OECD, 2015a). Moreover, major reforms in the national and sub-national political, economic, and social environment will need to be undertaken. If not done right, the changes can further exacerbate

existing vulnerability as a consequence of resource misappropriation (Nakhooda, 2012).

In recognizing the afore-mentioned readiness challenges in developing countries, there is a growing global effort, both within and outside the UNFCCC, to provide readiness support. At the heart of this readiness support is the objective of levelling the playing field by ensuring all developing countries have an opportunity to access international climate finances to fund their climate change efforts. To date, a significant amount of resources has been channelled into supporting the readiness projects currently being undertaken by developing countries (GCF, 2017b).

Whether existing readiness efforts have been successful is still hazy, due to the sporadic nature of existing readiness literature (The Nature Conservacy, 2012), and more importantly the absence of a consistent appraisal framework on which readiness effectiveness can be evaluated. The absence of such appraisal framework is driven by the nascent and evolving understanding of the climate finance readiness concept (Nakhooda, 2012), which results in multiple propositions amongst climate finance experts as to what it really entails in practice. This is quite evident in the numerous components of readiness suggested in existing literature, and also in the plethora of readiness activities being targeted by donors for readiness support in developing countries (Miller, 2012, The Nature Conservacy, 2012; Nakhooda & Calland, 2013). Furthermore, most existing readiness assessment frameworks primarily focus on the identification of readiness gaps in countries and how to redress such issues, while offering little to no suggestion on how to evaluate readiness progress, as well as meaningful platform to compare readiness progress amongst countries.

This chapter attempts to bridge this knowledge gap by developing a consistent and cohesive readiness framework, which is founded on existing literature and, more importantly, driven by empirical analysis. Moreover, this framework adds a critical element that has been largely absent in existing readiness frameworks: a set of criteria (indicators) by which countries could evaluate and appraise their readiness progress.

Developing such a framework was guided by four questions: (1) *what are the components of a readiness framework that can consistently appraise the readiness*

progress of developing countries? (2) *What indicators appropriately capture such readiness components?* (3) *How would particular countries fare on such a framework?* (4) *Does a country's readiness progress significantly influence the amount of climate finance accessed?* Such an appraisal framework for readiness is essential, as it can enable south-to-south cooperation--the exchange of knowledge between developing countries--through cross-country comparisons. From the perspectives of developing countries, cross-country comparison is a more value-adding form of learning, as compared to learning from lessons and experience of others, as countries are able to actually gauge their performance based on the benchmarks set by others (Minang et al., 2014). Having such knowledge can therefore empower countries to better understand their domestic climate finance environment relative to that of other countries. Generally, such a framework can contribute to improvement of how donors approach climate finance readiness by providing further guidance on readiness investments in the long term, effective targeting of national policies on areas that need strengthening, effective monitoring of readiness progress over time, and a better understanding of the magnitude of risks posed by climate change in relation to a country's abilities (Minang et al., 2014; Ford & King, 2015).

To operationalize and validate the readiness appraisal framework, the study will use the developing countries in the Asia Pacific region as case studies (more details provided in Section 2.3).

2.2 Literature Review

2.2.1 Defining Readiness

The concept of readiness has been employed in a number of diverse areas, such as medicine, military, health, political science, technology, and business, to measure and capture the preparedness level needed to respond to the occurrence of an event (Ford & King, 2015). In the context of climate change, finance readiness is still relatively new (Nakhooda & Calland, 2013). Definitions of the term vary according to literature sources (see for example The Nature Conservacy, 2012; Vandeweerd et al., 2014; UNEP, 2015). However, the common core principle among these studies is that readiness encompasses the abilities of countries to effectively access international and

domestic climate finance, and deliver it in a coherent manner domestically. This section briefly outlines the current discourse of the readiness concept.

In the absence of a universal definition of readiness, a number of potential principles have been proposed to frame the understanding of the issue (The Nature Conservacy, 2012; Nakhooda & Calland, 2013). The most notable is the proposal by the United Nations Development Program (UNDP), which defined readiness as "*the capacities of countries to plan for, access, deliver, and monitor and report on climate finance, both international and domestic, in ways that are catalytic and fully integrated with national development priorities and achievements of the Millennium Development Goals (MDGs)*" (Vandeweerd et al., 2014). Leading development agencies such as the United Nations Environment Program (UNEP), UNDP, World Resources Institute (WRI), and bilateral agencies such as the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), have built on these principles when designing and providing climate finance readiness support to developing countries. A closer examination of the premise of this readiness understanding indicates that its core emphasis specifically relates to the need for recipient countries to improve their absorption capacity, also called their internal financial infrastructure capacities, so that they are able to fully participate in emerging and new international climate financing arrangements (The Nature Conservacy, 2012).

Nakhooda (2012) argued however, that climate finance readiness should be more than just enhancing and strengthening the absorption capacity of countries' financial systems; it should foster a paradigm shift in the business as usual approach (BAU) to national development. In other words, climate finance readiness should transform the incentives that shape all national investments and development choices, to engender a trajectory towards low carbon and climate resilient development (Nakhooda, 2012). From this perspective, it can be understood that climate finance readiness transcends the development of physical capacities, as it also requires a change in the mind-set behind development. Climate finance readiness is therefore ultimately about creating the ideal environment and providing incentives to foster the necessary changes that will result in climate compatible development (Nakhooda, 2012).

This holistic take of climate finance readiness suggests that the readiness status of a country is largely shaped by the existing political economy (Nakhooda, 2012; Rai, 2015). The political economy of a country refers to the ways in which various actors (e.g. politicians, lobby groups, corporations, government agencies, etc.) work with ideas, powers, and resources to enact and enforce policy decisions (Rai, 2015). Like their responses to other national issues, these actors' engagement on climate change (i.e. their investment choices and needs) is determined by their interest and perceived incentives, which in turn influence the readiness priorities of a country and impacts the degree of readiness in the overall national environment (Nakhooda & Calland, 2013). Thus, understanding readiness as only a technical or a financial issue might not be sufficient, as one needs to also account for the existing political conditions. Bringing about the necessary changes required to advance a country's growth trajectory towards a climate compatible pathway will not only require building consensuses with all key stakeholders in a country, but also some policy trade-offs (Rai, 2015).

The debate on how to frame readiness is still on-going. If readiness focuses on the technical or financial aspect only, then this will not provide a holistic solution (Nakhooda, 2012). If it were to be defined broadly, then the framework might touch on issues that particular stakeholders consider too sensitive, which take too much time and effort to assuage (Nakhooda, 2012). Given the urgent need to address climate change in particularly vulnerable countries, time is of the essence. Thus, finding the right balance of scope will enable countries to reasonably and credibly assess their readiness progress.

2.2.2 The Rationale of Climate Finance Readiness

The existing literature has constantly raises three common factors as to why readiness, or readiness support, is critical to developing countries. The first relates to the need for access climate finance, the second speaks to the global climate finance gap, and the third relates to the need to effectively use the finance accessed (Nakhooda, 2012; The Nature Conservacy, 2012; Brown, 2013; Vandeweerd et al., 2014).

Effectively accessing finance has been a constant challenge for developing countries, especially the particularly vulnerable. This is because the global climate finance

architecture is fragmented, complex, and constantly evolving (Steinbach et al., 2014). Excluding the multiple, bilateral sources, a snapshot of the international climate finance landscape indicates a high degree of fragmentation and complexity with more than 50 international public funds, 60 carbon markets, and 6,000 private equity funds actively mobilizing climate finance globally (Vandeweerd et al., 2014). Successfully navigating such a disparate and complex landscape is extremely challenging, even for bigger and well-resourced developing countries (Steinbach et al., 2014).

Mapping such a fragmented finance landscape to country needs requires specialized knowledge and expertise, as most of finance sources/donors have different objectives and access requirements (Brown et al., 2013; OECD, 2015b). With chronic capacity and resource limitations prevalent in many developing countries, especially among the smallest and the poorest, these countries are not able to effectively participate in such complex financial architecture (OECD, 2015a). Their lack of awareness and knowledge of the climate finance architecture has not only resulted in a lot of missed opportunities for funding for most developing countries, but also contributed to the financial burden of developing countries because they are forced to pursue the traditional, yet expensive modality of securing finance to support their national climate initiatives (Goundar et al., 2017).

Parties to the UNFCCC tried to consolidate such fragmented climate finance sources by establishing the GCF as the primary vehicle through which a majority of the climate finance efforts are to be channelled. In addition, the GCF has been earmarked to mobilize a significant portion of the USD 100 billion climate finance goal per year by 2020. While such a figure seems ambitious, reputable assessments have consistently argued that a massive funding gap exists in the global climate finance commitments relative to existing developing countries' needs (IIED, 2017; The World Bank, 2017a). There is also a realization that public finance alone will not be sufficient to cover such funding gaps, and the need to leverage private sector finance using limited public climate finance has become critical.

It is therefore quite evident that, in the light of the aforementioned challenges, only countries with strong political commitments to tackling climate change, strong

institutions, and proven financial management capacity will receive greater volumes of climate finance in the future (Steinbach et al., 2014). Most sources of climate finance, such as the GCF, have dedicated a significant portion of their resources to specifically target the capacity, policies, and institutions of developing countries, to bring them in line with its expectations. In other words, developing countries must be able to show that they can comply with the robust fiduciary, gender, and social standards demanded by specific sources of climate finance. Compliance with these standards is critical, as it serves as a safeguard to ensure that the finances accessed will be deployed as intended and have transformative impacts in recipient countries' development pathways.

Moreover, the growing emphasis on the role of private finance in driving global climate actions, necessitates that countries view readiness from an investment perspective where, in order to attract climate investments at the scale required, the recipient country must provide an attractive 'investment environment' in which both private and public sector investors can invest in climate compatible and climate friendly projects and activities (Brown, 2013). This processes of 'creating an attractive investment environment' is understood by many as the 'readying phase,' as it involves activities that make a country better positioned to attract international and domestic investments in climate compatible projects. These activities, as argued by Brown (2013), should not be limited to any specific institution, but also extend over every sector and level of government. Readiness therefore needs to be addressed as a country-wide issue, rather than viewed narrowly as institution specific, for it to be of value to countries.

2.2.3 How Climate Finance Readiness is currently assessed?

The literature on how to evaluate the climate finance readiness progress of countries is minimal. While a universal framework is yet to be established, a common framework that is currently used by developing countries to evaluate how prepared a country is to leverage climate finance is the Climate Public Expenditure Institutional Review (CPEIR). The CPEIR is a systematic qualitative and quantitative analysis of a country's public expenditure on climate change activities (Dendura & Le, 2015). It

assessed the degree of integration of climate change related expenditure in national budgetary processes by assessing the strength of 1) existing policies, 2) institutional structures and 3) budgetary processes (Bird et al., 2012). The CPEIR offers a critical first step to developing countries in understanding the overall status of their national climate finance environment relative to all possible sources of available finances (Bird et al., 2012). The objective of the CPEIR is not only to usher in the necessary changes of how countries respond to climate change, but also to serve as an initial point of discussion on how countries can effectively scale up their response to climate change (Miller, 2012).

To date, 12 countries from the Asia Pacific region have completed their CPEIR, or a similar national assessment that is based on the CPEIR methodology. While an initial comparative analysis of 5 countries' CPEIR highlighted a number of useful lessons (Miller, 2012), it did not articulate how ready these countries were to access climate finance. It is difficult to make a meaningful comparison using CPEIRs at face-value because they are country specific in nature, and to some extent also differ in scope. The PSIDS, for example, have extended the scope of the CPEIR when assessing their specific context. From the initial 3 readiness components advanced by the CPEIR, most of the PSIDS have extended their CPEIR components to 6, adding capacity, the public finance management systems, and the effectiveness of development to the CPEIR scope. Some countries, including Tonga, have 8 components, adding gender and social inclusive components due to the criticism that the CPEIR approach as a whole was gender blind.

To make a meaningful appraisal of the readiness progress of a country, a consistent framework is critical. Such knowledge can effectively complement the lessons learnt and suggestions for best practices, as highlighted in existing literature. Moreover, such comparative analysis can boost competitiveness amongst countries, resulting in further efforts to enhance their readiness status, and an increase in the likelihood of such countries accessing climate finances from the various opportunities that exist or might exist in the future.

2.3 The Case of the Asia Pacific Countries

Excluding Australia, New Zealand, and South Korea, the Asia Pacific region is comprised of more than 40 developing countries, which are not only home to more than half of the global population, but also the largest number of the world's poor (~63%) (Wan & Sebastian, 2011). These countries differ greatly in topography, economic size, level of economic development, and population size, as well as the vulnerabilities they face from climate change. The climate finance needs also vary greatly across countries. The region is also one of the most vulnerable to disaster from extreme natural events, with 7 of its members being listed in the top 10 most disaster-prone countries in the world (UNU-EHS, 2015). Moreover, a 2015 UNESCAP study further attested to the vulnerability of the Asia Pacific region, arguing that its population is twice as likely to be affected by natural disasters compared to Africa, 6 times higher relative to Latin America or the Caribbean, and 30 times higher when compared against North America or Europe (Carrozza, 2015).

The region has also been identified as the largest recipient, and spender, of climate related finance (Schalatek et al., 2013; Caravani et al., 2015). Currently, there are 24 dedicated climate funds actively operating in the region, which have approved a total of USD 3.35 billion for 422 projects and programs (Caravani et al., 2015). The distribution of climate finance flow varies greatly amongst countries in the region, and is often skewed towards mitigation finance and channelled to only a few large and populous countries. Mitigation finance accounts for more than 62% of the total investment in the region, of which over 46% was specifically channelled to India, China, and Indonesia (Caravani et al., 2015). Moreover, of the 29 regional projects that account for 5% of the total funding dispersed in the region, 82% was disbursed to India, Indonesia, China, Philippines and Thailand (Caravani et al., 2015). Out of the USD 1.3 billion claimed for adaptation finance, only 4.6% was channelled to the countries in the Pacific sub-region, while the lions share was delivered to bigger Asia countries like Bangladesh, Nepal, and Cambodia (Caravani et al., 2015).

When taken as an aggregate, the Asia Pacific region seems to be accessing more climate finance, but, when assessed at a finer scale, the bulk of the finance is being

accessed by only a few larger Asian countries. Meanwhile, some, especially the PSIDS, continue to struggle to access the dedicated climate funds that are active in the region (Atteridge & Canales, 2017). Unlike their bigger Asian neighbours, the PSIDS' climate change needs are more skewed to adaptation related finance due to their topography. Securing large-scale adaptation finance flows is quite difficult, as the return is humanitarian in nature when compared to the 'commercial returns' that can be derived from mitigation projects. Estimates indicate that the PSIDS in total only account for 4%-6% of total funds from dedicated climate funds in the Asia Pacific region (Caravani et al., 2015). The primary channel of climate finance for PSIDS (i.e. mitigation and adaptation) is through bilateral sources (Atteridge & Canales, 2017). Of the USD 748 million of climate finance the PSIDS received in 2010-2014, 74 % was channelled from bilateral sources while the balance were from other sources (Atteridge & Canales, 2017).

While the climate finance flows to Asian countries and the PSIDS vary greatly in form, quantity, and modality, most of these finances are still being delivered outside the national budgetary systems through short-term projects. Developing countries have been highly critical of this modality, calling it ineffective, burdensome, and largely insufficient to cover the growing needs on the ground (Pasisi et al., 2013). Developing countries have also argued that such modality has further weakened and hampered their capacity and institutional building inspirations (Maclellan, 2011; Pasisi et al., 2013). Another notable criticism of using these modalities is that projects are not nationally-driven, as projects are mainly influenced by donors' interests, and are unsustainable (Barnett & Campbell, 2010).

Overall, there is a lack of trust by sources of climate finance in the capabilities of national financial systems of developing countries to effectively absorb, manage, and account for large scale financial flows (OECD, 2015b). For most donors, the use of the developing countries' national systems to channel large scale finance constitutes a huge fiduciary risk, as most lack the necessary safeguards to ensure that the finances will be used wisely (ADB, 2008). Studies that have examined the robustness of developing countries' budgetary and financial systems, like those of the PSIDS, have attested that PSIDS' national systems are largely inadequate to provide oversight of

financial resources due to their severe capacity and resource limitations (Haque et al., 2015; Hemstock et al., 2016; Hemstock et al., 2017). This assertion is common even in some of the larger but poorer Asian countries (Miller, 2012). Unfortunately, while the use of channels outside the national systems might provide safeguards to the use of donors' resources, it does little to address the existing weakness of recipient countries' national systems, and tends to exacerbate the impacts of these problems in the long run.

Nevertheless, developing countries in the region are increasingly utilizing their national budgetary systems to mobilize a significant portion of their domestic resources to climate related developments (UNDP, 2015). Further strengthening of the national environment to access international climate finance and alternative-source funding, so that it can complement domestic resources, has become a priority in the region in light of the rapidly growing climate change (GCF, 2017b). The sector that received the largest share of climate finance for the Pacific region in 2010-2014 was the enabling environment (~45 %) (Atteridge & Canales, 2017). Activities that mainly targeted development of policies, strengthening of existing institutional arrangements, and targeted capacity building initiatives were included under the enabling environment funding tranche (Atteridge & Canales, 2017). Twenty five percent (25%) of the GCF's USD 29.5 million readiness funding approved to-date has been channelled to the Asian-Pacific countries, the second largest regional allocation behind Africa (GCF, 2017b).

This study proposes a readiness appraisal framework which can capture the overarching factors considered critical for readying a country to participate in the international climate finance environment, based on the experiences of the Asia Pacific region. .This study adopts the definition of readiness as the extent to which a country's systems and institutions are prepared to access, allocate, and distribute international climate finance, as well as monitor and report on its use and results (The Nature Conservacy, 2012). Donors, researchers, practitioners, policy makers, civil society organizations (CSOs), private sector and research institutions are the intended targets of this framework, as the information provided can help drive institutional changes in

the region, possibly leading to significant scaling-up of domestic climate finance and investments.

2.4 Methods and Results

A three-phase approach was adopted to carry out this study. The first and the second phases involve the conceptualization of a readiness appraisal framework. The CPEIR provided the foundation for developing a consistent appraisal framework. The CPEIR country reports share common principles and present findings using a common structure. Unlike other reporting platforms, the CPEIR is closely related to the issue of readiness, as it is specially designed to assess a country's existing abilities of accessing and managing climate finance. The CPEIR also represents an extensive assessment of the national enabling environment by international experts, which is synonymous with readiness in the literature (Brown, 2013). The CPEIRs have been conducted primarily by intergovernmental actors. CPEIRs in Asia were undertaken by the UNDP, while those of the PSIDS were conducted by the Pacific Island Forum Secretariat (PIFS), a leading intergovernmental organisation in the Pacific. The involvement of these external parties in the CPEIR development process provides a degree of reliability and confidence of information. In total, 12 developing countries from the Asia Pacific, with 6 PSIDS, have completed a CPEIR or equivalent assessment. The third and final phase of the study presented here then links the readiness scores of countries (phase 2 results) to the total climate finance accessed, to determine if a significant relationship exists between the two.

The research technique employed in this study mirrored that of Michalena & Hills (2018), who conducted an appraisal of the preparedness level of 12 PSIDS for renewable energy investments. The data used in their analysis was primarily derived from the national reports prepared by the International Renewable Energy Agency (IRENA) for each of the 12 PSIDS. The publication of Michalena & Hills (2018) in a top tiered energy policy journal provides some precedent that the method used in this study is acceptable, despite the smallness of the sample size and the limited source of information used.

2.4.1 Phase 1- Determining a common scale

The main aim of the first phase was to develop a common scale for comparing countries' readiness progress. As a first step, the CPEIR was exhaustively analysed and the problems explicitly mentioned in these reports extracted. These problems served as the basis for a common scale on which a consistent comparison of the CPEIRs was undertaken. In total, 200 explicitly mentioned readiness related problems were extracted from the 12 reports (N=12). An extensive thematic analysis was then conducted, which yielded 48 common overarching problems, classified into 7 broad themes (Table 2.1). Countries were then assessed against these 48 problems, employing a binary coding technique to indicate its presence (1) or absence (0). The binary coding technique was used instead of a weighting system which articulates the magnitude of the problems is due to the limited degree of information in the CPEIRs.

Policies/Laws/Regulations	**Inclusive Decision Making**	**Power Structure**	Weak fiscal policy environment.
Delays in CC related policies /plans/strategies being endorsed and approved by cabinet.	Minimal engagement/consultations with private sector, civil societies and communities.	Fragmented institutional settings	
CC policies/plans/strategies are still being developed or in draft.	Lack of structured systems/processes in place to engage all relevant stakeholders.	Uncertain institutional arrangement due to volatile political environment.	Lack of long term budget projection
Existing CC related polices/plans/strategies are too broad and unclear.	Non-traditional stakeholders no adequately represented in the decision making bodies.	Weak institutional links between central line ministries and other bodies.	Weak of accountability mechanism in place.
Existing CC related polices/plans/strategies are out of outdate.	CC related materials are not easily accessible by the public.	Over-governance: to many	Lack of a structured approach to

		committees with similar roles and responsibilities	holistically capture and classify CCE in national budgets.
Key CC policies/legislations missing.	**Coordination** Inconsistent flow of information amongst key line ministries	Lack of clear mandates on roles and responsibilities	**Evidence based decision making** Lack of reliable, complete and complete up to date data.
Knowledge Management Lack of technical and specialized knowledge at in line ministries and agencies	Critical CC policies/plans/strategies not harmonized and linked.	Existing CC related decision making bodies' lacks leadership and political backing.	Lack of a formal data management system to support evidence-based policy making.
Lack of systematic training needs assessment within line ministries and agencies	Mainstreaming/integrating of climate change into existing strategies/plans/policies is difficult.	**Public Finance Management** No/narrow national definition of climate finance.	Lack of a formal procedure on data sharing amongst government, donors and other stakeholders.
High staff turn-over.	Lack of a formalized planning process.	Lack of budget support received.	Lack of systematic M&E systems and established indicators at all levels to assess performance of projects.
Heavy reliance on international consultants.	Misalignment between CC policies and its allocated resources.	Heavily dependent on single bilateral donor.	Lack of formal data management system to capture and store

			funding from other sources.
Lack of human capacity within key line ministries and agencies.	Lack of coordination amongst central CC line ministries during CC project life cycles.	Weak PFM in place.	Responsibilities of M&E not clear amongst line ministries.
Lack of long term plan and financial commitments to build capacity at all levels.	Lack of awareness across line ministries on CC related issues.	Frequent delays in disbursement of funds through national systems.	Disparate collection/storage of data and monitoring amongst key line ministries and agencies.
Lack of knowledge at the community level.	Infrequent & inconsistent meetings of key national CC committees responsible for coordinating CC issues.	Fragmented budgeting structure and process.	Unclear and broad CC related targets being set.

Table 2.1. Common Readiness *Problems* derived from the CPEIRs

2.4.2 Phase 2 – Determining the Readiness Dimensions & Indicators

This phase determines the main dimensions of the readiness appraisal frameworks. To achieve this objective, a Principal Component Analysis (PCA) was used to analyse the 48 *problem data* for the 12 target countries (Phase 1 outcome). PCA is an established multivariate technique used to identify the main axes of variation in multivariate data. It emphasizes variation and brings out strong patterns in a dataset, allowing ease of data exploration and visualization by reducing the number of possible dimensions. For this study, the PCA analysis examines the relationship among the variables and reduces the original set of 48 variables to a smaller set of pseudo-variables that explain the main axes of variability. SPSS was used to carry out the PCA analysis.

Sixty percent of the variation in the problem data was explained by the first three axes (PCA1= 31%, PCA2=19%, PCA3=10%). A conservative approach was used to determine which problem categories were aligned to the PCA axes by only considering factor loadings of > 0.5 as contributing in a meaningful way to an axis. Thus, loadings in PCA1 were deemed to be most closely associated with Institutions and Policies

(I&P), while PCA2 was more aligned with Knowledge Management and Learning (KM&L), and PCA3 relates more to the Fiscal Policy Environment (FPE). These 3 PCA axes formed the core dimension of the study's conceptual readiness appraisal framework.

Once the PCA axes were determined, potential progressive readiness indicators were formulated with guidance from existing literature (Nakhooda, 2012; Lefevre & Leipziger, 2014; Minang et al., 2014; Steinbach et al., 2014; Vandeweerd et al., 2014; Ford & King, 2015; Khan & Amelie, 2015; GCF, 2016). Countries were then scored against these axes (dimensions) using the same binary technique as in Phase 1, in an attempt to capture their readiness progress across the PCA-generated readiness dimensions. Sixty progressive indicators (20 for each dimensions) were formulated as an indicative measure of readiness progress (Table 2.2). Countries' performance on the framework were then compared and contrasted by aggregating their progressive readiness indicator scores (Figure. 2.1).

Readiness dimension	Proposed Indicator
Institutions and Policies	1. A national entity has been accredited by the GCF or the Adaptation Fund. 2. A coordination mechanism for development partners/donors for climate change related funding, dialogue, and programming exists. 3. A coordination mechanism between other conventions relevant to Climate Change (CC) exists. 4. A national strategy or plan to implement national climate change priorities exists. 5. CC priorities are mentioned explicitly in the national climate policy. 6. There is routine political engagement at national and provincial levels. 7. There is a national strategy on how to meet the risks and opportunities of CC. 8. There is a legal framework with incentives and compliance mechanisms that reflect CC priorities. 9. The core functions and roles of national institutions relating to CC are explicitly mentioned. 10. Collaboration with non-traditional stakeholders exists. 11. CC related acts and policies have been passed and endorsed by parliament. 12. A national climate change committee has been set-up. 13. There is a formal mechanism whereby all relevant stakeholders meet to discuss a range of climate change issues. 14. Climate change focal points have been established at national, subnational, and community levels. 15. National guidelines, which advise planning authorities on how to integrate climate change in their planning process, have been established. 16. A specialized climate change department has been set up. 17. The climate change department is adequately funded and staffed. 18. Long-term program and project planning mechanisms that can respond to the risks and opportunities of CC have been established. 19. Frameworks to manage planning of CC programming at the national level exist. 20. Frameworks to manage planning of CC programming at the provincial level exist.
Knowledge Management and Learning	1. CC knowledge is generated and codified at national and local levels. 2. CC knowledge is shared and accessible through appropriate media/platforms.

		3. Local governments and stakeholders have access to national and/or regional sources of expertise on CC. 4. Global and regional learning have been adapted to the national context. 5. Global, regional, or national 'good practices' have been contextualized to address community context. 6. Government collaboration with research institutions to identify, apply, and institutionalize CC knowledge. 7. National and local technical capacities to analyse CC issues and plan, implement, monitor, and evaluate CC programs have been identified and strengthened. 8. Routine public awareness programs have been undertaken. 9. CC information can be accessed by the communities. 10. Environment-related education programs have been implemented at community level. 11. Local knowledge has been 'scaled up' at provincial and national level. 12. Specialized training is conducted in partnership with regional and multinational development partners. 13. Knowledge tools have been established in key ministries to link climate change in national budgeting planning cycles. 14. A standardized methodology and key performance indicators to evaluate adaptation/mitigation program's effectiveness exists at the national level. 15. Budgetary allocation for human resources to manage national climate change programs has been made. 16. A national strategy is in place to guide capacity building in CC. 17. Existing planning process takes into consideration available evidence on CC and lessons learned from past CC programming. 18. Risk management, CC modelling, and CC scenarios inform planning at the national level. 19. Risk management, CC modelling, and CC scenarios inform planning at the local level. 20. A central data management system has been established at national level to track, store, and monitor climate change projects at national level and community level.
Fiscal Environment	**Policy**	1. Have routinely accessed climate finance from variety of sources. 2. An assessment estimating the total national climate financing needs has been undertaken. 3. CC policies have been costed. 4. A national climate fund has been established. 5. PFM performance scores favourably in PFM assessments reports. 6. Long-term financial commitments for CC-related investments have been made by government.

	7. A national climate financing policy has been developed with international development partners. 8. Special market conditions have been created to incentivize private sector to invest in CC-related investments. 9. Constant budgetary support from donors for CC activities has been received. 10. A pipeline of national priority climate change projects exists. 11. Innovative financing options have been developed to respond to the challenges of CC. 12. There is sufficient financial resource mobilization for CC projects aligned to national priorities. 13. A functioning financial management and reporting systems are in place for CC financing. 14. Partnerships have been established between public and the private sector for CC programming. 15. MRV system for domestic climate finance exists. 16. MRV system for international climate finance exists. 17. Government budget allocation at the local level reflects CC priorities. 18. Non-traditional stakeholders including CSOs and private sector participate in CC program planning, implementation, and M & E. 19. Key fiscal information can be easily accessed by the public. 20. National audit reports are scrutinized by legislative bodies..

Table 2.2 Readiness Themes and Progressive Indicators

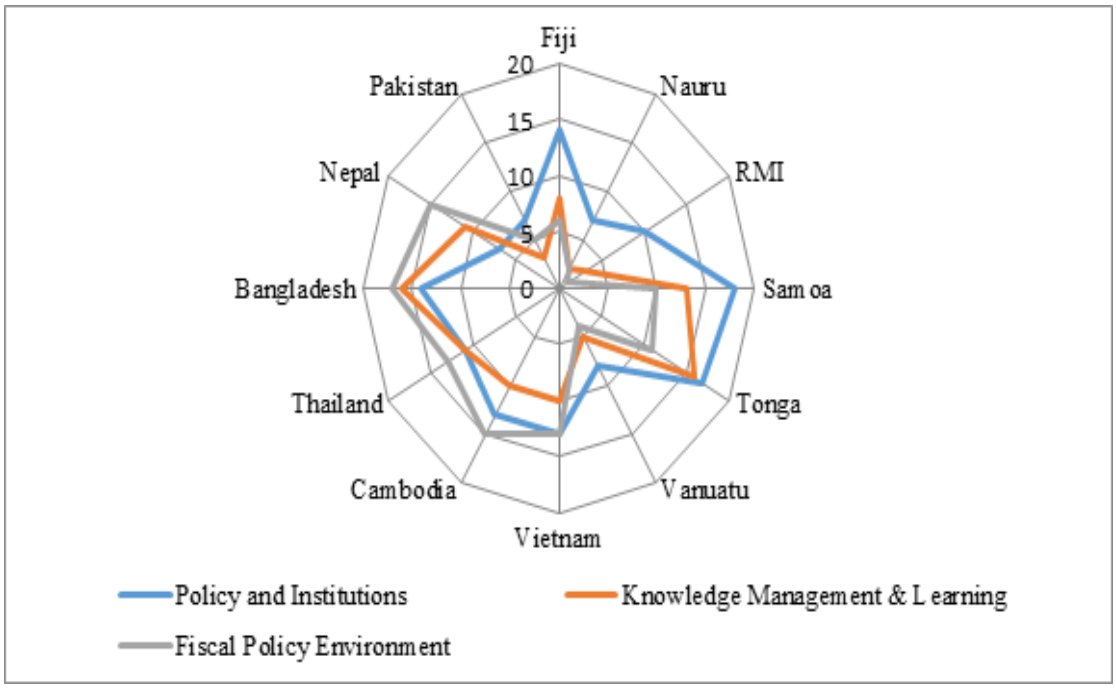

Figure 2.1 Indicative Readiness Progress of Countries in the Asia Pacific Region as per the study's framework

2.4.3 Phase 3- Linking Countries' readiness progress to Climate Finance Accessed

The purpose of this phase is to determine if there is a statistically significant relationship between the countries' readiness scores as per the framework (Phase 2 results) and the total climate finance accessed. A simple multivariate model was formulated to evaluate the existence and significance of readiness and climate finance. The model derived is as follows:

$$CF_c = \beta_0 + \beta_1 RE_1 + \beta_2 GDPpc_2 + \beta_3 P_3 + \beta_4 G_4 + \varepsilon$$

where *CF* is the dependent variable and denotes the average climate finance accessed by countries *(c)* in 2016 as per the Organisation for Economic Co-operation and Development (OECD) database. The average figure is used, as the OECD provides a lower and an upper estimate of CF received by *c* in 2016 (**Appendix B**: Table 2.3). The OECD database despite its limitations (Robinson & Dornan, 2017; Buchner et al., 2017), represents an attempt to provide comprehensive and detail information on the

amount of climate finance provided by OCED countries and the 2016 *CF* data is the most recent in its database during the course of writing this Thesis . In determining the portion of aid dedicated to climate change, donors voluntarily tag their contributions using climate makers that have been developed by the OECD (i.e. mitigation and adaptation markers). The climate markers do not provide the exact amount of climate finance provided, however can provide an approximation of the climate finance amount directed to developing countries, as well as provide a common standard and reporting rules for donors, allowing for comparability at the international level. The OECD database includes bilateral and multilateral sources, and in some instances contributions by non-OECD countries. Non-OECD countries voluntarily report their contributions in the OECD database, a database commonly used for studies examining climate finance issues (Halimanjaya, 2015; Halimanjaya, 2016; Betzold & Weiler, 2017; Buchner et al., 2017; Robinson & Dornan, 2017;).

The predictor variable of emphasis of the model is *RE, the aggregate readiness score of countries as per the study's framework*. β represents the beta value that measures how strong of an influence each variable has on the dependent variable, while ε represents the residual or the error term. The 2016 gross domestic product per capita *(GDPpc*) of *c*, their respective aggregate population (*P*), and the quality of their governance *(G)* act as the control variables for the model, and were all derived from the 2016 World Bank database. Akin to other studies (Halimanjaya, 2015; Robinson & Dornan, 2017), this study calculated *G* using the average scores of *c* across the six indicators of the quality of governance provided by the World Bank. There is a need to control for the potential confounding effects of *GDPpc*, *P* and *G*, as the literature has identified these three common factors as having signficant relationship with *CF* flows to countries (Alesina & Dollar, 2000; Riddell, 2008; Halimanjaya, 2015; Halimanjaya, 2016; Robinson & Dornan, 2017). *P* and *G* have been argued to be positively related to *CF*, meaning high *P* and *G* will result in high *CF* flows (Halimanjaya, 2015; Halimanjaya, 2016; Robinson & Dornan, 2017). Meanwhile, *GDPpc* has a negative relationship with *CF*, indicating that poorer countries tend to receive more *CF*, all else being equal (Alesina & Dollar, 2000; Robinson & Dornan,

2017). A hierarchical multivariate regression (enter method) using the SPSS software was employed to run the model.

In computing the results, SPSS produced the outcomes of the multivariate regression in two models (**Appendix B:** Table 2.4a,b,c). Model 1 presents the outcomes if only the control variables *P, GDPpc and G* are considered. Model 2, which is the model of emphasis in this study; presents the extended version of the outcomes after accounting for the control variables. A summary of the study's model key outcomes is illustrated in Table 2.5.

Statistic	Value	Significant level
Adjusted R square	0.922	$p < 0.05$
F	33.53	$p < 0.001$
Beta :		
Population	.596	$p < 0.05$
GDP per capita	-.271	$p < 0.05$
Governance	.301	$p > 0.05$
Readiness	.247	$p < 0.05$

Table 2.5 Summary of Model 2 Key Statistical Outcomes

As per the SPSS outputs, both Model 1 and Model 2 are significant, with the former scoring an *Adjusted R* square of 86.5%, and the latter 92.2% (**Appendix B:** Table 2.4a). The *Adjusted R* squares represent the percentage of variability explained by the variables. In other words, the control variables alone account for around 87% (Model 1) of the variability, and this increases to 92.2% when *RE* is factored in (Model 2). This indicates that *RE* has a positive impact on the predictive power of the model. It is interesting to note that, while the actual change in the *R square* score is only 4.9% (indicating that *RE* explains an additional 4.9% of the variance on its own), the change is statistically significant (*Sig.F Change = 0.034 ~ p < 0.05*). In other words, the addition of *RE* as an additional predictor variable of *CF*, despite having a small impact, is still statistically significant.

Model 2 is a significant predictor of *CF*. The F test indicates a score of F= 33.53, which is statistically significant at $p < 0.001$. This means that, when controlling for the

confounding variables of *P, G* and *GDPpc,* and using *RE* as the only predictor variable, the model as a whole is statistically significant in predicting *CF*.

Finally, the standardized coefficient (i.e. β weight) was assessed in order to evaluate the strength of how each of the predicator variables of the study (*P, G, GDPpc and RE*) influence *CF*. The higher the β value, the greater the impact of the predictor variable on the dependent variable. The results indicated that while *P, G* and *RE* have positive β values, at 0.596, 0.301, and 0.247, respectively, only *P* and *RE* are significant at $p<0.05$ and thus made a statistically significant contribution to the model. The β value of GDPpc was (-0.271) and $p < 0.05$, supporting the argument for a negative relationship with CF (Alesina & Dollar, 2000; Robinson & Dornan, 2017). While the limited sample size could explain the lack of a significant relationship between *G* and *CF,* the low significance could also relate to the argument that, unlike multilateral funds, most large bilateral donors such as the USA and France (whose contibutions make up a significant portion of total global aid*)* are not very selective about the governance quality of countries they channel their aid to (Alesina & Dollar, 2000; Howes, 2014). The results therefore indicated that *P, GDPpc* and *RE* are the largest unique contributors to the model after the overlapping effects of other variables had been statistically removed.

2.5 Discussion

2.5.1 Rationalizing the difference in readiness progress

The countries' scores across the three readiness dimensions of this study's framework highlighted that their readiness progress varied greatly. The Asian countries seem to perform better on average across the 3 readiness dimensions (*Avg=35*) when compared to the PSIDS (*Avg=25*). They also appeared more ready to access climate finance from diverse sources (OECD, 2017) (see also **Appendix B**: Table 2.3). Access to climate finance in PSIDS is still primarily limited to bilateral sources and multinational entities, with grants being the main instruments (OECD, 2017).

The performance of big Asian countries across the readiness dimensions of *I&P, KM&L* and *FPE* is evident in the variety of financial instruments they use to mobilize

climate finance. These innovative ways of mobilizing climate finance include the issuing of instruments such as green bonds, tax-free infrastructure bonds for renewable energy projects (Muenzer-Jones & Johnson, 2016), and the establishment of National Climate Funds (NCF) to pool domestic and international climate finance (Irawan et al., 2012; CDNK, 2015). Creating the environment to implement these financing mechanisms is complex and requires robust I&P framework, a high degree of technical knowledge and learning *(KM&L),* and a vibrant financial sector *(FPE)* to be in place (Minang et al., 2014; Vandeweerd et al., 2014; Masullo et al., 2015; GIZ, 2016; USAID, 2016). From the perspectives of donors and sources of climate finance, the synergy of these dimensions is indicative of an enabling environment where climate finance can be effectively managed and directed to achieve its objective (Vandeweerd et al., 2014; Adaptation Fund, 2018; GCF, 2018). In addition, Asian countries' progressive performance in these three readiness dimensions could be attributed to the fact that most of them are active participants of the REDD+ programme, an innovative and unique financial mechanism for generating climate finance flows to developing countries (The World Bank, 2015c). Their progressive 'finance footprint' has therefore not only placed them in a much better position to successfully navigate the complex climate finance architecture, but also prepared the right domestic environment to attract this finance.

For the PSIDS, the readiness framework indicates a massive readiness gap relative to their larger Asian neighbours. However, PSIDS performed relatively better in the *I&P* dimension (Avg=22) compared to the Asian sub-region (Avg=17). The positive progress in the *I&P* dimension could be linked to the argument that SIDS, in general, have some of the most sophisticated governance and policy arrangements due to their history and topography (Baldacchino & Hepburn, 2012; Michalena & Hills, 2018). Moreover, such positive progress in this readiness dimensions could also be explained by the fact that the majority of the finance channelled to PSIDS (86%) was geared towards strengthening climate change sector policies (Atteridge & Canales, 2017).

However, the PSIDS still lagged behind the Asia countries in the remaining two readiness dimensions (*KM&L* and *FPE*). The major underlying readiness challenges for PSIDS in these two dimensions are hereditary in nature, due to their special and

unique circumstances (Briguglio, 1995; Nurse et al., 2014). PSIDS suffer from a chronic lack of knowledge-based capacities to implement innovative financial instruments and, furthermore, from an underdeveloped financial sector, or non-existent in some cases, due to their very small and largely undiversified economies (OECD & The World Bank, 2016) and for smaller PSIDS like the Cook Islands, Niue, Palau, Tuvalu and Kiribati, these contraints are fixed due to their very small economies. Thus, PSIDS are in a conundrum, as despite their progress in the *I&P* dimension, their physical context seriously hinders their abilities to capitalize on these gains and translate them into concrete actions in the readiness dimensions of *KM&L* and *FPE.* The physical limitations of some PSIDS pose serious questions whether the current readiness approach of investing in these countries abilities to directly access funds from multiateral sources such as the GCF is a feasible approach.

2.5.2 Linking Readiness progress to Climate Finance Accessed

While the study acknowledges that the readiness effects are too recent for full impacts to be apparent, the results revealed that readiness has a predictable but small impact on the magnitude of climate finance accessed. This argument is based on the evidence concerning the R squared change value of the model, and more importantly the β value of *RE*, which indicates that improving the readiness status of a country will require significant work addressing improvements that can be captured by the progress indicators, but have a small, although predictable and positive, effect on climate finance accessed. This also indicates that the readiness status of a country does not exist in a vacuum, and that it is inextricably linked to other contextual factors in determining access to climate finance.

In addition, the current approach to readiness largely focuses on accessing finance from multilateral funds, and does not differentiate between mitigation and adaptation. If readiness was to be discussed within the context of the USD 100 billion goal of the Paris Agreement, then it is clear that the current concept of readiness is in the context of mitigation[13] only. The Paris Agreement also prioritizes the role of the private sector in mobilizing climate finance because of its 'catalyzing capabilities', and the current

[13] See Decision 1/CP21 para 53.

readiness discourse is in line with such a position (UNFCCC, 2015). Even within the GCF, where USD 39.5 million has been mobilized for readiness, and where an explicit 50:50 allocation for mitigation and adaptation is a policy, funds dispersed to approved projects so far indicate that mitigation finance still accounts for 41%, compared to the 26% for adaptation, and the remainder to projects that are cross cutting in nature (GCF, 2019). This infers that the current readiness approach tends to focus on attracting more mitigation than adaptation finance. The PSIDS are therefore at a disadvantage within the current discourse of readiness, as their climate priorities are geared towards adaptation instead of mitigation activities.

Although some gains have been made in increasing the level of finance available for adaptation, a significant gap still exists (UNEP, 2016a). Within the context of this study, the imbalance of climate finance against adaptation clearly indicates the need to not only significantly scale up the availability of adaptation finance globally, but to also increase the support that will 'ready' countries to access this finance. Scaling up of adaptation finance has been a key climate finance demand of SIDS in the past COP negotiations. For most particularly vulnerable countries, such as the PSIDS, facilitating access to sustainable adaptation finance is not only critical to their ability to advance their obligations as per the UNFCCC, but their very survival.

Moreover, the study also suggests that the level of precedence given to readiness in relation to access to climate finance contradicts the goal of the UNFCCC. Under the Convention, while the purpose of climate finance is to assist developing countries, Article 4(4) specifically highlights the need to provide adaptation assistance to those that are particularly vulnerable to the impacts of climate change. While all countries can reasonably claim vulnerability to climate change, SIDS are explicitly recognized in the Convention as particularly vulnerable. Other studies have also affirmed this position (Betzold, 2016a,c; Robie & Chand, 2017). For example, within the Asia-Pacific region, the PSIDS are considered more vulnerable to their Asian counterparts, as per the NDGain Vulnerability index, with mean (M) and standard deviation (SD) scores of 0.48 and 0.029 respectively, compared to the scores of the latter (M=0.45, SD=0.058).

For PSIDS, as well as the donors of readiness initiatives in the region, such findings provide food for thought on the viability of the current approach for readiness. Evidence seems to indicate that the current approach to readiness will yield little improvement to the PSIDS' demand for more access to quality climate finance. Thus an alternative readiness pathway should be explored.

2.5.3 Readiness for Bilateral and Remittance Finance – An alternative

The proposition that PSIDS should re-orient their readiness efforts towards bilateral support and remittances as alternatives sources of sustainable climate finance is founded on the fact that they are, and have been, the primary sources of external finance assistance for SIDS (OECD, 2015a), and that their flow into countries is largely insensitive to the quality of the enabling/investment environment of a country (Laniran & Adeniyi, 2015; Batista & Narciso, 2018).). Emphasis on these two alternative sources of finances is also driven by the fact that the future flow of finances from multilateral climate funds such as the GCF may not be guranteed for PSIDS (see Chapter 3 for details), thus the need to explore more stable sources of climate finance.

Because bilateral sources have dominated climate finance for PSIDS, leveraging such a source to its full potential is critical. Bilateral finances are largely driven by diplomacy and factors that are related to countries' soverign interests (Gulrajani & Swiss, 2017) and thus are unaffected by the stringent readiness requirements demanded by private and multilateral sources. While some may argue that bilateral sources cannot be a sustainable source of long-term climate finance, it is critical to point out that Article 4(4) of the Convention provides the basis to believe that, at least in the context of climate finance, bilateral flows will continue indefinitely. Moreover, the special circumstances of the PSIDS provide a moral basis for indefinite bilateral support for climate finance, as there is evidence that a majority of the PSIDS' economies will never reach their full development potential (Hezel, 2012). PSIDS may, therefore, consider re-orienting their readiness approach to scale up their global diplomacy efforts, enhancing the capacity of their foreign affairs ministries and tasking such Ministry to play a more prominent role in the area of climate change. The ultimate goal of readiness initiatives in this area is to scale up existing bilateral relationships,

as well as build new ones. As developing countries are also increasingly mobilizing climate finance beyond their borders, PSIDS should take an aggressive approach in diversifying their bilateral relations, and actively pursue new bilateral relationships for the purpose of securing potential sources of climate finance.

Remittances also offer an ideal source of climate finance and are worth exploring, as they account for more than 40% of external financial assistance to SIDS (OECD, 2015a). For PSIDS, the influx of remittances from diasporas continues to increase significantly (Jayaraman, 2016), and now accounts for a significant portion of the PSIDS GDP. For example, remittances in Samoa account for 23% of GDP (Bendandi & Pauw, 2016). While evidence indicates that only 5% of such finance flow is used for productive investments (Bendandi & Pauw, 2016), there is huge potential in remittance finances to become an alternative source of climate finance for PSIDS. Existing evidence also indicates that remittance finance fulfils the desired characteristics of climate finance: it is predictable, sustainable, adequate, and accessible (Bendandi & Pauw, 2016). Remittance compared to private sector investment continues to flow into countries, regardless of the existing investment environment, as it is largely motivated by the individual interest and market mechanisms (Laniran & Adeniyi, 2015). The remittance pathway provides an opportunity for PSIDS to re-orient their readiness focus to an enabling environment that prioritizes new entrepreneurial opportunities, which can effectively harness the potential of remittances to trigger diaspora's investment in building national and community resilience to climate change. Senegal and Mexico provide two case studies where governments have actively promoted policies that facilitate an enabling environment where diasporas can invest and contribute to domestic development (Panizzon, 2008; Scheffran et al., 2012).

Readiness for bilateral climate finance and remittances, as per the understanding of this study, can be seen as a component of the larger climate finance readiness package. However, bilateral climate finance and remittances, represent a different blend of readiness from that promoted by multilateral sources of climate finance. For example, the readiness for remittances, as argued by this study, promotes an enabling environment where innovative finances such as green bonds can be used to raise new

sources of climate finances. While it can be argued that green bonds are part of readiness, the target area differs in which instead of only targeting the private sector entities to invest in green bonds, the scope should be extended to also include disporas (indicating that the readiness activities will be different); and this is where the focus on readiness in PSIDS should be concentrated on their largely underdeveloped private sector.

2.6 Limitation of this study

The small sample size of this study (N=12) has a potential impact on the quality on results and generalizability of its findings. In fact, the results of this study should be treated with some reservations, as the bootstrap analysis of the model suggests that the related estimates varied considerably from the origional sample (**Appendix B**: Table 2.4d). Manly (1992) and Hesterberg (2014) argued that this could indicate that the sample size used might not be satisfactory. The sample size cannot be improved, however, because only 12 countries in the Asia-Pacific region have completed and published their CPEIRs. Manly (1992) also argued that the results should be not be disregarded altogether if this is the case, as "*…it may still be better than anything else that is available*" (pg.196). In line with this argurment, this study offers the first critical insights into how climate finance readiness has progressed in the region. Future research should fill this data gap as more countries in the region release their CPEIR studies in the future, and build a strong evidence base on the impacts of readiness and climate finance, especially from the perspectives of PSIDS.

2.7 Conclusion

This study provides critical insight into the current approach to readiness. Firstly, evidence from the Asia-Pacific region indicates that readiness plays a small but predictable role in accessing climate finance. Effective access to climate finance cannot be achieved just by focusing on improving readiness because access is inextricably linked to and influenced by other factors. Readiness does not exist in isolation, permitting dramatic improvement through appropriate inputs by governments and donors. Secondly, the understanding of readiness does not

differentiate between mitigation and adaptation finance, rather it is biased towards mitigation because of the precedence it places in creating an enabling environment that are private sector-centric. Thirdly, the emphasis on readiness as the new currency in the climate finance discourse suggests a divergence from the original understanding and objective of climate finance, as encapsulated in the Convention. Climate finance is intended to be treated differently from normal official development aid (ODA). Thus there is an expectation on donors, especially multilateral funds such as those continuously raised during the UNFCCC process, to not place stringent access requirements to climate finance aimed at particularly vulnerable countries. This is echoed in the consistent call from particularly vulnerable countries to the UNFCCC to simplify and enhance direct access to multilateral climate funds.

These critical insights, as well as the massive readiness gap between the Asian countries and the PSIDS, question whether the PSIDS stand any real chance of being ready to access predictable and long-term climate finance. The PSIDS and their donors should rethink their current approach to readiness to incorporate other alternative funding sources, as there is a strong indication that the current readiness pathways will yield little benefits to PSIDS. The misalignment between the PSIDS' climate change needs (adaptation centric) and the current readiness approach (mitigation centric) is further exacerbated by the PSIDS' chronic lack of resources and capacity, due to their special circumstances. Thus, the feasibility of PSIDS ever achieving a readiness status similar to their Asian counterparts is highly unlikely.

Bilateral and remittance finances offer a practical alternative to multilateral funds and private sector finance because they offer uncomplicated sources of climate finance that the PSIDS could target for their readiness efforts, due to their strong track record of consistently mobilizing external financial assistance in-country. In addition, the flow of finances from bilateral sources and remittances is to a large extent insensitive to the quality of the enabling/investment environment of a country. It is worth exploring the potential of mobilizing quality and predictable climate finance by customizing readiness to suit these two sources. For the PSIDS, the current readiness approach, which tends to emphasise access to multilateral funds and the private sector, provides little assurance that it will improve their 'access to climate finance' conundrum and

thus should be extended to bilateral and remittances sources. Thus, as radical as this study's readiness recommendation may be, the impacts of on-going and prolonged inaccessibility of multilateral funds, as well as private finance for a majority of the PSIDS, will be severe, and existential for some.

Chapter 3

Assessing the Green Climate Fund Finance Allocation Rules

3.1 Introduction

This chapter assesses potential implications of an equity-based allocation policy of the Green Climate Fund (GCF) to Pacific Small Island Developing States (PSIDS) after the 2020 mobilisation of funds, using the lens of the justice theory. It is expected that by 2020 till 2025, USD100 billion will be mobilised each year as climate finance. A significant portion[14] of this finance is intended to be delivered through the GCF (Schalatek et al., 2016).

The GCF allocation framework determines how the funds will be distributed to developing countries. Unlike other multilateral climate funds, the GCF seeks to address the imbalance between mitigation and adaptation finance by maintaining a 50:50 ratio of funding for each tranche (see GCF Decision B.06/06). The GCF has further ring-fenced half of the adaptation finance allocation to be accessed specifically by particularly vulnerable countries. As to which developing countries will be given priority for funding (i.e. mitigation of adaptation), the GCF has opted for a '*geographical balance'* approach (see GCF Decision B.06/06) in a broad attempt to be seen as a '*fair'* distributer of climate finance.

'*Fairness'* in the distribution of global climate finance has always been a key task of particularly vulnerable countries during the UNFCCC COP (Pickering et al., 2017). Flow of climate finance has traditionally been skewed towards mitigation finance with bigger developing countries receiving most of such finance (Buchner et al., 2017). Bigger and populous developing countries have also been the recipient of the bulk of adaptation finance (Buchner et al., 2017; Pickering et al., 2017). In nominal terms, the poorer and the smaller developing countries are the most disadvantaged when it comes

[14] What constitute 'a significant' portion to be delivered through the GCF is still yet to be defined.

to accessing climate finance. Climate finance flows to developing countries especially the LDCs and the SIDS have largely deemed 'unfair' because the finance flows have been inadequate, and in most cases lack predictability exacerbating poor and small countries' vulnerability in the process (Caravani et al., 2016).

The GCF allocation policies have received little discussion and attention in literature. The need to bring the GCF allocation policies to the fore in public discourse stems from the *race for accreditation*, currently underway among developing countries. The intended scale of the GCF 'pay out' has incentivised developing countries to mobilise significant national resources to strengthen their institutional capacities, so that they implement the direct-access modality pre-2020 through national accredited entities (NAE). While these preparatory activities are critical, these efforts may be in vain if a degree of predictability for finance to be accessed from the GCF is not guaranteed post-2020. It is therefore critical that the GCF initiate a process to determine how best to 'fairly' allocate adaptation finance among particularly vulnerable countries, so that such countries can also maximise such opportunities post-2020.

This chapter analyses the possible post-2020 implications of allocating the *ring-fenced provision* (see details in section 3) of the GCF on the basis of 'fairness' as articulated by the justice theory. This study aims to stimulate discussions about the allocation criteria that the GCF could potentially use to fairly distribute adaptation funds once developing countries have passed through the readiness preparations and are able to submit high quality proposals. In addition, this study is an analysis of a theoretical future, based on the assessment of the current situation, which is the rapid progression of readiness amongst developing countries. The arguments presented in this study also presents potential futures that GCF and developing countries might be confronted with and will need to address as there are increasing threats that the funding being earmarked for the GCF will not be achieved (with the USA withdrawing from the Paris Agreement) and thus the GCF may be saturated before 2020.

This chapter is divided into eight sections. Section 2 reviews the literature, while section 3 provides an overview of the case study. The theoretical underpinning is

discussed in section 4, with section 5 outlining the methods used. Section 6 elaborates on the results. Section 7 provides the discussion, with the conclusion in section 8.

3.2 Literature Review

Adaptation is a key requirement for particularly vulnerable countries since these countries are already experiencing the negative impacts of climate change. (UNFCCC, 2009; IPCCC, 2014; Robinson, 2015; Betzold, 2016a,c). Adaptation is "defined as the "…*process of adjustment to actual or expected climate and its effects. In human systems, adaptation seek to moderate or avoid harm or exploit beneficial opportunities*…" (IPCCC, 2014: p.118). In other words, it is the degree to which communities who are vulnerable to climate change can moderate or reduce its negative impacts or realize positive impacts to avoid the danger (Smit & Wandel, 2006). For adaptation to be effective and sustainable, predictable and adequate finance is essential (Fry, 2007; Hof, et al., 2011; Weiler et al., 2018). Adaptation is not only a costly exercise for smaller and poorer, vulnerable countries, but is also an additional financial burden, as it overlaps with their development pathways (Nurse et al., 2014). For SIDS, this financial challenge is exacerbated by their small economic size, remoteness from world markets, competing development priorities, and greater sensitivity to climate change (Briguglio, 1995; Nurse et al., 2014; Betzold, 2016a,c; The World Bank, 2017d). As a consequence of such challenges, particularly vulnerable countries have actively sought access to international financial sources to support their national efforts to reduce their vulnerability, and increase their adaptive capacities and resilience (Robinson & Dornan, 2017).

The global community promised such finance in the Copenhagen Accord with the goal of USD 100 billion per year by 2020 (UNFCCC, 2009). This funding would be " …*scaled up, new and additional, predictable, adequate…*"(§8), and feature improved access (UNFCCC, 2009). However, the Copenhagen Accord has been too vague to reliably assess to what extent donors have fulfilled their promises. Particularly, without a baseline, it is difficult to determine whether climate finance is "new and additional"

(Nakhooda et al., 2013). The term 'adequate' is also unclear, and it is likely that too little funding has thus far been mobilized towards adaptation (Buchner et al., 2017). The Paris Agreement reaffirmed the climate finance commitments made in Copenhagen. It has also specifically called for an increase in adaptation finance, and that *...scaled up financial resources mobilised should aim to achieve balance between mitigation and adaptation..."* (UNFCCC, 2015. §9).

As per the Paris Agreement, a significant share of the USD 100 billion goal is to flow through the GCF (UNFCCC, 2015). The GCF has brought about a sense of optimism and heightened expectations (GCF, 2017a), as such apparently consistent and large-scale resourcing has not previously been possible amongst countries that are recognised as particularly vulnerable to climate change impacts. Accessing predictable climate finance continues to be a challenge for these countries, specifically the SIDS and the LDCs (Maclellan, 2011; The Commonwealth, 2013; PIFS, 2017). Hopes are high that the GCF will deliver on its mandate by mobilising resources in a manner that will effectively meet the needs of all developing countries (Brown & Ballesteros, 2012; GCF, 2017a).

From the outset, the GCF intended to create a level playing field of access for all developing countries through its direct modality access, explicit mitigation and adaptation-funding ratio, and ring-fenced provision for LDCs, SIDS, and Africa. The ring-fenced provision refers to the GCF policy of allocating 50% of its funding to adaptation and then splitting that amount into two equal portions for: (i) LDCs, SIDS and African States, and (ii) the remaining developing countries (of UNFCCC non-Annex I).

However, a closer examination of the GCF allocation policies potentially challenges this top-level rhetoric. Currently, the GCF uses a "*geographically balanced*" approach (GCF, 2014) to allocate finance without mentioning any specifics. Such open-ended allocation policies can in the long run further marginalise particularly vulnerable countries that have consistently struggled to access predictable finance from global public sources (Müller, 2013), and do little to solve the problem of inadequate and

inconsistent flow of climate finance into such countries. Such sporadic inflows of finance further exacerbate countries' exposure and reduce their resilience to climate change (Maclellan, 2011). To effectively address climate change impacts, predictable long-term support is necessary. However, such support cannot be planned or implemented without requisite long-term funding and a degree of access certainty (Müller, 2015).

3.2.1 Allocation of Adaptation Finance

How adaptation finance should be allocated has been a focus of a number of studies (Barr, et al., 2010; Grasso, 2010; Persson & Remling, 2014; Stadelmann et al., 2014; Müller, 2015). The justice theory, specifically the principles of *equity* and *efficiency*, are the two common allocation principles raised in existing literature (Stadelmann et al., 2014). Equity covers concern of who needs the finance the most, while efficiency deals with how best the adaptation finance should be spent (Barrett, 2014; Persson & Remling, 2014; Duus-Otterstrom, 2016). The difference in focus is related to the differing viewpoints of developed and developing countries. While developed countries have framed their understanding of climate finance as additional to official development aid (efficiency), developing countries view it as an issue of restitution on the basis of historical responsibilities to climate change (equity) (Persson & Remling, 2014).

Although both principles have merit (Stadelmann et al., 2014), allocating adaptation finance based on efficiency is difficult and may even be impossible to achieve due to the high level of uncertainty involved (Füssel et al., 2012; Persson & Remling, 2014). Persson & Remling (2014) also argue that the allocation processes of global climate funds that prioritize adaptation are not designed for 'efficiency criteria', as projects are accepted on a rolling basis, making it hard to do meaningful cross-project comparisons. Moreover, the efficiency criterion advocates the need to create global public goods: outcomes from climate actions that benefit both developed and developing countries (Pickering et al., 2015). Particularly vulnerable countries have resisted this position, as it tends to channel funding to high-income and populous developing countries for the purpose of mitigation, rather than to the smaller and much more vulnerable

countries that are more concerned with adaptation (Stadelmann et al., 2014). The smallness of most vulnerable countries, like the PSIDS, as well as the localised nature of adaptation actions, means that producing global public goods will be difficult (Maclellan, 2011; Pickering et al., 2015).

Despite arguments that the bulk of adaptation finance should be channelled to the most vulnerable countries, empirical evidence suggests that vulnerability of a country is still not a major determinant for accessing adaptation finance (Persson & Remling, 2014; Stadelmann et al., 2014; Barrett, 2015; Betzold, 2015; Weiler et al., 2018). In reality donors allocation decisions tend to be significantly influenced by a country's colonial past, political alliance, gross national domestic product (GDP), total population (Alesia & Dollar, 2000; Robinson & Dornan, 2017), implementation capacity, adaptive capacity, experience with climate change impacts (Barr et al., 2010; Barrett, 2014; Barrett 2015), gross national income (GNI), and governance quality (Halimanjaya, 2014; Robinson & Dornan, 2017). As a consequence, the flow of global adaptation finance tends to be skewed in favour of only a few vulnerable countries, disadvantaging some of the most vulnerable countries in the process (Barrett, 2014; Barr et al., 2010; Robinson & Dornan, 2017; Weiler et al., 2018). Most SIDS have therefore continuously pushed for a more equitable allocation approach to adaptation finance (Maclellan, 2011; Barrett, 2014; Barrett, 2015; Duus-Otterström, 2016; Maclellan & Meads, 2016).

The push for *equity* as the basis of adaptation finance allocation is primarily driven by the idea of restitution, an obligation that needs to be settled as per the UNFCCC 'polluter pay' principle (Fry, 2007; Eisenack & Stecker, 2012; Barrett, 2015; Duus-Otterström, 2016). Moreover, the absence of a universal and robust allocation policy that includes clauses for care of special cases has resulted in the marginalisation of particularly vulnerable countries from accessing a fair share of climate finance. The current deficiency of such a program stresses the need for more equitable allocation processes within the UNFCCC operating entities, such as the GCF (Pickering et al., 2015). The role of equity in allocation is critical, as noted by (Sokona & Denton, 2001), in "*…assuring that vulnerable people in the remotest outposts of the world do not*

become imprisoned in perennial cycles of destitution and impoverishment at the mercy of climate events' (p. 120). While equity is a broad and politically sensitive concept that could be interpreted and operationalized in various ways (Stadelmann et al., 2014), this chapter will view the concept through the lens of the theory of justice in an attempt to further elucidate what 'equity' might mean in the context of allocating the GCF adaptation finance.

3.3 The Pacific Situation

Fifteen PSIDS are parties to the UNFCCC: the Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, the Marshall Islands, Nauru, Niue, Palau, Papua New Guinea (PNG), Samoa, the Solomon Islands, Timor Leste, Tonga, Tuvalu, and Vanuatu. Akin to other SIDS, PSIDS have limited natural resources, narrow based economies, are geographically very small, and are vulnerable to external market shocks and climate change (Briguglio, 1995; IPCC, 2014). Despite their negligible contribution to this human-induced problem, PSIDS are its frontline victims because of their topography and geography (Mimura, 1999; Ferris et al., 2011). As the majority of PSIDS are made up of small, low lying islands, climate change poses vast existential threats from sea level rise and adverse change in weather patterns (IPCCC, 2014). Moreover, the lack of resources and capacities among PSIDS exacerbate their vulnerabilities (Fry, 2007; Carroza, 2015). The 2016 World Risk report reviewed 171 countries and identified two PSIDS, Vanuatu and Tonga, as the worlds' most vulnerable countries to extreme natural disasters, and ranked an additional four PSIDS, Solomon Islands, PNG, Fiji and Timor Leste, in the top 10 most vulnerable counties (Comes et al., 2016).

With respect to financing, PSIDS climate change needs are biased towards adaptation. Due to their very small populations, PSIDS are regarded as the highest receivers of climate finance on a per capita basis (PCB), relative to other developing countries (Betzold & Weiler, 2017; Weiler et al., 2018). However, critics of the PCB argued that it does not reflect countries' realities (Dirix et al., 2012). PSIDS, unlike other SIDS, are scattered across 15% of the globe's surface, and are some of the remotest

countries from major global markets (The World Bank, 2017d). As a consequence of their geographical location, mobilising climate finance is not only challenging, but also very costly (Briguglio, 1995; Maclellan & Meads, 2016). It is also has been estimated that, out of the USD 1.3 billion for adaptation finance mobilised to the greater Asia Pacific region, only 4.6% were channelled to PSIDS, with the lion share being channelled to larger Asia countries (Caravani et al., 2015). In other words, while PSIDS might be portrayed as 'receiving more', the cost of delivering climate finance is also more (on a PCB) considering their remote and highly dispersed locations.

Bilateral channels account for the majority of adaptation flows to PSIDS (84%), followed by multilateral agencies (16%) (Betzold, 2016a,c). Funds delivered through these channels are largely project-based (Betzold, 2016a,c). This modality has been strongly criticised for stifling long-term capacity building in PSIDS, as projects are mostly managed by costly, external consultants rather than local experts, thus increasing administration costs (Fry, 2007). Other issues include lack of flexibility and sustainability, susceptibility to donor influence, and lack country of ownership (Barnett & Campbell, 2010; Pasisi et al., 2013).

For PSIDS, accessing global climate funds to address rapidly growing adaptation needs is challenging due to their robust fiduciary and accountability requirements (Maclellan, 2011; USAID, 2016). So far, accessing global climate funds in the region has been done through an international accredited entity (IAEs), such as the United Nations Development Programme (UNDP) and the Asian Development Bank (ADB), or a regional accredited entity (RAE) such as the Secretariat of the Pacific Regional Environmental Programme (SPREP). All of these organizations charge a service fee that ranges from 7%-20% of the funding secured, in turn reducing the amount available for productivity, and exacerbating PSIDS dependency on costly external support (Fry, 2007; Fry & Tarte, 2016).

PSIDS have strongly urged global climate funds to facilitate and enhance the direct access modality (Maclellan et al., 2012; PIFS, 2015). These access modalities ensure that projects are nationally driven, that the value of a dollar received is maximised, and that efforts strengthen the existing country systems in the process. So far, only the

Adaptation Fund and GCF have implemented this modality. To date, the Cook Islands, Fiji and FSM are the only PSIDS that have attained GCF accreditations (GCF, 2017b). The Pacific Regional Environmental Program (SPREP)- a regional institution has also been accredited to the GCF.

For its part, the GCF has ramped up its effort to mobilize climate finance to the PSIDS. In total, the GCF is currently co-financing 7 major projects in the Pacific (Table 3.1). While these efforts are commended and appreciated, it is still highly uncertain how the PSIDS will fare in future GCF disbursement cycles under a '*geographical balance'* allocation policy. There is great uncertainty as to whether PSIDS can consecutively secure such significant financing from the GCF in light of other developing countries' growing climate change needs.

The high degree of uncertainty in future funding access to the GCF should motivate the PSIDS to engage the GCF to initiate constructive discussions on the need for a concrete yet *fair* allocation policy that will ensure a predictable funding pathway for the most vulnerable countries. In light of PSIDS circumstances, the ideal GCF allocation criteria would be one that will result in the flow of predictable and quality finance that will not only enable effective and cost-effective response to PSIDS' immediate adaptation needs, but also to their long-term resilience (Maclellan & Meads, 2016).

Country	Project Total USD millions	Time Approved	Project Type	Access Modality	GCF Funding USD millions	Other Parties USD millions
Fiji	222	2015	Adaptation	IAE	31	191
Tuvalu	38.9	2016	Adaptation	IAE	36	2.9
Vanuatu	26.6	2016	Adaptation	IAE	23	3.7
Multiple PSIDS	26	2016	Mitigation		17	9
Samoa	65.7	2016	Adaptation	IAE	57.7	8
Solomon Islands	234	2017	Mitigation & Adaptation	IAE	86	148
Nauru	65.2	2017	Mitigation & Adaptation	IAE	26.9	17.6
Marshall Islands	44.1	2018	Adaptation	IAE	25.1	19.1
Tonga	53.2	2018	Mitigation	IAE	29.9	23.3
Kiribati	58.1	2018	Adaptation	IAE	28.8	29.3

Table 3.1 GCF Approved Funding to the PSIDS (GCF, 2019)

3.4 Theoretical Framework for Climate Finance Allocation

It is important to note that not all climate finance is sourced from the operating entities of the UNFCCC, which are the preferred source of finance of developing countries. Preference of the operating entities of the UNFCCC is driven by the fact that the UNFCCC is founded on the notion of equity, where access to climate finance is considered as a right for developing countries and an obligation for developed countries- *polluter pay principle*. In addition, the operating entities of the UNFCCC are accountable to the COP, which decides on its policies, programme priorities and eligibility of funding (UNFCCC, 2018c). The majority of climate finance is channelled outside of the UNFCCC systems, and there is a growing concern that the legitimization of such sources has derailed the 'equity' objective of the UNFCCC. Most non-UNFCCC financing sources emphasize the use of market based instruments (i.e. profit making) to deliver climate finance to developing countries (Gichira et al., 2014).

Political and economic considerations have been identified as the major drivers for increased use of non-UNFCCC climate finance sources. Gichira et al. (2014) argued

that the international climate finance environment is contingent upon developed countries domestic politics and priorities. Domestic politics hence negatively influence the ability of developed countries to fulfil their international commitments and thus seek to pursue alternative but 'legitimate' strategies outside of the Convention (i.e. the UNFCCC) to create a perception of compliance with their international obligations.

In addition, developed countries have also prioritised economic considerations, and as a consequence have trumped the 'equity ideals' on which the UNFCCC climate finance clauses were founded upon (Gichira et al., 2014). The increase involvement of the World Bank and its network of banks to manage and deliver climate finance is a typical example of this scenario. In addition, the involvement of the World Bank and its consortiums of multinational and regional banks, creates the perception that climate financing is a lucrative economic and business opportunity because these sources primarily provide financing through profit driven instruments (Gichira, et al., 2014).

The growing use of non-UNFCCC sources by developed countries also indicate the economic perception that climate finance should be market-driven and at best be supplemented by official development aid (ODAs) (Gichira et al., 2014). This perception however clashes with that of the understanding of climate finance as per the Convention, which regards climate finance as neither an economic interest nor aid. Rather, climate finance should be 'additional and new' rights-based public funding, flowing from developed countries because of their historical pollution responsibility. In other words, equity/fairness should be at the crux of climate finance allocation and access.

Equity is best understood through the lens of justice theory, which attempts to solve the problem of distributive justice– the socially just distribution of goods (Rawls, 2009). Distributive justice stresses the principle of fairness in the distribution of goods between parties (Sen, 1995), and emphasises the outcomes and the perceived fairness of how rewards and costs are shared (Rawls, 2009). Distributive justice also considers the available quantities of goods, the process by which goods are distributed, and the resulting allocation of the goods to the members of society (Maiese, 2003). Distributive justice has been frequently referred to and perceived as relevant in the

policy discussion around the allocation of adaptation finance (Persson & Remling, 2014).

Equity is, however, a broad and politically sensitive concept, which could be interpreted and operationalized in various ways.

A number of equity principles exist that guide the allocation of adaptation finance. These principles can be generally categorised into four groups: egalitarianism (equality), prioritarianism, sufficientarianism[15], and the leximin[16] principle (Persson & Remling, 2014). While all four principles have merits in the allocation of adaptation finance (Grasso, 2010), in the context of the GCF, this study confirms that only two of the equity principles are being operationalized. These are (1) the *equality principle,* which prioritizes equal distribution of funds to countries despite circumstances (Paavola & Adger, 2006), and (2) and the *prioritarianism principles*, under which those who are worse affected by climate change are given the priority to funding (Wolff, 1998; Stadelmann et al., 2014).

These two criteria were derived from the current allocation policy of the GCF, in particular its readiness program and the special ring-fenced provisions. The criteria for accessing the readiness program mirrors that of the equality principles, where readiness support for eligible countries is capped at USD 1 million per year, with an additional cap of USD 3 million per country for adaptation planning process (GCF, 2016). Alternatively, the special ring-fenced provision exhibits the prioritarianism principle, where 50% of the total set aside for adaptation finance is reserved for particularly vulnerable countries. These two equitable criteria are also practiced by established climate funds such as the Global Environment Facility, the Adaptation Fund, the Special Climate Fund, and the Pilot Program of Climate Resilience.

[15] Sufficientarianism is concerned with inequalities as such or making the situation of the least well off as good as possible, it aims at making sure that each of us have enough. It believes that there is a limit of what we owe others in terms of distributive justice.

[16] The leximin principle comes with a utility equality preference, meaning that distributions that are most equal are preferred, regardless of the numbers involved.

These two equity principles are prevalent in the allocation of adaptation finance because developed and developing countries carry different rationales of equity (Maggioni, 2010). Maggioni (2010) argued that the equality principle reflects the argument of developed countries that there is a limit to resources that can be provided, thus, for fairness sake, all eligible countries should get an equal share (i.e. cap per country). Muller (2013) provided further support, arguing that treating all eligible countries as equal, despite their circumstances, is politically justifiable. Such distribution ensures that funding is available to all, especially the particularly vulnerable, who tend to be left out due to their chronic capacity constraints.

In contrast, prioritarianism emulates the position of developing countries, which argue the need for channelling adaptation finance to those that really need it--the most vulnerable (Maggioni, 2010). Stadelmann et al. (2014) also stressed that vulnerable countries' adaptation needs should be prioritised and should be given the bulk of adaptation finance. Such rationales are based on the unequal vulnerabilities and unequal responsibilities of countries in terms of their contribution, as well as to their sensitivity to climate change (Paavola & Adger; 2006; Grasso, 2010; Barrett, 2014; 2015).

Allocating finance on the basis of vulnerability has been strongly criticized as a political construct (Klein & Möhner, 2011; Füssel et al., 2012), difficult to measure and compare (Stadelmann et al., 2014), and subjective (Barnett et al., 2008). Barr et al. (2010), Müller (2013) and Füssel et al. (2012) have, however, proposed modified forms of 'vulnerability' that would then become the basis for allocating adaptation finance.

3.5 The Method

The exploratory scenario approach was used to illustrate possible implications of allocating the GCF adaptation finance on the basis of equity. The exploratory scenario is a useful tool in clarifying '*what can happen'* in the future (Börjeson et al., 2006). The explorative scenario is useful in situation where users have a fair knowledge on the status of an issue but is exploring the consequence of alternative developments

(Gray et al., 2016). It is used to inform strategy development and can be a tool to build robust strategies that can survive several kinds of external developments (Börjeson et al., 2006).

In line with the two equity principles discussed in Section 3.4, this study formulated four equitable allocation indicators to highlight the possible futures of an equity base allocation policy for the GCF adaptation finance to PSIDS post-2020, when the GCF is intending to mobilize as much as USD 100 billion per annum. This paper recognizes that allocation decisions are complex, value laden, and have a political dimension (Barr et al., 2010), thus its aim is to merely highlight how GCF allocation decisions for adaptation finance could be significant in relation to the PSIDS' relative to other particularly vulnerable countries.

To operationalize the equality principle, the study uses the *per-country* indicator proposed by Füssel et al. (2012) and Müller (2013). In addition, three indicators have been identified to provide the basis of comparison for the prioritarianism principle. These indicators are 1) t*he total vulnerable population of a country* (i.e. the total number of people that live below the national poverty line) (Füssel et al., 2012), 2) the physical size of the country, measured by *total land area* (Climate Investment Funds, 2009), and 3) *weighted vulnerability* (Müller, 2013). Provided below are the justifications of these allocation criteria.

A fair/equitable allocation mechanism ensures that all eligible countries receive funds on the basis of sovereign equality (Müller, 2013). The *per country* indicator argument stresses that it is fair and politically justifiable to implement a uniform cap by country in instances of extremely limited resources for building capacity and trust (Füssel et al., 2012), which is a familiar situation to PSIDS. This indicator encapsulates the idea of equity, in which no country is left behind. Data for the number of particularly vulnerable countries eligible for the GCF ring-fenced provision was derived from the UNFCCC country listing (see **Appendix B**: Table 3.2).

Alternatively, Füssel et al. (2012) argued that "*the size of the vulnerable population in a country must be a key criterion in determining fair allocations for adaptation…*"

(p.323). While debatable in nature, vulnerability in the context of Füssel et al. (2012) carries a close association with poverty. In fact, the IPCC (2014) substantiated this association in defining vulnerable populations as those that live below a pre-determined poverty line, and asserting that poor people are the most vulnerable to climate change impacts. This understanding of vulnerability is directly related to the degree of capacity and resources needed to adapt to climate change--commodities that poor people lack (Strain, 2016). This study used the data available from the 2016 World Bank database to calculate the portion of a country's population that are living in poverty. The vulnerable population criterion emphasises the *prioritarianism* principle (i.e. financing priority must be given to the most vulnerable).

The physical size of a country is also a *prioritarianism* criterion that influences donors' choice of which vulnerable countries to fund (Climate Investment Funds, 2009). This study uses a country's total land area as a proxy for physical size. Total land area has been used in a number of vulnerability studies as an indicator to assess a country's exposure to climate change (see Mendoza et al., 2014; Ezra, 2016). Moreover, land area also serves as a common basis for comparison across vulnerable countries discussed in this study. Most LDCs and African countries are land based countries and are not surrounded by large bodies of water like that of SIDS. Countries' total land area data were derived from the 2016 World Bank database.

The final selected *prioritarianism* principle is *weighted vulnerability* (i.e. vulnerability, adjusted by number of people exposed to the impacts of climate change) (Müller, 2013). This criteria is different from that of *total vulnerable population* because it is calculated using a country's total population multiplied with a vulnerability index (VI); a method proposed by Müller (2013) for allocating adaptation fund over and above a country's funding floor. As there is no universally accepted method of calculating vulnerability, the study has adopted the South Pacific Applied Geoscience Commission (SOPAC) Environment VI (SOPAC EVI). The SOPAC EVI was chosen because it covered all PSIDS, unlike other global VI indices such as the

ND-Gain index, where most PSIDS country data are not available. The SOPAC EVI calculates a country's vulnerability score and ranks countries' vulnerability as low, medium or high based on the extent to which its environment is prone to damage and degradation from natural disasters (Kaly et al., 2004). Like other VIs, it also has methodological limitations (Barnett et al., 2008).

3.5.1 The scope of equitable allocation criteria to the PSIDS

This study will limit its focus to the GCF ring-fenced provision for LDCs, SIDS, and African States, which creates the impression of special treatment for particularly vulnerable countries. However, there is a need for particularly vulnerable countries to understand the potential implications of this provision in order to avoid unrealistic expectations, and to actively contribute to the improvement of the GCF operational design.

Developing countries can engage the GCF decision making processes through their respective GCF Board representatives. A Board of 24 members who are equally drawn from developed and developing countries govern the GCF. These Board members are elected by their respective UN regional/country groupings. Samoa currently represents the SIDS (including PSIDS) interests to the GCF Board.

Ninety-seven countries (42 SIDS (UNFCCC, 2005), 40 LDCs (UNFCCC, 2014) and 15 developing African States) fit the eligibility criteria to access the GCF ring-fenced amount. Some of these countries are in multiple categories, such as Kiribati, which belongs to SIDS as well as the LDC groupings. In aggregating the eligibility number, countries were only counted once[17].

In the allocation scenario analyses, the four identified criteria were applied to apportion the USD 25 billion (assuming a USD 100 billion fund) across the 97 countries. Recognizing the difficulty in calculating the allocations for countries which belong to more than one grouping, for simplicity purposes this study counted multi-categorical countries in all the groups they belong in when estimating the funding

[17] Refer to Table 3.2 in **Appendix B** for the detail listing of eligible countries.

allocations. The scenario analyses were conducted assuming five important assumptions:

- The GCF is the primary vehicle for shifting these finances;
- The ring-fenced USD 25 billion is ready to be allocated post-2020;
- All countries are able to submit GCF-compliant applications greater than the overall GCF limit, requiring GCF to determine allocation;
- The 97 countries are eligible to access the special funding provision of the GCF.

The analysis is based on the assumption that USD 100 billion goal each year by 2020 has been achieved.

3.6 Results: GCF Allocation Scenarios

PSIDS' experiences can be compared with other identified ring-fenced groups in relation to the four allocation criteria (Figure 3.1). It is important to note that this study by no mean proposes that the PSIDS should actually receive the amount derived from these allocation scenarios; it rather wants to highlight the unpredictability of flows, especially to PSIDS, when there are no concrete and clear allocation principles.

From the outset, it is clear that the four allocation bases will significantly impact the PSIDS and the wider SIDS. While the allocation amount due to the LDCs and the African states also varies, the amount that the LDCs and African states are poised to receive under the four allocation bases ranges well above USD 257 million. The amount of USD 257 million represent what each particularly vulnerable countries will receive if the allocation was based on a *per country* basis. In the context of finance predictability, this suggests that LDCs and African states are relatively better off compared to PSIDS and SIDS, irrespective of the allocation basis used, as the possibilities of predictable finance is highly certain to these countries.

Even compared to the wider SIDS grouping, the sensitivity of the PSIDS to the allocation criteria is quite evident. The SIDS grouping consistently receives an average of USD 26 million, whether allocation were to be made on the basis of *vulnerable*

population, land-area, or weighted vulnerability. The PSIDS, on the other hand, tend to exhibit a significant degree of variation in finance flows when allocation is done on the same 3 bases. The PSIDS average allocation, when determined by *land area*, is USD 24 million. This amount decreases by 57% if allocation is done on the basis of *vulnerable population*, and 65% if allocation is done on the basis of *weighted vulnerability*. It is important to also note that the PSIDS overall data is heavily skewed by PNG which has a total population of 8.4 million.

The ratio of finances as per the 3 allocation basis increases significantly for PSIDS and the wider SIDS grouping if allocation were done on a per country basis. For SIDS, the *per country* allocation amount is on average 10 times more than the amount if allocation were to be done on the basis of *vulnerable population, land area,* or *weighted-vulnerability*. However, the range of increase varies significantly for PSIDS, with the per country rate allocation being 23 times more than the amount prescribed by the *vulnerable population* criteria, 10 times more than that of the *land area* criteria, and 29 times more when compared to *weighted vulnerability*.

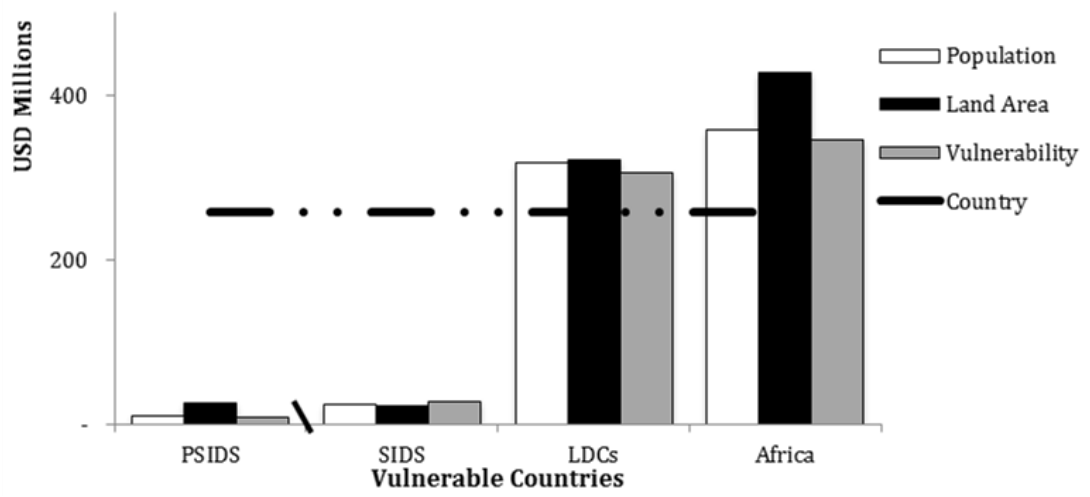

Figure 3.1 Average allocations by vulnerable country grouping

At the regional level, the impact of the four allocation criteria within the PSIDS is also quite significant across countries (Figure 3.2). If the GCF allocations were made on the basis of *vulnerable population*, PSIDS categorized as Pacific Smaller Island States

(PSIS)[18] will be the most disadvantaged, as they only account for 0.03% of the Pacific population. Niue will be most deprived PSIDS if allocations are to be done on a population basis, as it claims a total population of less than 2000 people, and is formally recognized as one of the least populous country in the world. Timor-Leste, Fiji, Solomon Islands, and to some extent Vanuatu, will experience small but significant climate finance flow due to their high population rate. PNG, the most populous PSIDS (~64% of Pacific population), stands to gain the chunk of adaptation finance in the region.

PNG is the PSIDS that will, again, benefit the most should the GCF decide to allocate adaptation finance on the basis of *land area*, as it accounts for more than 85% of the total land area in the Pacific. While other larger PSIDS, such as Timor-Leste, Fiji, Solomon Islands, and Vanuatu, might also receive significant inflow of adaptation finance, there is a 25-fold difference between the amounts they and PNG receive under such an allocation regiment. The PSIS whose combined land area only accounts 0.01% of the total land area in the Pacific will be the most penalized under this allocation criterion. Moreover, the ratio of the aggregated amount allocated to PSIS when compared to that of bigger PSIDS, is also quite substantial. Larger PSIDS could receive up to 28 times more adaptation finance under such allocation schemes when compared to PSIS. This difference increases exponentially when compared with PNG ’s allocations.

The impact of a possible allocation based on *weighted vulnerability* significantly varies amongst PSIDS when compared against their possible allocations under the *vulnerable population* and *land area* criterion. Fiji, FSM, Samoa and Kiribati each stands to receive an increase of approximately 200% in adaptation finance, when compared against the amount they could possibly receive from the *vulnerable population* and *land area* allocation criteria, while the magnitude of the increase in Tonga is just 7%.

[18] This grouping is exclusive to six Pacific Smaller Island States (PSIS): the Cook Islands, Marshall Islands, Nauru, Niue, Palau and Tuvalu. These islands are unique in the sense that they are very low lying, small, and frequently made up of atolls. PSIS is a recognized country grouping in the region.

For the remaining PSIDS, allocation using *weighted vulnerability* is less when compared to the *vulnerable population* and the l*and area* allocations. The PSIDS which would be most notably disadvantaged by the *weighted vulnerability* allocation are PNG, Solomon and Vanuatu (Figure 3.2). PNG seems to be most sensitive PSIDS under this allocation criterion, as its adaptation finance can reduce by 84% when compared against those procured based on *land area,* and a 50% reduction when compared against the *vulnerable population* allocation criterion. However, PNG's position is relatively better off under the *weighted vulnerability* criterion than the wider PSIDS category.

The *per country* allocation criteria is a definite game-changer for all PSIDS. When compared to the three allocation criteria, all the PSIDS stand to gain significant flow of climate finance, with an allocation of USD 257 million per country. With the exception of the amount available to PNG under *land area* allocation guidelines, the difference between funds provided based on the *per country* allocation and *vulnerable population* or *weighted vulnerability* is quite significant across PSIDS. For example, Fiji stands to gain 17 times the amount of climate finance on a *per country* basis compared to the *vulnerable population* criterion, 19 times when compared to allocation by *land area,* and 10 times when compared to *weighted vulnerability* allocations. These ratios are much higher for the remaining PSIDS, especially for PSIS.

To surmise, Figure 3.2 clearly depicts a high degree of climate finance flow variation to all PSIDS under each allocation criteria. It indicates the high sensitivity level of the PSIDS to the possible allocation criteria, which are done on the basis of *vulnerable population, land-area, weighted vulnerability,* and a *per country* criterion. While PNG, Fiji, Solomon, Timor-Lester and Vanuatu are frequently in a much better position to leverage these allocation criteria than PSIS, the amount they could receive still varies significantly depending on the allocation criteria used. Allocations to PSIS are significantly less when compared to other PSIDS, but could experience large and predictable scale finance if allocation were done on a *per country* basis.

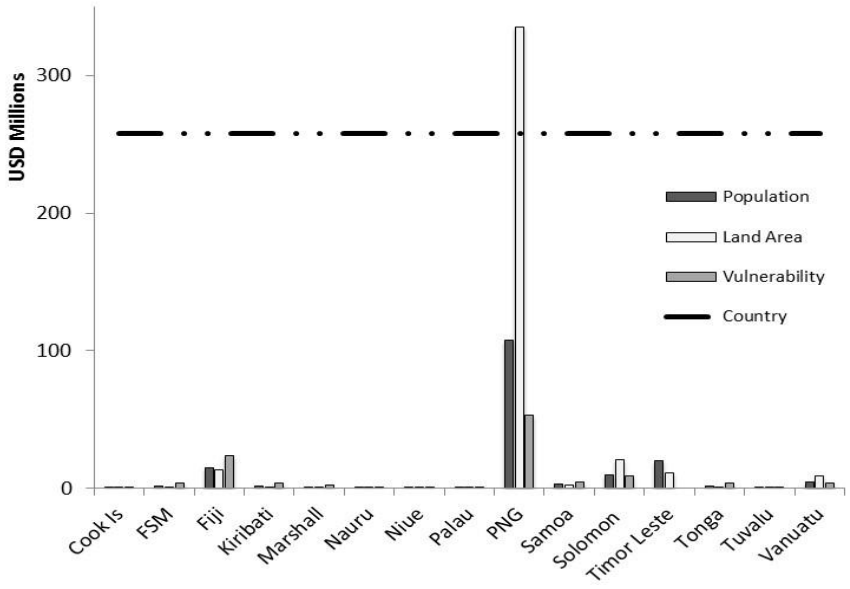

Figure 3.2 PSIDS share if the GCF ring fenced amount is allocated by Population, Land Area, Weighted Vulnerability and a Per Country basis.

3.6.1 The effect of GCF finances on existing finance flows

The impact of the GCF on the existing scale of PSIDS adaptation finance flows was also examined using the 2016 Organization for Economic Co-operation and Development (OECD) data. The OECD database comprehensively tracks the by-country climate finance flow to all developing countries. In computing the effect, the OECD adaptation flow was calculated as a ratio of the finance figure derived from this study's post-2020 allocation criteria. Ratios 1> indicate that the GCF allocations will have an impact on current level of financing. While the 2016 flows are not fully comparable to the GCF 2020 flow prediction, the aim is to identify the significance of the GCF instrument compared to existing climate finance targeted at adaptation, rather than make any precise comparisons.

If the GCF allocation is done by *vulnerable population*, the existing adaptation for 80% of PSIDS do not surpass the ratio of 1, suggesting that the level of finance PSIDS will receive might be no greater than what they have already received for adaptation in 2016 (Figure 3.3). Only 3 PSIDS, PNG, Fiji and the Marshall Islands, are poised to experience more than 100% increase in existing finance (i.e. double the existing

amount). PNG stands to gain more than 5 times their existing adaptation finance should allocation be done on the basis of *vulnerable population.* However, existing adaptation finance of PNG stands to increase 16 times if allocation is done on a total *land area* basis.

PNG, Fiji and the Solomon Islands existing adaptation finance will be more than double when the *weighted vulnerability criteria* is used. PNG will benefit the most among the PSIDS, with an increase of 6 times more in existing adaptation finance. FSM, Samoa, Marshall Islands, Kiribati, Tonga, and Vanuatu are likely to also experience an increase in their adaptation finance. The PSIS would not experience a significant increase in their existing adaptation finance, possibly largely attributed to the minimal amount of adaptation finance they have been receiving, and also to their small population base.

On a *per-country* allocation, the existing adaptation finance across most of the PSIDS increases significantly. For Nauru this increase is projected to be 600 times greater than 2016 levels. The degree of funding will also increase significantly, if not quite so radically, for non-PSIS countries, with an average increase of 10 times 2016 levels on a *per country* basis.

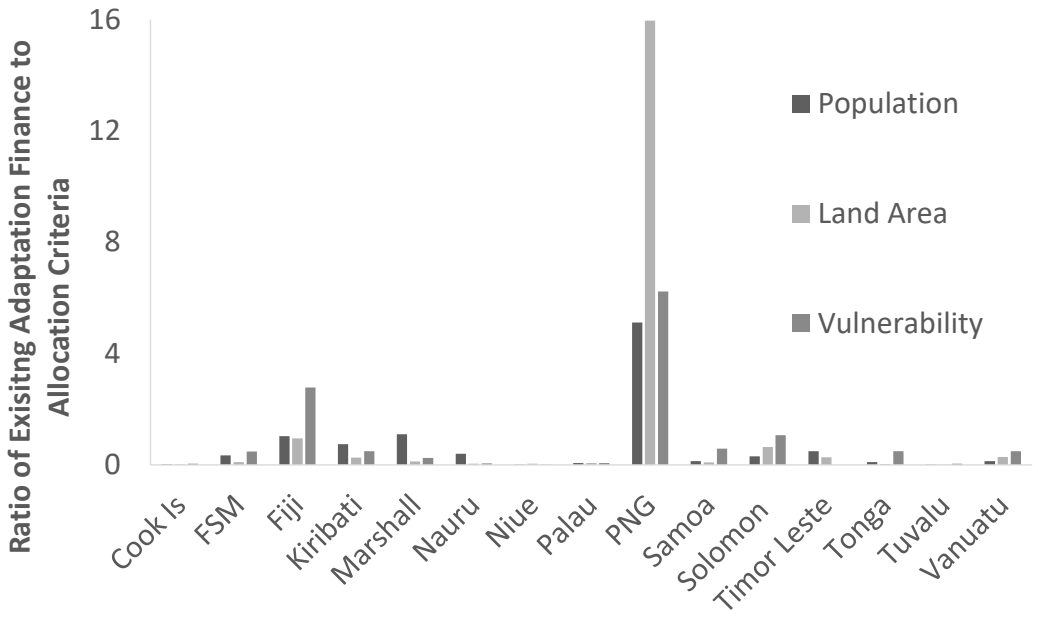

Figure 3.3 GCF ring-fenced allocation taken as a ratio of the PSIDS existing adaptation flow

The impacts of the proposed allocation criteria for particularly vulnerable countries' development are summarised in Figure 3.4. To highlight the sensitivity of the four allocation criteria to a country's development status, this study calculated the maximum and minimum allocation across each criteria, and then computed the ratio. The ratio was then graphed against the country's 2016 gross national income (GNI).

.

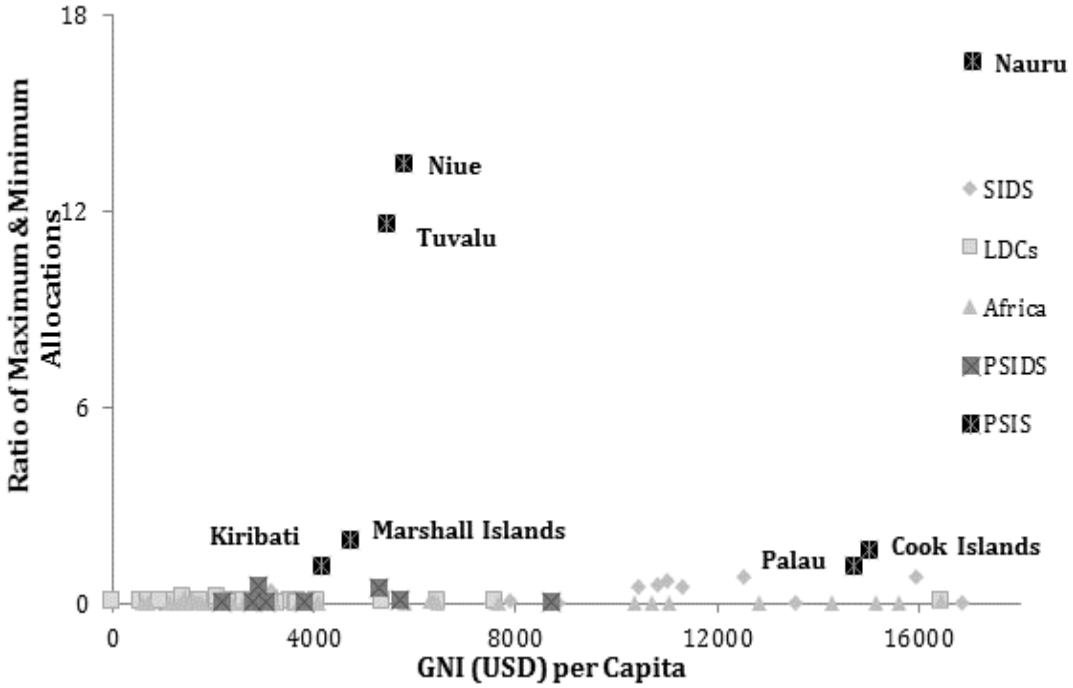

Figure 3.4 Ratio of maximum and minimum allocations across the GNI of vulnerable countries

The potential financial flows (Figure 3.4) are more stable across the LDCs and the African States. This seems to suggest that even though LDCs and most of the African states are fairly poor, the potential amount that they stand to gain from any potential GCF allocation criteria will be more predictable compared to the SIDS. The data also suggest that PSIDS are more sensitive to allocation criteria, despite their relatively affluent economies. PSIS are most sensitive to potential allocation criteria of the GCF. PSIDS' high reliance on external support suggests that the GCF allocation criteria really matter in their development context, and this dependence is even more critical in the context of PSIS. The potential of the GCF to support adaptation endeavours is thus much more uncertain for PSIS.

3.7 Discussion

While GCF readiness initiatives are highly resonant as the Fund mobilizes towards 2020, enough countries will eventually establish access channels and become conversant in the access process that the GCF is likely to be oversubscribed and will need to address allocation issues. The analyses outlined above are indicative scenarios,

based on justifiable allocation procedures to help identify the significance of future GCF adaptation flows to the Pacific region.

For the GCF, finding equitable and fair criteria by which to allocate adaptation finance in a manner to satisfy all the particularly vulnerable countries will be difficult. At the international level, equitable criteria based on the prioritarianism principle will favour larger, populous LDCs and African States relative to the SIDS, especially PSIDS. This trend is also reflected at the regional level, where the finance allocations are likewise skewed towards more populous and bigger PSIDS. Only the per country allocation scheme (the fund distribution plan most in line with the equality principle) seems to guarantee that predictable adaptation finance will flow to all PSIDS.

The analyses also identify PSIDS as being very sensitive to any allocation criteria by the GCF.. Depending on the allocation criteria adopted by the GCF, the existing climate finance flow to PSIDS could be significantly scaled-up, or remain insignificant compared to existing flows. The outcome is likely to have serious implications on their resilience development pathways.

Accessing the GCF ring-fenced adaptation fund is further complicated as the 15 PSIDS will have to compete with 82 other countries, many of which have a good track record in securing funds from global public sources. In a competitive funding environment, PSIDS are more likely to come second best, as the existing goal of the GCF emphasises the need for '*paradigm-shift'* oriented projects (GCF, 2016), implying that it will still prioritise the quality of the funding proposal over the country's circumstances. More importantly, since the GCF is itself not an 'endless' source of climate finance, the possibility of countries' need (i.e. vulnerability) being overlooked for the quality of the funding proposal is high. With shortages of local personnel who specialises in writing and designing quality funding proposals in the Pacific, the ability of PSIDS to effectively compete for such funding is rather limited. The vulnerability of PSIDS will be further exacerbated because they face greater risk from being disadvantaged by the GCF scenario allocation, and also their limited capacity to submit competitive proposals will further jeopardise their chances to secure finance from the GCF.

The allocation criteria analyses also conclude that the GCF special provision does not actually translate to special treatment. While the intention behind the creation of such a provision is well-founded, critical assessment implies that the most vulnerable groups are being coerced to compete for only 25% of the fund, while bigger developing countries continue to access the bulk of the GCF funding.

Demand for adaptation finance among PSIDS is increasing. Apart from the GCF, the main source of adaptation finance in the Pacific is bilateral in nature (Atteridge & Canales, 2017). While evidence indicates an increase of adaptation flows from bilateral sources (Weiler et al., 2018), others have argued that the increase has been small and still inadequate relative to PSIDS' needs (Betzold, 2016c). There is also a real risk of adaptation finance flows from bilateral sources being scaled back due to the political dynamics at play in the region. Bilateral sources to the Pacific is limited, with Australia being the dominant donors (Atteridge & Canales, 2017; Betzold, 2016c). Bilateral relationship is based on goodwill (largely from the donors' side) and thus funding is not guaranteed. Australia because of domestic interest for example has been scaling back its bilateral assistance in the Pacific over the years, re-focusing its climate related aid in East and Southeast Asia instead (Betzold, 2016c). If such trend continues, adaptation flows to PSIDS will become highly volatile in the future, further exacerbating their vulnerability in the process.

3.8 Conclusion

From the outset, the GCF has the potential to address the current 'access' conundrum PSIDS face given the existing climate finance architecture. However, the GFC still must address the significant question of how it will allocate post-2020 funding, especially among particularly vulnerable countries. There is a critical need for such discussion, as many developing countries are currently prioritizing achieving national accreditation in order to be eligible for such funding, but paying little attention to post-2020 allocation realities.

PSIDS stand out as being very sensitive to how the GCF will determine post-2020 allocation. Apart from a per-rate per country, any equitable allocation criterion with

reference to population, land area, or vulnerability seems to indicate that the predictable finance promises of the GCF will be highly uncertain, as larger, populous vulnerable countries' needs take precedence. Strengthening institutional capacities will be an up-side for PSIDS in pursuing direct access to the GCF. At the same time, the vague allocation policy of the GCF and its competitive funding oriented criteria raises legitimate questions about whether pursing a NAE is worthwhile for PSIDS, especially the PSIS.

To reduce the uncertainty associated with the post-2020 GCF climate finance flow, this study strongly recommends PSIDS, along with other SIDS, to push for a uniform country cap floor within the GCF ring-fenced provision. This demand is critical, as it addresses additional core attributes of climate finance, which are adequacy and predictability.

To conclude, the GCF *special ring fenced provision* for adaptation funding is less "special" for PSIDS than other SIDS, LDCs, and African States. The uncertainties of the broad GCF allocation policy for PSIDS could undermine the trajectory of national endeavours to build resilience against climate impacts. Indeed, it is the most vulnerable of the PSIDS, the PSIS that have the greatest uncertainty in GCF allocation. While many sceptics hold that mobilising adaptation finance for the PSIDS is a lost cause, and that the money should be spent in possible relocation initiatives, relocation initiatives specifically migration has been argued by leaders of the PSIDS as a last resort (The Republic of Kiribati, 2018). As the common saying during COP negotiations goes, "*if we save Tuvalu, we save the World*" (SPREP, 2014), the survival of the Pacific is the benchmark of the global fight against climate change. Thus, for the sake of humanity and dignity, the Pacific should be accorded the ability to access adequate resources under whatever allocation regime the GCF pursues.

Chapter 4

Financing the Nationally Determined Contributions: A Case Example from Fiji

4.1 Introduction

The landmark 2015 Paris Agreement heralded in a new era of global climate change governance. The Paris Agreement established an ambitious target to limit the rise of global temperature to below 2^0C above pre-industrial level and to encourage efforts to limit the increase to below 1.5^0C (UNFCCC, 2015). Critical to the achievement of this goal are Nationally Determined Contributions (NDCs). The NDCs communicate countries' (Parties to the Paris Agreement) pledges/contributions towards the Paris Agreement goals of emission reductions and resilient development. NDCs are regarded as the heart of the Paris Agreement because they represent the framework which countries will use to align their domestic climate change efforts with those of Paris Agreement's overall objectives (UNFCCC, 2015).

To date, 170 Parties have submitted their first NDC to the UNFCCC, with investment in renewable energy (RE) being central (UNEP, 2016a; UNFCCC 2016a; Hare et al., 2017; IRENA, 2017; UNFCCC, 2018). Eighty six percent (86%) of submitted NDCs have explicitly identified investment in RE as either a mitigation or adaptation strategy, with 64% of the Parties including some form of quantifiable RE targets in their NDC (IRENA, 2017). Energy production and use accounts for two thirds of the world's greenhouse gas (GHG) emissions (IEA, 2015) thus, the heavy emphasis on RE investments indicates that the transformation of the energy sector will be essential to achieving the objectives of the Paris Agreement (IRENA, 2017).

However, the lack of financial resources to accelerate the implementation of the NDCs and induce the scaling-up of current contributions is a cause of global alarm (Weischer et al., 2016; UNEP, 2016b; Cooke et al., 2017). It is estimated that the current shortfall of existing NDC targets will result in a rise of global mean temperature to 3.4^0C, and as a consequence, exacerbate the cost of addressing future climate change impacts

(UNEP, 2016b). Many developing countries are concerned because their NDCs are closely intertwined with their overall national sustainable development (Goundar et al., 2017). The rate of developing countries emissions is rapidly increasing and forecasts indicate that it will soon outpace those of developed countries (Marchal et al., 2011; Center for Global Development, 2015; EIA, 2016). The unsuccessful implementation of developing countries NDCs will not only hinder the global efforts against climate change, it will also have severe negative economic and social implication globally, exacerbating the situation of the most vulnerable communities in the process (UNEP, 2016b).

There is also growing uncertainty regarding the scale and the predictability of available climate financing opportunities in the future (Oxfam, 2015; OECD, 2016; Selin, 2016; UNEP, 2016b; Markandya et al., 2017). This financing uncertainty is driven largely by the realities of the global political environment such as the withdrawal of the United States of America – a major donor to the UN system (Zhang et al., 2017) – from the Paris Agreement as well as the vagueness of the Paris Agreement's language regarding the mobilization of climate finance globally (Oxfam, 2015; Selin, 2016). While developed countries have reaffirmed their commitments to take the lead in mobilizing up to USD 100 billion each year by 2020 in the Paris Agreement (see Decision 1 CP/21 para 53), they, however, did not commit to individual financial target. Rather, developed countries will voluntary decide how much climate finance they will provide, over what time period, in what form, as well as through which channels, to developing countries (Selin, 2016).

The lack of concrete assurance from developed countries on the frequency, the form as well as the delivery channel to be used, is creating uncertainty on the predictability of climate finance flows (Selin, 2016). This financing uncertainty undermines the abilities of developing countries especially small developing countries such as the Small Island Developing States (SIDS) who are challenged with severe chronic resource limitations, and heavy reliance on external climate finance to implement their NDCs (Briguglio, 1995; OECD, 2015b; Betzold, 2016a,c; Atteridge & Canales, 2017). These countries must now rethink strategies of attracting and mobilizing new and

innovative sources of climate finance that can provide sustainable support for the implementation of the NDCs, specifically the transformation of their energy sector.

Private financing has been advocated as the panacea for the shortfall and the uncertainty of NDC financing (Mathews et al., 2010; Pauw, 2015; Pauw et al., 2016; World Economic Forum, 2016a; IRENA, 2017). The two major factors that drive the focus on the private sector are firstly, the private sector is the custodian of a large pool of capital which could be directed towards climate change activities (UNEP, 2014; Buchner et al., 2017). The market value of assets, corporate and government bonds, and loans managed by the global financial sector alone has an estimated worth of USD 225 trillion (UNEP, 2014). Secondly, private finance has catalytic properties that could effectively scale-up the 'reach' and the scope of influence of public financing (UNEP, 2014; Mason, 2015; World Economic Forum, 2016a).

Strategies on how to mobilize private investments specifically the domestic private sector towards RE investments are well established (Zhang & Maruyama, 2001; Lin & Streck, 2009; Stewart et al., 2009; Mathews et al., 2010; Bowen, 2011; Patel, 2011; GIZ, 2016). The involvement of the domestic private sector in countries' development efforts is an important bulwark against the 'resourcing curse' plaguing many developing countries (Luong & Weinthal, 2010). While foreign private investments flowing to host countries is beneficial in speeding up economic growth and development, the domestic private finance has a much greater multiplier/catalytic effect (i.e. 2-5 dollars in additional domestic private investment for every direct USD 1 invested (The World Bank, 2015b), underscoring the need to strengthen the participation of the domestic private sector in the energy sector (Kalu & Onyinye, 2015).

However, the suitability and the success of strategies that stimulate the domestic private sector in the energy sector has been a 'mixed bag' across developing countries because of the heterogeneous nature of countries' climate change and economic context (Weisser, 2004; Dornan, 2011; Pauw, 2015; Dornan & Shah, 2016).

The aforementioned scenario is true for SIDS, whose circumstances are recognized as special and unique (Briguglio, 1995; Nurse et al., 2014; Keeley, 2017). It is a

continuous challenge for SIDS to mobilize the domestic private sector towards RE investments (IRENA, 2015a). Efforts to strengthen SIDS abilities to mobilize domestic private finance has been ongoing, but with limited success (Mason, 2015; IRENA, 2015a). It is critical for SIDS to re-examine strategies on how to effectively mobilize innovative investment sources such as domestic private sectors towards their NDCs, to achieve some of the most ambitious energy targets intrinsically linked to their development which they have submitted (Goundar et al., 2017). The ambitious energy targets of SIDS do not only reflect their high vulnerability and dependence on external climate finance, but also highlight the need to amplify their privilege position as the moral compass on the global fight against climate change (Dornan & Shah, 2016; Michalena et al., 2018). Given the scarcity and the uncertainty of external climate finances on the international stage, SIDS have much to lose (i.e. politically and economically) if they are not successful in attracting private finance to complement their efforts in implementing their NDCs.

Using the case of Fiji, this chapter will explore potential resource mobilization strategies that could be adopted to unlock the potential of the domestic private sector to finance RE investments. The NDC resourcing roadmap presented in this chapter serves as guidance to SIDS on how best to use external public finance to leverage their domestic private finance to achieve their NDC objective. The resourcing framework advanced by this chapter was developed through the use of the normative scenario analysis technique.

This chapter is structured into six sections. Section 2 provides a review of the NDC literature with a special focus on the Pacific. Section 3 then outlines the case of Fiji as the context of this study. Section 4 presents the methodology as well as the results. Section 5 discusses the findings. Section 6 then concludes the chapter.

4.2 Literature Review

4.2.1 The NDC and the Role of Domestic Private Sector

The concept of the NDCs emerged during the 19th United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) in 2013

in Warsaw. Building on from the negotiations under the Ad-hoc Working Group of the Durban Platform for Enhanced Actions (ADP), the COP, through its decision 1/CP.19, invited all Parties to initiate and intensify their domestic preparations for their Intended Nationally Determined Contributions (INDCs) towards achieving the long-term objective of the UNFCCC as set out in Article 2; "*…the stabilization of greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interferences with the climate system*…" (UNFCCC, 1992: §2) in preparation for a new climate agreement post 2015 (i.e. COP 21). The INDCs were to be prepared without prejudice to any formal agreement, and were to be communicated well in advance of COP 21 in 2015 to the UNFCCC Secretariat. The INDC was regarded as the primary vehicle on which a new climate regime was to be achieved (Hedger & Nakhooda, 2015). All Parties to the COP were mandated to submit an INDC, however, little guidance regarding the structure of the INDC was provided (see decision1/CP.20) resulting in varying types of INDC being submitted. (UNFCCC, 2016).

In the build up to COP 21, the aggregate assessment of the submitted INDCs revealed that not only does a contribution gap (i.e. emission targets) exist, but a resourcing gap as well (i.e. financial commitments), to finance the implementation of the global INDCs (UNEP, 2016b). Determining the precise amount of climate finance needed for the INDC is difficult because climate finance is still a very contentious issue within the UNFCCC (Nakhooda et al., 2013; Dimitrov, 2016). Figures tend to differ according to the accounting method used. The Global Green Growth Institute (GGGI), in an attempt to quantify the NDC resourcing gap, argued that current climate finance shortfall for the next 15 years (i.e. for both mitigation and adaptation) is USD 2.5-4.8 trillion (Plunkett et al., 2016). Put within the context of the USD 100 billion climate finance goal which developed countries have agreed to mobilize every year by 2020, bridging this gap will require an additional USD 66.7-220 billion per year. To date, 170 parties out of the 197 parties to the UNFCCC have ratified the Agreement (UNFCCC, 2018b), transforming their INDC to an NDC: indicating that the *intention* has now become a *concrete* commitment.

The global NDCs targets are heavily biased towards investments in RE initiatives (UNEP, 2016a; UNFCCC, 2016; Hare et al., 2017; IRENA, 2017). Delivering on these national energy targets is a priority for developing countries that are party to the Paris Agreement (UNEP, 2016b; IRENA, 2017). Investments in the energy sector are to be channeled from a variety of sources, with private sector finance (including from the domestic private sector) being earmarked to play a dominant role (Pauw, 2015; IRENA, 2017). The private sector in general presides over a large pool of capital which can be directed towards climate change initiatives (UNEP, 2014). In addition, private sector finance has catalyzing properties, and in the right environment a given amount of public finance could leverage 3-15 times the amount of commercial financing (Maclean et al., 2008; World Economic Forum, 2016b). Current estimates indicate that private finance accounts for 63% of the total climate finance mobilized between 2015 and 2016 (~ USD383 billion) (Buchner et al., 2017). Experts are concerned that current efforts to attract private sector investments is inadequate as the bulk of global private sector investments are still geared towards fossil-fuel infrastructure investments, and thus argue that more needs to be done to stimulate and shift private financing towards the NDCs (Callaghan, 2015; CCST, 2015; Plunkett et al., 2016; Buchner et al., 2017).

The global trend in RE investments for the private sector revealed that the majority of private sector actors prefer investing in domestic RE projects (IRENA & CPI, 2018). Evidence indicated that the primary portion of global private sector investments (93%) in RE from 2013-2016 were domestic in nature, and that a significant portion of public investments (~65%) remained in the country of origin (i.e. donor countries) due to the strong domestic investment preferences (IRENA & CPI, 2018). These global trends underscore the critical role of domestic private sector finance in RE. Domestic private sector investments also tend to have more catalyzing power and influence compared to foreign private investments (Acemoglu & Robinson, 2012; Kalu & Onyinye, 2015). The rate of RE penetration also increases in-country if domestic private sectors are involved (Michalena & Hills, 2018) because of their localized knowledge of the investment environment and also because they have a much higher stake and interest in successful national projects (including RE projects) (Kalu & Onyinye, 2015).

Having the right investment environment is a key pre-requisite for attracting domestic private investments towards RE (Levin et al., 2015; Pitt & Blandford, 2017; UNFCCC, 2017). The private sector is largely motivated by profit, and thus seeks a market-rate of return when investing in climate change related opportunities. Key conditions identified as determinants of domestic private investments in a country include quality infrastructure, a stable political environment, strong legal systems, macroeconomic stability, readily available skilled labor and good institutions (Keeley, 2017). Significant financial support have been channeled to developing countries to create and strengthen their investment environment. Support is delivered in the forms of *readiness support* (see Chapter 2 of this thesis), which specifically targets the strengthening of developing countries' capabilities to access climate finance from multiple sources including those of the domestic private sector (Nakhooda, 2012; Brown, 2013; Samuwai & Hills, 2018).

The majority of the readiness initiatives that target the mobilization of domestic private investments towards RE usually revolves around three main areas. These are 1) financial policies and regulations, 2) fiscal policy levers and 3) direct public finance interventions (Venugopal & Srivastava, 2012; GIZ, 2014; GIZ, 2016). Financial policies and regulations are critical in removing barriers to investments, real and perceived risks, insufficient returns on investments, capacity and information gaps, competing development priorities as well as other institutional barriers (GIZ, 2016; Climate Transparency, 2017). Fiscal policy levers such as subsidies, tax credits, carbon taxes also play a critical role as they incentivize a change in investments decisions and consumer behaviors toward RE (Climate Transparency, 2017) while direct public interventions (i.e. concessional and non-concessional finance) delivered through instruments such as loans, equity investments and de-risking instruments can stimulate innovation, mainstream new technologies, build capacity, support research and development, as well as remove market failures (Venugopal & Srivastava, 2012; Taibi et al., 2016; Climate Transparency, 2017). Strengthening these elements is essential as they have proven successful in removing investment barriers which hinder domestic private investment in RE in developing countries (GIZ, 2014; GIZ, 2016).

The special and unique circumstances of SIDS are the main barriers that explain why domestic private sector investments in RE are limited (IRENA, 2015a). In some cases, some SIDS are so small that a domestic private sector is non-existent (Hezel, 2012). SIDS' respective governments and most importantly their donors have been mobilizing significant resources to prepare the investment environment of SIDS by employing strategies that have been proven to be successful in other, larger and more affluent countries (Dornan & Shah 2016; Atteridge & Canales, 2017). Yet, to date, domestic private sector participation in the energy sector of most SIDS has been minimal (OECD, 2015a, IRENA, 2015a; Dornan & Pryke, 2017). The limited success of initiatives designed to mobilize domestic private finance in SIDS therefore necessitates a re-think on current financing strategies in light of SIDS' growing need for more sustainable source of finance to meet their ambitious RE targets encapsulated in their NDCs.

4.3 The Case of the Republic of the Fiji Islands' NDC

Fiji's NDC serves as the main focus of this chapter. Fiji is an archipelago of more than 300 islands. Like other PSIDS, Fiji shares their special and unique challenges that increase their vulnerabilities to the impact of climate change (Briguglio, 1995; Nurse et al., 2014). Fiji is very vulnerable to sea level rise and natural disasters such as cyclones, flooding, and drought made worse by climate change (Carrozza, 2015). In 2015, Fiji became the first country in the world to relocate a coastal community to higher grounds as a direct result of sea level rise. The estimated economic cost of Fiji's first relocation initiative was USD 440 thousand (Atkin, 2014). Future projections indicate that with the current trajectory of sea level rise, more than 45 of the 800 Fijian coastal communities face the reality of inundation in the next 5 to 10 years (Chandra, 2015; McNamara & Des Combes, 2015). With natural disasters alone, Fiji has experienced more than 30 tropical cyclones (TC) from the 1970-2016, of which 74% were classified as Category 3 and higher. In 2016, Fiji was a victim to a category 5 TC; Winston. TC Winston was the 2nd strongest land falling cyclone in recorded history of the southern hemisphere (NASA, 2016). It resulted in 44 deaths and a total economic cost of USD1.4 billion (Tuilevuka, 2016). Future forecasts indicate that the severity of TCs in the region will intensify due to climate change (IPCC, 2014).

Fiji was selected as a case study for two primary reasons. Firstly, Fiji's expanding economy and active domestic private sector makes it an ideal context of studying private sector financing. Fiji's economy is considered to be one of the largest, and most developed in the Pacific region (Hezel, 2012; The World Bank, 2017b). Based on its strong economic performance and potential, Fiji has been identified as the only PSIDS that stands a better chance relative to other PSIDS, of reaching its full development potential (i.e. to be self-reliant) (Hezel, 2012). Fiji's economy has made a significant turnaround since 2010 under a government strongly committed to reform. That period saw Fiji experiencing one of the few episodes of sustained growth in its post-independence economic history, averaging 3.3% annually or nearly four times the average growth during 2000–2009 (ADB, 2015). Its national elections and return to democracy in 2014 have boosted domestic investor sentiment, with future growth been forecasted because of the attractive financial levers being offered to investors, growing public investments, higher tourist arrivals, low interest rates and sound external financial position (ADB, 2015).

While the performance of Fiji's private sector pales in comparison to global average (ADB, 2008; World Economic Forum, 2017), relative to other PSIDS, Fiji's private sector is considered to be more vibrant, stable and profitable (Sharma, Roca et al., 2014), and contributed 20% of Fiji's GDP in 2017 (CIA, 2017). The private sector which consist of the tourism sector, industries and the financial sector, is the primary driver of the largest economic sector in Fiji (Investment Fiji, 2017a). Tourism is Fiji's highest performing sector, directly contributing 17% to GDP (World Travel & Toursim Council, 2017). The direct GDP contribution of the industry and the financial sector is estimated at 14% each (CIA, 2017). Fiji's financial sector is heavily bank-centric with six commercial banks, 5 of which are international (Sharma et al., 2014). Fiji has a national development bank i.e. the Fiji Development Bank (FDB), which has gained accreditation to the Green Climate Fund (GCF). Fiji is also one of the only two PSIDS that has a functioning stock market with an estimated market capitalization of FJD 1.3 billion (SPSE, 2016).

Efforts by the Government of Fiji (GoF) and most importantly its donors to shift and mobilize the domestic sector resources towards RE investment have witnessed limited

success (The Government of Fiji, 2015; IRENA, 2015b; Michalena & Hills, 2018). Fiji's domestic private sector, despite its 'vibrant' status, is still largely absent from the national effort to transform the energy sector (Dornan, 2014a; Dornan, 2015; The Government of Fiji, 2015; IRENA, 2015b; Prasad et al., 2017). *So why then are investments in RE not easily forthcoming from Fiji's domestic private sector?* A study by the Asian Development Bank (ADB) highlighted that the key challenge for Fiji now is to create an investment environment conducive to greater domestic private sector activity so Fiji can not only sustain its growth momentum and but also to make its growth more inclusive (ADB, 2015). In line with this argument, this chapter will explore strategies that will promote inclusive growth with the context of RE, by identifying the critical resourcing constraints that the GoF and its donors need to address to strengthen investor sentiment even further so that it can effectively contribute to the achievement of Fiji's energy targets.

The second justification for selecting Fiji as the case study, relates generally to the lack of NDC specific studies on SIDS because the NDC phenomenon is still relatively new (Dornan & Shah, 2016; Oko, 2016; Michalena et al., 2018). Exploring such phenomena from the lens of countries with negligible emission footprint can make a meaningful contribution to the current discussion on how global NDCs can be effectively implemented, as it offers a unique dimension of the challenges different Parties are confronted with in trying to comply with the new climate change regime. Moreover, in the light of growing uncertainty about the availability of international climate finance (Oxfam, 2015; OECD, 2016; Selin, 2016; UNEP, 2016b; Markandya et al., 2017), shedding light on the situation of particularly vulnerable countries such as Fiji, is critical to ensure that scarce external public climate finance being mobilized for the purpose of transforming economies to a low carbon development pathway are strategically utilized to ensure that not only will the NDC objectives be achieved, the efforts of low carbon transformation will also be sustainable in the long run.

4.3.1 Fiji's NDC: The Road to 2030

In its NDC Implementation Roadmap[19], Fiji has set an ambitious target of reducing the business as usual (BAU) emission trajectory of the electricity sector by 30%. It aims to achieve this by pursuing a two prong approach in which 10% will be through economy wide investment in energy efficiency, and 20% will be achieved through a radical transformation of its current grid-based electricity sources to be 100% sourced from RE. Of the 30% BAU reduction, the GoF anticipates unconditionally achieving 10% using domestic national resources, while 20% will be conditional on the receipt of significant means of implementation and support from other sources (Ministry of Economy, 2017b). Fiji's NDC implementation Roadmap has been approved by the GoF as the 'working' document that will guide Fiji's climate change efforts towards 2030.

4.3.2 Electricity: The Low Hanging Fruit

The electricity sector has been identified as the main target for de-carbonization in Fiji's NDC. Electricity is regarded as the low hanging fruit for low carbon transition in the Pacific (Goundar et al., 2017), and identified as a high economic priority in notable regional agreements and declarations[20] which Fiji is party to prior to the Paris Agreement. Fiji's current energy mix consists of 53% hydro, 45.5% diesel and heavy fuel, 0.39% wind, with the remaining 1.1% supplied by Independent Power Producers (IPPs) (FEA, 2016) and is concentrated on meeting grid-based electricity demand in urban areas (IRENA, 2015b; Betzold, 2016b). Fiji is still highly dependent on imported fossil fuel to sufficiently meet its electricity and its overall energy need (IRENA, 2014, 2015b; Dornan, 2015), and does not possess any established oil reserves. Evidence indicates that Fiji's fuel imports accounts for 14-17 % of GDP, a

[19] Fiji NDC Implementation Roadmap 2017-2030 was launched during COP 23. It offers a more detailed and revised outlook of how Fiji plans to implement its NDC when compared to the original its 2015 INDC submission.

[20] This include the 2005 Mauritius Strategy for the further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, the 2012 Barbados Declaration on Achieving Sustainable Energy for All in Small Island Developing States (SIDS) and the 2014 SIDS Accelerated Modalities of Action (SAMOA) Pathway.

percentage relatively higher than in other PSIDS (Dornan & Jotzo, 2012; Juswanto & Ali, 2016). Fiji's annual spending on fossil fuels is estimated to be USD 310 million per annum (IRENA, 2015b); of which 22% is dedicated to generating grid-based electricity (FEA, 2016).

The burdensome cost of imported oil threatens the successful achievement of Fiji's sustainable development and poverty eradication goals, as it diverts significant national resources needed for other critical development initiatives such as health, education and infrastructure (IRENA, 2013, 2015b; Dornan, 2015; Mason, 2015; Timilsina & Shah, 2016). Unlike the NDC of other developing countries where RE is regarded as a primary mitigation initiative, investments in RE for Fiji is motivated by reasons that span economics, geopolitical, health and livelihood resilience, with energy security and poverty alleviation being highlighted as the two key objectives (Dornan & Jotzo, 2015; IRENA, 2015a; Michalena et al., 2017). In other words, investment in RE in Fiji is both a mitigation and a resilience building initiative that is not only critical in reducing its vulnerability to climate change but most importantly vulnerable to external market shocks (Dornan & Jotzo, 2015).

Factors that impact the RE investment environment are well established in literature. While suggestions tend to vary according to study context and the nature of RE technology being studied (see Milčiuvienė & Paškevičius, 2014; GIZ, 2016; Keeley, 2017; Hu et al., 2018; Johansen & Emborg, 2018; Michalena & Hills, 2018), they could be broadly categorized under three underlying themes: 1) financial and regulatory frameworks, 2) institutional capacity and 3) fiscal policy levers (Venugopal & Srivastava, 2012; Climate Investment Funds, 2014). Financial policies and regulations are critical in removing barriers of investments, real and perceived risks, insufficient returns on investments, capacity and information gaps, competing development priorities as well as other institutional barriers (GIZ, 2016; Climate Transparency, 2017). Institutional capacity plays a critical role in providing clarity and transparency in RE information as well as technical support to deal with the complex issues surrounding RE technologies (Climate Investment Funds, 2014), while fiscal policy levers such as feed in tariffs, subsidies, tax credits, carbon taxes influence

changes in investments decisions and consumers' behaviour toward RE (Venugopal & Srivastava, 2012; Climate Transparency, 2017).

While the above factors are recognized as relevant and critical to Fiji, the four main fundamental elements consistently highlighted as particular to Fiji's RE investment environment relates to the unfavourable climate of investment for private sectors, the inadequacy of the feed in tariff rate offered by the state utility (i.e. Fiji Electricity Authority (FEA) now known as Energy Fiji Limited), the lack of a clear and transparent regulatory framework for private generation and supply services, and the lack of a coherent credible publically available data on RE investment opportunities (ECA & SMEC, 2013; ADB, 2017a; The Government of Fiji, 2015; IRENA, 2015b; Michalena & Hills, 2018). These context specific factors have been the main drivers for the negligent uptake of incentivized RE installation by domestic private sector suppliers as well as the initiation of RE technologies by the domestic private sector companies (Michalena & Hills, 2018).

4.3.3 Fiji's Current NDC Investment Strategy

Fiji will need an estimated USD 2.95 billion to fully implement its NDC by 2030 (Ministry of Economy, 2017b). The enormity of the scale of investments required for the NDC outpaces Fiji's current ability to finance the change envisioned. As a consequence, the GoF has conditioned the overall success of the NDC on the receipt of USD 1.67 billion of external support (Ministry of Economy, 2017b). However, given the financing gap, the high uncertainties of climate finance availability post-2020, and the continuous challenge of accessing climate finance faced by PSIDS like Fiji (Samuwai & Hills, 2018), the role of the domestic private finance in complementing and catalyzing the amount of limited external public finance which might be received in the future for the implementation of the NDC is important. Existing efforts that currently focus on strengthening and enhancing the development of the domestic private sector role in RE investments must be accelerated and re-invigorated as the GoF has explicitly acknowledged that its economy is not adequately equipped to pursue expensive financial instruments which will add to its current debt burden (Ministry of Economy, 2017b). Domestic private finance has been specifically

highlighted in Fiji's NDC Implementation Strategy as the main target for potential NDC resourcing with innovative financial instruments being proposed for implementation.

Past financing trends indicate Fiji as one of the largest recipients of RE related assistance in the PSIDS region because it is endowed with a wide source of natural RE (Betzold, 2016b; Dornan & Shah, 2016; Keeley, 2017; Prasad et al., 2017). The RE investments portfolio in Fiji is largely geared towards hydro power generation. RE projects / infrastructure in the country, is largely financed by donors (IRENA, 2015b; Betzold, 2016b; Dornan & Shah, 2016; Michalena et al., 2018). Reasons for dependency in external assistance is due to the capital intensiveness nature of RE technologies as well as the inability of the GoF and the domestic private sector to fully fund large scale RE projects (IRENA, 2015b; Dornan & Shah, 2016; Michalena & Hills, 2018).

A critical assessment of Fiji's NDC Road Map indicates that the GoF is planning to pursue the same resourcing strategy (i.e. heavy emphasis on external public finance to be channeled to hard RE projects) to achieve its NDC target. The proposed set of actions advanced by the NDC Road Map strongly emphasise investments in concrete emission reductions projects through the installations of more solar photovoltaic systems, biomass, waste to energy plants and hydro plants. Investing in these initiatives is necessary as it is aligned with the general purpose of the NDC. However, questions are raised as to whether pursuing the same resource strategy of utilizing limited public finance to fund large-scale RE projects will achieve the NDC targets, as experts have continuously argued that such financing modality on its own is not sustainable. Nor adequate to cover the needed investment costs (Jafar, 2000; Dornan & Shah, 2016; Taibi et al., 2016; Michalena et al., 2018).

Consequentially, the continued reliance on external donor finance processed through governmental channels to fund large scale RE projects tend to crowd out the domestic private sector from investing in RE because there are minimal financial incentives to seriously pursue such endeavors (The World Bank, 2015a). Fiji's private sector is generally reluctant to invest in RE projects because of the perception that investments

have been driven by external parties (Jafar, 2000; Michalena & Hills, 2018). There is therefore a danger that if the current RE financing prioritization persist, the uptake of RE in Fiji will further lag behind global trend, and as a consequence both its energy security aspirations as well as their NDC target may not be achieved (IRENA, 2015b; Taibi et al., 2016; Michalena & Hills, 2018).

Fiji has recognized the importance of domestic private sector financing in its energy sector (see for example the 2014 Draft Energy Policy, the 2014 Sustainable Energy For All (SE4All) report, the 2014 Green Growth Framework and the 2017 5 Year & 20 Year National Development Plan).These national policies have clearly recognized that to achieve sustainable economic growth, a critical pre-condition that needs to be fulfilled is the development and the strengthening of the investment environment to attract and stimulate domestic private sector investments in the energy sector. As such, the energy sector has undergone major reforms (Dornan, 2014b; IRENA, 2015b; FEA, 2016). An ideal example of such reforms is the recent full corporatization of the FEA, which has now been rebranded as Energy Fiji Limited. Moreover, more financial levers have also been developed targeting both foreign and domestic investors (Table 4.1). Dornan & Shah (2016) argued that Fiji's RE investment environment is one the most subsidized in the world given the current level of incentives being given to interested investors.

Investment Opportunity	Incentives
1. IPP Tariff Rate	33.08 VEP
2. Bio-Fuel	• 10 year tax holiday for new activity but minimum level • Duty free importation of assets required to establish the factory • Duty free on chemicals for bio-fuel production **To qualify investors total investment must be FJD 1 million > and must employ 20 people >*
3. Renewable Energy Production & Power Cogeneration	• 5 years tax holidays for new activity
4. Energy Efficient Equipment's	• 5 years tax incentives (only VAT paid) for imported equipment
5. RE equipment	• 5 years tax incentives (only VAT paid) for imported equipment
6. Foreign Investment	• No minimum investment needed for investment in energy sector

Table 4.1. Business opportunities to investment in Fiji's Energy Sector. (Source: Investment Fiji, (2017b)).

In addition to the abovementioned regulatory/policy reforms and financial levers, financial policies have also been introduced targeting the use of instruments designed to attract domestic private investments in RE. Examples include the directive to all commercial banks in Fiji to ring-fence 2% of their lending portfolio to RE projects (RBF, 2012) and the setting up of the Sustainable Energy Development Facility by the FDB which provides ease of access and cheaper financing terms to domestic private investors who plan to adopt new RE technologies (FDB, 2017). In the build up to the 23rd Conference of the Parties (COP), Fiji also issued a sovereign green bond which has managed to raise USD50 million from private sources (The World Bank, 2017b). Grants, loans and equity are the three main financial instruments being used to raise new finance in RE domestically, and it has been estimated that between 2014-2017, these instruments contributed to USD 119 million worth of investments in Fiji's energy sector (GGGI/MOE, 2017). Fiji plans to extend the use of these financial instruments to include new and innovative financial instruments in order to attract more domestic private investments in the electricity sector.

4.3.4 Donors roles in financing RE in Fiji

Donors have recently began to change the way they mobilize public finance to RE projects in the Pacific to also include those aspects that are targeted towards enabling domestic private sector investments (Betzold, 2016b; Dornan & Shah, 2016). Most of the external public finance committed to implementing 'hard' RE projects in PSIDS including Fiji, are now being delivered in the form of programs instead of the short-term project modality (Dornan & Shah, 2016). These funding programs now include strengthening of the 'software' (i.e. capacity building, training, and policy making) (Betzold, 2016b) and the 'orgware' component (i.e. institutional set ups and coordination mechanism) (Taibi et al., 2016) of RE projects. In addition to these contributions of strengthening the governance of the energy sector, donors are also employing financial instruments as a means of directly intervening to unlock domestic private sector investments. These instruments usually take the form of short-term loans and grants (Yu & Taplin, 1997; IRENA, 2015b).

While these initiatives act as a counteracting force to the poor investment levels in RE, the depth of their influence towards the domestic private sector has so far been limited (Dornan, 2014; Dornan & Shah, 2016; Michalena & Hills, 2018). Ever since 1995, Fiji has recognized the value of RE technologies to its economy and has rolled out various programs specifically targeting its RE investment environment, and yet attracting the volume of domestic private finance needed to initiate concrete transformations of the electricity sector has not been forthcoming (IRENA, 2015b; Dornan & Shah, 2016; Keeley, 2017). The major barriers for the domestic private sector participation in Fiji's energy sector is due to weak energy sector governance, unavailability of information and the general weakness in Fiji's business environment (ECA & SMEC, 2013). Recent studies like that of Michalena & Hills (2018) and Wolf et al. (2016) have extended the argument in stating that actions taken to redress these investment barriers have seen limited success because they have been mainly driven by the GoF and donors, with little interphase with the domestic private sector.

The inclusion of domestic private sector stakeholders in the process of designing and implementing initiatives that will strengthen the RE investment environment is critical

(Timilsina & Shah, 2016; Yaqoot et al., 2016). The domestic private sector is not a mere consumer of RE technologies but is an agent that can amplify the penetration rate of RE technologies in an economy (Jafar, 2000; Betzold, 2016b). The need to enhance the role of the domestic private sector in RE remains an area that has not been adequately addressed by donors and the GoF (Wolf et al., 2016; Michalena et al., 2018).

For Fiji to achieve its NDC, the domestic private sector must be encouraged to be included in the development of the domestic RE market (SPC, 2017; Michalena et al., 2018). The process of strengthening the domestic private sector however, must be locally driven, or in other words their *growth must be organic* (Michalena & Hills, 2018) so as the whole process to lead to sustainable development of the country. Yaqoot et al. (2016) argued that facilitating an *organic* growth trajectory for the domestic private sector is important as it eliminates the negative perceptions associated with investing in RE because the domestic private sector would be in much better position to absorb financial and technical risks making them more willing to mobilize their resources. Recent RE studies in the PSIDS context like that of (Dornan, 2015; Wolf et al., 2016; Prasad et al., 2017; Michalena et al., 2018), have suggested policy initiatives on how to develop the domestic private sector role in the RE. However, none have actually explored how the *resourcing* process might entail in endogenously growing the domestic private sector investment in RE in PSIDS.

In line with this argument, this chapter will trace a national resource mobilization pathway on how the domestic private sector of Fiji could be endogenously grown for the purpose of unlocking its potentials towards the implementation of the NDC, and simultaneously leveraging and catalyzing public climate finance flows that will flow from external public sources. This chapter differs from existing approaches that have addressed the role of the domestic private sector in RE, as it specifically focuses on the resource mobilizing strategies that could be undertaken to develop the domestic private sector to the stage where it can confidently drive the direction of RE investments towards a sustainable future. There is a need to clarify how this resourcing pathway can be achieved. While Fiji is clear on what it envisioned for its domestic private sector within the context of RE; i.e. to play a more prominent role in terms of

resourcing the transformation of the energy sector (see Ministry of Economy, 2017a,b), a knowledge gap exists on the resource mobilization strategies that Fiji could pursue to contribute to the achievement of such an objective. The assessment of a potential and a practical resourcing potential pathway that will ultimately stimulate and unleash the domestic private sector investment towards the NDC is therefore critical.

4.4 The Method and Results

This chapter adopted the normative scenario to carry out its analysis. The normative scenario technique is a strategic planning tool for improving decision making against the background of possible future environments (Blyth, 2005). The normative scenario analysis allows users to envision how possible futures might logically unfold by deciphering how current conditions in a specific environment might evolve; it addresses future questions of *what can happen* (Schoemaker, 1995; Börjeson et al., 2006).

The normative scenario offers insights to alternative futures on how decisions made today might unfold, and it could also be described as a roadmap that links the present to the future (Blyth, 2005). Normative scenarios are neither predictions of the future nor wishful thinking, but rather an insight into the future based on the understanding of the present and the factors that shaped the current conditions, attitude and trends (Blyth, 2005). It is a planning technique most useful in situations where critical decisions about the future are to be made against an environment that is highly complex and dynamic (Blyth, 2005).

Normative scenarios can result in better decision making for the future as they force users to consider unexpected issues in the operating environment allowing them to 'think the unthinkable' by exploring new horizons and considering alternative futures by challenging existing assumptions (Blyth, 2005). The normative scenario analysis technique has been pervasively used and has been proven to be very successful in the area of strategic planning especially in the area of business and the military. The global

dominance and competitiveness of Shell Oil Company has been attributed to the use of normative scenario technique (Schwartz, 1996).

Within the context of resource mobilization, Maack (2001) argued that the normative scenarios tend to be very effective in developing robust strategies to guide investment decisions against an uncertain future. Unlike other planning tools, the normative scenarios focus on the area of 'critical uncertainty' in achieving an objective, and it systematically develops several plausible alternative environment in which the objective could be achieved (Maack, 2001). By focusing on issues of critical uncertainties, they allow users to examine issues that would not have been considered, and thus they tend to be more effective in dealing with 'big picture issues' and setting strategic directions, rather than short-term technical decisions (Maack, 2001). This structured approach to thinking about the future has enabled organizations to be strategic about where and how to direct resources in the mid and long term as they try to secure viable and long term success (Maack, 2001).

All the above features strongly recommend normative scenarios elaboration as the best method for the specific case-study of Fiji and its particular country characteristics.

4.4.1 Applying the Method

The data for the scenario analysis emerged from a detailed literature review of RE literature that focuses on Fiji, coupled to a series of discussions with key RE and climate finance experts and private sector representatives in Fiji. The climate finance experts were from the Climate Change and International Cooperation Division of the GoF and the members of the donor/development partner community such the Global Green Growth Institute, Pacific Island Forum Secretariat, Secretariat of the Pacific Community, The University of the South Pacific, the ADB, GIZ and UNDP. A total of 15 climate finance experts were consulted. Interactions with the individuals were carried out when the Development Partners in Climate Change (DPCC) meetings convened. This setting provided the most ideal opportunity to carry out the research because not only did it bring national climate change experts together from the government and the donors, the attendees to this meeting were consistent participants

as the participating organizations usually sent the same experts. Private sector experts, on the other hand, were drawn from financial institutions in Fiji and RE providers in the private sector. A total of 5 experts from the private sector agreed to participate. In total 20 experts participated in this research.

The methodology consists a number of stages in the development, selection and detailing of the future scenario. This chapter adopted the 5-step scenario methodology as adopted by Blyth (2005) and Gray et al. (2016).

4.4.2. Identifying the Critical/Uncertain Barriers

The author conducted a thorough review of the literature, which identified 50 common barriers consistently highlighted as critical inhibiters of RE investments. These barriers were drawn across the sphere of politics, environment, social, economic and technology (Dornan & Jotzo, 2012; Dornan, 2014a,b; Dornan & Jotzo, 2015; The Government of Fiji, 2015; IRENA, 2015b; Dornan & Shah, 2016; ADB, 2017a; Michalena et al., 2017; Prasad et al., 2017; Michalena & Hills, 2018; Michalena et al., 2018). After conducting preliminary interviews with the experts, 25 issues were retained as the most prominent ones.

A Likert scale was then developed where experts ranked the level of significance and uncertainty of the barriers identified from the range of zero (0) to five (5)[21]. Issues that are highly significant and uncertain have been identified as those which are unpredictable in nature and particularly important for Fiji. Barriers that fall inside the 'significant' and the 'certain' quadrant are classified as *significant trends* and these are the predetermined barriers whose influence are more predictable and are expected to have a significant impact on the topic (Blyth, 2005). Blyth (2005) cautioned that barriers classified as *significant trends* should not be dismissed and must be also monitored. Those barriers that fall in the 'low significant' and 'certain' quadrant are characterized as *context shapers* meaning that they are relatively certain, but tend to have an impact on the broader environment (Blyth, 2005), and those barriers that fall

[21] Zero (0) indicates No Opinion, (1) Not Important/Uncertain, (2) Somewhat Important/Uncertain, (3) Quite Important/Uncertain, (4) Very Important/Uncertain, (5) Extremely Important/Uncertain.

in the ‘uncertainty’ and ‘low significant quadrant’ are classified as *potential jokers* meaning that these are issues highly uncertain but are not expected to have much impact on the topic (Blyth, 2005).The average scores were used to standardize differing scores across the different barriers.

4.4.3 Plotting the Barriers

The results of the Likert survey were then plotted onto axes of ‘significance’ and ‘uncertainty’ (Figure 4.1). As the barriers were plotted to their respective axes, experts were given a chance to view the graph and see where the barriers fall with respect to their significance and certainty level. This stage is critical as it distinguishes predetermined barriers (predictable) from those that are critical and uncertain.

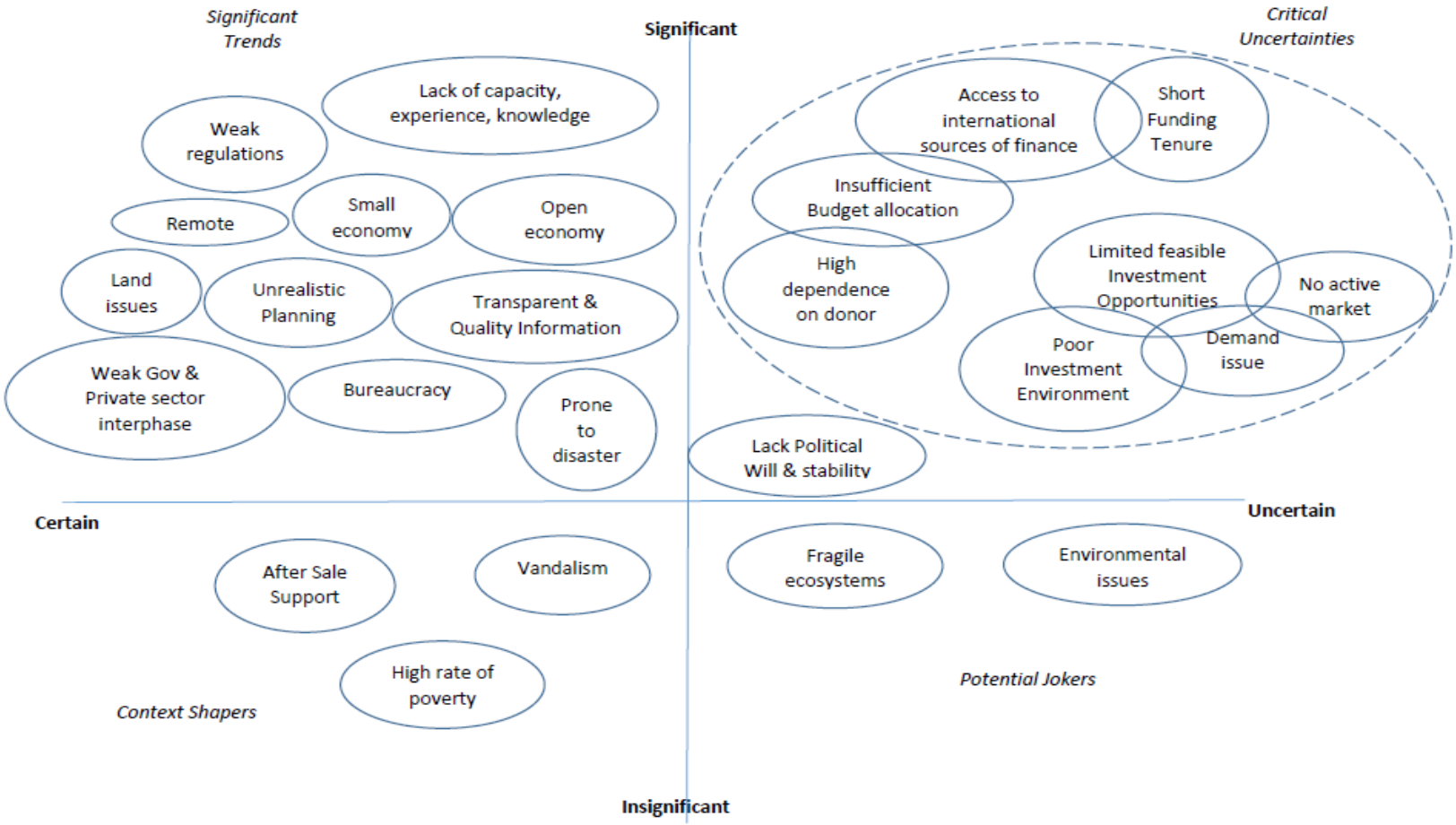

Figure 4.1. Barriers to RE Investments on axes of Significance and Uncertainty

4.4.4 Creating new emerging axes

This step primarily focuses on barriers that fall in the high *significant* but *uncertain quadrant*. The barriers were then iteratively clustered together to form new axes of polarity around which the scenario were developed. The emergent clusters, which provided the most logical consistency were *Donor Dependence* and *Investment & Market Environment.* Only one barrier -*lack of political will and stability*, was not analyzed because it is an issue outside the control of the internal RE sector and is a fundamental prerequisite to any future progress in RE. The two emergent cluster areas were then extended into axes spanning low to high *Donor Dependence* and low to high quality of *Investment Environment & Market* (Figure 4.2).

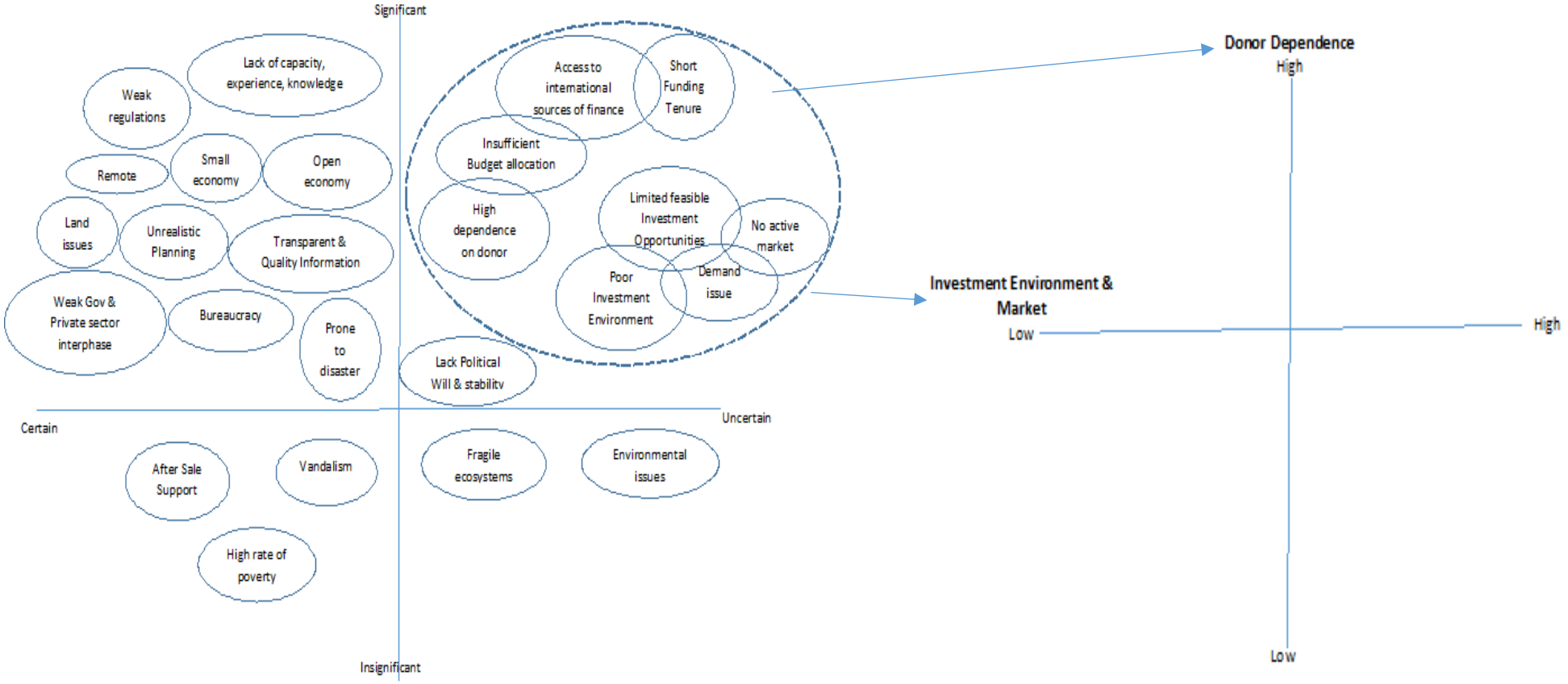

Figure 4.2. Creating new axes of polarity from the most critical uncertainties barriers of mobilizing resources.

4.4.5. Developing the scenarios

Detailed scenarios were then developed based on the two new axes (Figure 4.3). Following the method of Blyth (2005) and Gray et al. (2016), 4 scenarios were developed from the four quadrants of the emergent axes, each reflecting a different combination of *donor dependence* and *investment environment*.

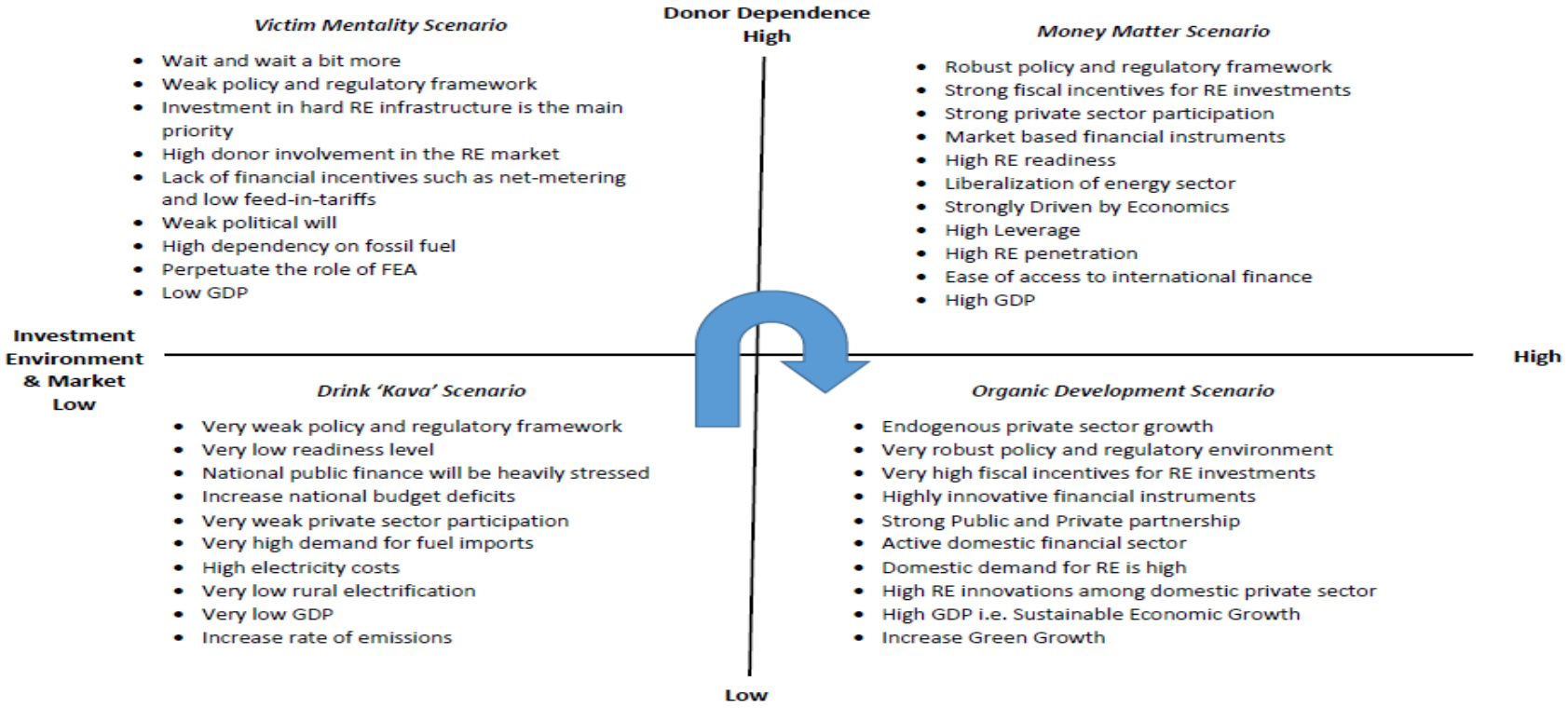

Figure 4.3. The four possible future scenarios regarding the resourcing of Fiji's NDC.[22]

[22] The central arrow in the graph demonstrates a proposed path of RE development as discussed in ***Section 4.4.5.1.***

4.4.5.1 Overview of the Future Scenarios

The scenario's name "*drink kava scenario"* is derived from a social and leisure situation common in the Fijian culture and in most PSIDS, where a group of people will idly sit and drink *kava* (Piper methysticum) – a narcotic sedative drink made from the crushed roots of a native shrub just to pass time. It is closely associated with a typical Fijian 'care free attitude' in relation to how it addresses uncertainty. This future scenario posits a situation in which the availability of financial resources will be very limited due to decreasing support from donors and the domestic private sector. The burden of financing the NDC will ultimately fall on the GoF and given the past trend of the GoF spending priorities, competing social and economic priorities like education, health and infrastructure are more likely to supersede that of its commitments to the NDC (The Fiji Government, 2015). Under the *drink kava scenario*, the likelihood of Fiji achieving its energy targets is very slim.

The *victim mentality scenario* presents a future situation that to a larger extent mirrors the current RE investment climate in Fiji. As per this scenario, there is both a general lack of appetite from the domestic private sector and the GoF to commit significant resources for investment in RE, shifting such investment responsibilities instead to donors. The unique and special circumstances of SIDS as well as their 'moral privilege' as being low emission contributors, and yet the front line victim of climate change are the main drivers for such posture. Emotional diplomacy– the strategic deployment of emotional behavior by state actors to shape the perception of others (Hall, 2015), will play a pervasive role in soliciting external public climate finance towards the implementation of the NDC, and there is an expectation that Fiji will exploit their moral standing in the climate change domain as well as their extreme vulnerability to convince donors to accelerate and upscale their investments in RE.

The *money matters scenario* represents a future situation in which Fiji's private sector can effectively catalyze RE investments from external sources. A vibrant and robust 'RE investment environment' is essential for such a scenario to eventuate, and will be the main funding target from external public finance. The money matter scenario exemplifies a future in which the domestic private sector are 'comfortable' with

investment in RE; i.e. most investment barriers are eliminated and there is a high degree of certainty about the fiscal viability of RE as an investment option.

The *organic development scenario* depicts a future of in which there is a very high degree of domestic private sector involvement in RE investment. This scenario represents a situation in which a RE-based market actually exists in Fiji. The *organic development scenario* also represents a more advanced level of RE investment environment where the domestic private sector is empowered to drive the market for RE production and consumption. It also underscores a future in which more of the RE value chain is driven by the domestic private sector. In this future scenario, the aim is more than just finding the right RE fit for Fiji, but where the domestic private sector is able to manufacture RE technologies and subsequently generate more green jobs in Fiji. It is important to note that in the context of Fiji, a good example of an industry that has managed to achieve this level of endogenous private sector growth is the tourism sector. Apart from foreign investors, domestic private sector investment in Fiji continues to play a dominant role in growing the Fiji's Tourism sector to be the highest revenue income sector in Fiji (World Travel & Tourism Council, 2017).

At a glance, the scenario analysis presents the four (4) future scenarios separate and independent on the basis of the 'quadrant' assumptions that they fall in. However, when closely examined, the four future scenarios suggest a possible transition pathway which Fiji could pursue to endogenously grow domestic private sector investment in RE (Figure 4.3: see Blue arrow).

4.4.6 Scenario validation

Once the scenarios were developed, they were circulated again to the group of experts for reactions and comments. This step is critical as it ensures that the scenarios being presented gain sufficient level of acceptance from the expert community for the purpose of initiating a strategic conversation amongst the key stakeholders on how Fiji's NDC could be sustainably resourced. The buy-in from key stakeholders provides assurance that the results presented in this research can contribute to the overall discussion on how Fiji could successfully achieve its energy target.

4.5 Discussion

The outcome of the scenario analysis (i.e. Figure 4.3) only outlines a broader vision and the transition stages (future scenarios) that Fiji might go through in order to endogenously grow its domestic private sector. Missing, however, from this broader picture are the resourcing 'specs' of what needs to be targeted to ensure that Fiji progresses between the future scenarios, and finally achieve the desired future where the domestic private sector drives the investments in RE. Based on the scenario results (Figure 4.3), this study proposes a Resource Mobilization Framework (Figure 4.4), which traces what the funding /resourcing priorities should be in order for Fiji to reach the desired RE investment future being envisioned. This study's framework strongly argues the need for donors and the GoF to re-orient their current funding priorities and strategies for the NDC. More importantly, the resourcing of specific priorities (which are elaborate more in the subsequent sections) must be approached with a long-term perspective. Illustrating this resourcing pathway is critical to both the GoF and its donors because it highlights the critical areas they need to channel and concentrate their public climate finance on in order to propel the Fijian private sector towards a future which it can create and sustain the market for RE.

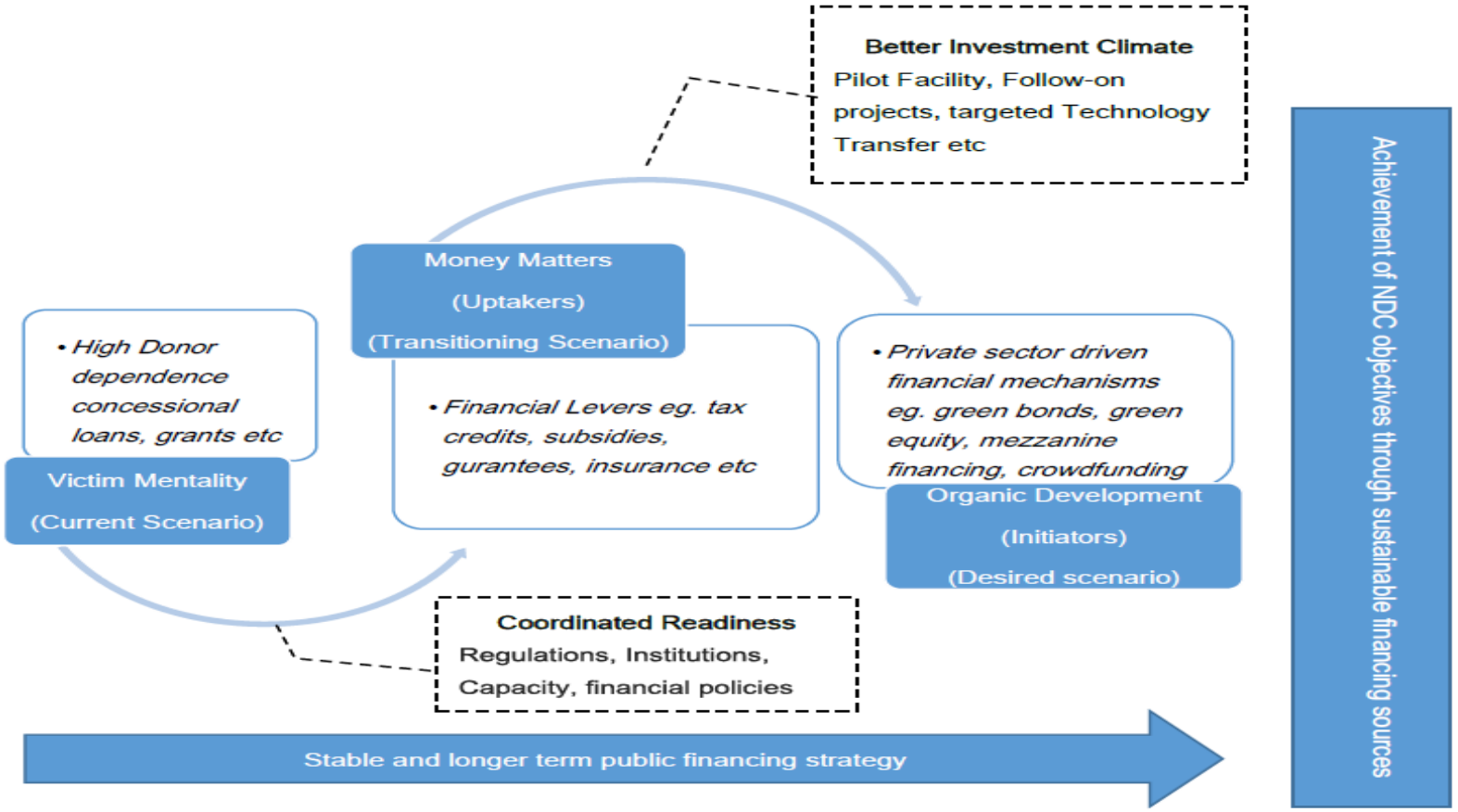

Figure 4.4. Proposed Fiji's NDC Resource Mobilization Framework for Endogenous Domestic Private Sector Growth in the RE Sector

As per the proposed Resource Mobilization Framework, the desired future RE investment scenario that Fiji should aspire to is the *organic development scenario*. The *organic development scenario* is directly aligned with the 2014 Fiji's Green Growth Framework and the 2017 National Development Plan, which have acknowledged the need for more domestic private sector participation in contributing to Fiji's sustainable development pathway. Expansion of the domestic private sector especially in the energy sector tends to create innovative green employment opportunities, build capacity for expansions into other green areas and can also provide co-benefits across the spectrum of the Sustainable Development Goal (SDGs) such as poverty reduction, health and wellbeing, education, economic growth etc. More importantly, the *organic development scenario* will contribute to the achievement of SDGs 7 and 13, which revolve around the aim of affordable and clean energy, and climate actions. Achieving this future RE investment state will require finance to be channeled in a targeted manner and with a long term perspective of strengthening specific areas in the RE investment environment.

The chapter's Framework suggests that Fiji's current NDC resourcing strategy is synonymous with the *victim mentality scenario*, where the emphasis of financing largely rests with donors and the priority is the immediate implementation of concrete RE infrastructures. While this scenario might be effective when narrowly viewed within the context of reducing concrete emissions rate, this is not a sustainable resourcing model (Dornan & Shah, 2016; Taibi et al., 2016; Michalena et al., 2018), and can also be detrimental to the overall achievement of the NDC objectives because it hinders the RE penetration rate in Fiji. Currently the investment strategy being pursued by the donors and GoF places too much emphasis on the need for external public finance to be channeled towards hard RE projects such as the installation of wind farms, hydro powers and solar farms etc. This strategy tends to crowd out domestic private sector investments in RE (The World Bank, 2015).

To break from the *victim mentality scenario*, the GoF and donors must undertake concerted efforts to channel their resources (i.e. concessional and non-concessional finance) towards the *money matters scenario* where the underlying crux is the internal mobilization of domestic private finance. Readiness is the critical link between these

two scenarios, and thus should be the main target of funding. Within the context of this chapter, readiness is specially understood as *the creation of the investment environment that will attract and stimulate domestic private sector investments*, rather than the narrow definition advanced by the GCF, the Global Environment Fund and the Adaptation Fund, which are the major multilateral climate funds of the UNFCCC who emphasise the direct access of climate finance from specific sources (Samuwai & Hills, 2018). To attract private finance in the energy sector, donors and the GoF should re-orient the funding priorities from investment in technically establishing RE projects in supporting and strengthening initiatives which remove barriers for domestic private investments in the energy sector.

The enhancement of the energy sector governance arrangements through the strengthening of the regulatory/policy frameworks, institutional capabilities, capacity building and financial policies are readiness activities critical in removing investment barriers in the energy sector (IRENA, 2015b; GIZ, 2016; Prasad et al., 2017; Michalena et al., 2018). Efforts to strengthen Fiji's RE investment environment have been actively pursued by the government. Dornan (2014) argued that Fiji's current approach in strengthening its RE investment environment, specifically the regulatory reform carried out in the energy sector, serves as an ideal model for PSIDS because it has been domestically driven rather than resulting from donor pressure. As a consequence of the energy reforms being largely domestic in nature, Fiji has been able to make significant gains in strengthening its RE investment environment through the establishment of an effective independent regulator that has managed to increase electricity tariffs, opening the opportunity for the much needed domestic private sector investment to flow into the sector (Dornan, 2014b). Thus, the current efforts being pursued by the GoF and its donors to 'ready' the RE investment environment for domestic private investments signals that the shift from the *victim mentality scenario* towards that of a *money matter scenario* is currently underway and is being pursued to a certain extent.

However, the continuous lack of domestic private sector investment in RE despite Fiji's 'advanced' readiness progress (Dornan, 2015; Samuwai & Hills, 2018), indicates that there are still major gaps on how the current readiness approach is being

pursued by donors and the GoF. Jafar (2000) argued that the major reason why RE continues to fail to become a viable investment option in Fiji is because donors prefer to fund RE technical initiatives on the short term, rather than providing stable funding for domestic private sector development in RE. While Dornan & Shah (2016) have observed that donors in the Pacific are slowly moving towards program-based RE assistance and away from the project-based modality, Betzold (2016) found that investment in the 'hardware' component' (i.e. equipment, infrastructure and distribution) still accounts for the bulk of finance of such programs. The continuous emphasis on investment in hard RE projects rather than the strengthening of the domestic private sector role, tends to negate the gains made in readying Fiji's RE investment environment because it crowds out the domestic private sector from the RE 'investment space'. In other words, increased donor involvement in investing in hard RE projects will sustainably affect the growth of the RE market as it weakens the ability of the domestic private sector to build the necessary capacity as well as experience in RE.

The crowding out effect argued above is best reflected in the high level of uncertainty and perception of risks that Fiji's domestic private sector associate with RE investments. Such an unfavorable outlook of RE investments, despite the market maturity of some RE technologies, is specifically common among domestic financial institutions (IRENA, 2015b). The domestic financial institutions in Fiji is made up of commercial banks, pension funds, credit institutions, and insurance companies. The high liquidity of Fiji's domestic financial system (Naigulevu, 2017) indicates the potentially large pool of domestic capital that could be channeled towards RE investments. Thus, there is a need to extend Fiji's current readiness from just focusing on the reforms of the energy sector to also considering the strengthening the domestic financial institutions. Efforts to strengthen the participation of Fiji's financial institutions in RE investments have largely been ad hoc and relatively limited to short term workshops. There is a need for donors to support more long-term programs which specifically target the domestic financial institutions' role in RE investments. The Sustainable Energy Financing Project (SEFP), which is supported by the World Bank in partnership with the Australia & New Zealand Banking Group (ANZ) and the FDB

and designed to increase the uptake of RE in Fiji by guaranteeing 50% of participating banks' RE related lending through the World Bank's risk-mitigation facility, provides the ideal example of such programs. Apart from reducing the risk of financial institutions in RE investments, the SEFP program also strengthens institutional capacity through communication and technical assistance such as the training of loan officers (IRENA, 2015b). The SEFP is a 10 year program closing in 2018, and so far 69 loans (i.e. 44 business, 2 communities and 23 individuals) have been approved (The World Bank, 2017c). The lessons that will be learned from the SEFP are invaluable, and should be used by donors as the basis of mobilizing resources to support and design similar initiatives that will target the remaining private sector participants who did not benefit from the SEFP.

Therefore, the readiness approach in Fiji must not only focus on attracting domestic private investments, it must also involve long term support for initiatives that strengthen the domestic private sector's capacity and experience in the RE sector. In other words, Fiji's readiness initiatives must not only *attract* but should also *empower* the domestic private sector to invest in RE. For donors this would suggest that there is a need to provide stable and long term funding to initiatives that allow the domestic private sector to better absorb financial and technical risks associated with RE, making them more willing to mobilize resources towards meeting those risks (GIZ, 2016). Examples of readiness initiatives that can allow the domestic private sector to gain first-hand experience with RE range from sustained demonstration projects to financial schemes such as partial guarantees for RE lending (like that of the SEFP), concessional credit lines and staff secondment with international institutions such as the International Finance Corporation. These initiatives have been proven to be successful with the domestic private sector of other developing countries (GIZ, 2016).

While being 'ready' is important, it is just a transition state towards unlocking the full potential of Fiji's domestic private finance towards RE investments. Readiness as envisioned in the *money matter scenario* represents a future where Fiji's domestic private sector has become comfortable and confident with the idea of RE as a mainstream investment option, and are more willing to mobilize finance towards the *uptake* in RE in the economy. However, for private finance to become a sustainable

source of RE investments, the domestic private sector should be transformed from being mere 'up-takers' to 'initiators' of RE technologies. In other words, the private sector must play a dominant role in RE development in Fiji, and this process must be 'organically' driven (i.e. *organic development scenario*) (Michalena & Hills, 2018). Attaining the desired future scenario will therefore require a *much better, more stable, and well-managed investment climate*. Facilitating such an enhanced level of investment environment will require a significant up-scaling on the current level of investments directed towards strengthening the domestic private sector. For donors, the underlying message is that they will need to pursue a long term view of channelling resources beyond just *readying* the domestic private sector to catalyze public finance, towards empowering the domestic private sector to be 'drivers of RE investments' (i.e. inward investments to create an RE market).

Innovation is a critical ingredient for endogenous domestic private sector growth. While there are realistic limitations on the ability of Fiji's private sector to be serious innovators in terms of RE technologies due to their small economies (IRENA, 2015b; Michalena & Hills, 2018), the right amount of support could potentially lead to developing new financing modalities and financial packages designed to support sustainable RE development (ADB, 2017b). A very good example of such financial innovation in PSIDS is the Secured Transaction Framework, a financing mechanism that easily enables lenders to accept movable assets such as vehicles, inventory, account receivables and even crops as collateral for loans (ADB, 2017b). To date, more than 50,000 new loans under this scheme have been granted by financial institutions (ADB, 2017b) and this could be easily translated into investments for RE.

Pilot RE projects have also been argued to be an essential enabler for innovation in the domestic private sector (IRENA, 2015a). Pilot projects, when successful, not only enhance market familiarity with new technologies but also advance RE towards commercialization (i.e. up-scaling). While the success of pilot RE projects in Fiji have been a mixed bag (Weisser, 2004; Dornan, 2011; Urmee & Harries, 2012), it has also been observed that there is a lack of uptake in cases where RE projects have been successful (Chand, 2013; Michalena & Hills, 2018). The lack of RE technology adoption by the domestic private sector despite cases of success can be attributed to

the ad hoc nature of how follow-up projects are being resourced. Financing of successful pilot projects in Fiji are largely 'one off' in nature (Jafar, 2000), with little commitments from donors to channel long term resources towards replicating such success in other local communities. The channelling of resources towards follow-up projects is a critical initiative in the process of creating a *much better RE investment environment* as it not only contributes to the growth of RE investments by making it an attractive investment option for the domestic private sector (IRENA, 2017), more importantly it promotes the endogenous growth of RE through the generation of social and financial benefits for communities, creating demand for RE in the process. Long term resources should therefore be channeled towards strengthening the capacity to the domestic private sector to replicate successful pilot RE projects because it is essential in the development of the domestic RE market (i.e. it will facilitate both supply and demand of the RE technologies).

Targeted technology transfer is also a critical instigator of endogenously growing the domestic private sector because it promotes innovation in the domestic environment (De La Tour et al., 2011; Taibi et al., 2016). The main issue Fiji's donors need to focus on within the context of technology transfer is the need to support the domestic private sector's ability to understand which RE technologies can be effectively used, and coordination with RE technology suppliers who can provide after-sale support and maintain quality assurance (Betzold, 2016b). In fact, the EBRD (2015) argued that initiatives which strengthen targeted technology transfers in developing countries can lead to the development of new business areas and will also involve the introduction of relevant innovative technologies to the local context. Donors are therefore reminded that RE in Fiji should not be treated as mere equipment to be sold without facilitating a robust "after sales mechanism", as this is a very critical success factor for RE acceptance from the domestic private sector (Jafar, 2000; Betzold, 2016b).

In addition, the focus on a targeted approach to technology transfer as the strategy for promoting endogenous domestic private sector growth, is also very relevant to the concept of the proposed Pacific NDC Hub currently in the pipeline. Targeted technology transfer can accelerate the adoption of RE in Fiji, however, external technical experts can be recruited on short term basis to overcome the local general

lack of technical knowledge whilst giving time for Fiji to build its own capacity (Yu & Taplin, 1997). The proposed NDC Hub provides the ideal opportunity where Fiji and PSIDS can consolidate their technical know-how (i.e. local and international) and act as clearing house for their RE technical issues. Taibi et al. (2016) have also argued that the ability to locally create knowledge on RE technologies is essential in promoting a 'paradigm shift' in the investment behavior for domestic private sectors; shifting away from assistance base toward self-sustaining large scale deployment of RE in-country.

The resourcing framework advanced by this chapter complements Fiji's NDC Implementation Roadmap. While Fiji's NDC Implementation Roadmap clearly indicates that it will actively extend and explore new and significant financial instruments to bridge the financing gap (Ministry of Economy, 2017b), this chapter adds a critical resourcing dimension by highlighting possible initiatives to promote inward investments necessary for the domestic private sector's endogenous growth in the energy sector. It is only when the domestic private sector has endogenously gained the depth, exposure and confidence in RE, they will then mobilize and unlock the full potential of their investments. Such confidence will not only be manifested in the new RE technologies to be introduced in the market, but also in the willingness to adopt the innovative financial instruments currently earmarked for implementation in Fiji's NDC Implementation Roadmap. The domestic private sector needs to drive these innovative financial mechanisms to transform the electricity sector in Fiji and also to ensure a sustainable resourcing pathway for Fiji's transition to a low carbon economy in the long run.

Finally, this chapter's NDC Resource Mobilization Framework, while depicted in a sequential manner, does not necessary mean that it should be pursued that way. In fact, the Framework can be pursued in a complementary manner. While Fiji has adopted innovative financial instruments to create the picture of Fiji leap-frogging scenarios (e.g. the issuing of a sovereign Green Bond in 2017), the underlying emphasis here is that as long as the domestic private sector in Fiji is not the one driving RE investments, attempts to incentivize them to participate in RE investments will still have limited effects. The GoF and donors must focus on empowering the domestic private sector

beyond just adopting RE, and work towards a future where they initiate investments in RE.

4.6 Conclusion

Fiji's NDC has outlined an ambitious target to transform its electricity sector by 2030. While many have hailed such ambition as courageous in light of Fiji's circumstances and historical contributions to climate change, the resourcing of such initiatives is of great concern. To implement its NDC, Fiji requires investments worth USD 2.97 billion, of which 54% is conditional on Fiji receiving significant means of implementation and support. Considering the major climate finance windfall and the high degree of uncertainty of climate finance availability that currently exists in the international climate finance architecture, *the billion-dollar question* therefore relates to how Fiji would attract sustainable funding to implement its NDC. With private finance identified as the recourse for such a shortfall, to fully unlock its potential the GoF and its donors need to strategically channel limited public finance in a sustained manner to mobilize domestic private finance in the long run.

Despite Fiji's donors consistently prioritizing investments in RE infrastructures, there are indications that they are starting to move towards funding incentives designed to attract domestic private sector investments in RE (Betzold, 2016b; Dornan & Shah, 2016). Donors are now supporting the strengthening of the investment environment by helping developing countries like Fiji implement an array of readiness initiatives. While readiness is critical in removing investment barriers in RE, it is not sufficient to facilitate long term domestic private sector investments in RE. Readiness initiatives are mainly designed to enable domestic private sector to adopt RE technologies. For the domestic private sector to be agents of achieving the envisioned change in the NDC, they must become RE 'initiators'. Initiators require innovations, and for the domestic private sectors to assume this status, they must be allowed to endogenously grow, and develop Fiji's RE market.

Using the scenario analysis technique, this chapter formulated a Resource Mobilization Framework, which outlined important initiatives that donors and the GoF

should target in order to endogenously grow the private sector. Sustained financing for follow-on projects from successful pilot projects, and targeted technology transfers are the two main initiatives critical to the growth of the domestic private sector. This chapter argues that donors and the GoF should significantly re-orient their NDC funding priorities, and commit long-term resources towards these two initiatives to transform the role of the domestic private sectors as drivers of RE technologies in Fiji.

In the absence of a re-focus on priorities on how Fiji's NDC is to be resourced, the risk arises of not only missing energy targets, the overall sustainable development path currently being pursued might be unattainable. Leveraging the full potential of domestic private investment is critical in accelerating and sustaining climate change efforts in the long run, and provides many co-benefits in terms of "green" jobs and securing wellbeing. Without genuine efforts to channel external public climate finance towards endogenously growing the domestic private sector, the NDC runs the risk of joining a growing list of "feel good" international initiatives that have bear very little real benefits to local vulnerable communities.

Chapter 5

Conclusion

5.1 Introduction

Having examined the question of access to climate finance for PSIDS from three different angles, this Thesis can provide some key lessons. Notably, it concludes that unless and until PSIDS as well as their donors change and re-orientate their current thinking and strategies to climate finance, the PSIDS climate finance access conundrum will continue in the post-Paris Agreement era.

This chapter presents the concluding remarks of the overall Thesis. It includes the summary of the Thesis, its limitations, its contributions to knowledge and potential avenues for future research.

The structure of this chapter is as follows: section two provides a summary of the each core chapters. Section three outlines the research implications, while section four details the limitations. Section five provides a summary of the fit of the Thesis arguments to the general theoretical framework. Section five outlines areas of future research, and section six provides the concluding remarks.

5.2 Summary of the Thesis

The main question that this Thesis sought to answer was:

"*What does the Post Paris Agreement financing landscape mean for PSIDS accessing climate finance in the future?*"

This question largely responds to the lack of 'academically driven' knowledge specific to PSIDS and PSIDS leaders' calls and demands for more work to address the challenges of 'accessing climate finance' in the region (PIFS, 2017). The PSIDS leaders have recognised access to climate finance as a priority for the region and have listed it as part of their key demand in successive UNFCCC COP (PIFS, 2017).

This Thesis contributes to knowledge and heeds the *kaci*[23] of the PSIDS leaders by providing a post-Paris Agreement critique on the issue of climate finance access from three different vantage points. The three elements that were examined are: 1) climate finance readiness (UNFCCC, 2016: Article 9, §9), 2); the GCF (Decision 1/CP.21); and 3) the NDCs (UNFCCC, 2015: Article 4, §5). These three climate finance elements, despite being researched independently, converge on the issue of access to climate finance: the main focus of this Thesis. This Thesis provides a multi-faceted understanding of how the PSIDS could effectively devise new and innovative approaches to effectively engage the international climate finance architecture in a post Paris Agreement era to improve access climate finance.

The next subsection summarises the three core chapters of this Thesis, reiterates the methods used and the main findings.

5.2.1 Assessing Readiness in Asia-Pacific

The first core objective of this Thesis was to:

Develop a comprehensive understanding of the relationship between the readiness progress of a country and its ability to access climate finance from external sources.

The first core chapter addressed this objective. It developed a readiness framework with which countries' readiness progress could be appraised. It also provided empirical evidence on the relationship between a country's readiness progress and the total climate finance accessed.

A three phase research approach that involved different research technique was adopted to answer the first core objective. Each research phase is intrinsically linked and employs different research techniques. Phase 1 employed a thorough desk review of available Climate Public Expenditure and Institutional Reviews (CPEIRs) of the

[23] ***Kaci***: the i'taukei (indigenous Fijian) word for pronouncement, which also emphasizes the need for one to rise to the occasion.

Asia-Pacific, where the main outcome was a common measurement scale. Phase 2 then adopted the Principal Component Analysis (PCA) technique to analyse the Phase 1 outcome and determine the main dimensions of the framework. Once the main dimensions were established, progressive indicators for each dimensions were then developed through a thorough review of the readiness literature. Phase 3 involved the scoring of countries across the framework's readiness dimensions. Using SPSS, this chapter then conducted a multivariate regression analysis to assess where countries' readiness progress as per the framework has a significant relationship with the total climate finance countries have so far accessed. Countries' climate finance data were sourced from the 2016 OECD database

This chapter found that 1) there is a significant readiness gap between countries in the Asia-Pacific; where countries in the Asia sub-region performed much better relative to those in the Pacific sub-region (PSIDS), and 2) readiness *per se* has a predictable yet small impact in accessing climate finance. The implications of these two main findings is significant especially to the PSIDS. The main findings indicate that access to climate finance cannot be achieved just by focusing on improving readiness alone, because access to climate finance is inextricably linked to and influenced by other factors. In addition, the current readiness focuses heavily emphasises access to mitigation finance, and tends to emphasise access from multilateral funds. Adaptation finance is the main priority of PSIDS and accessing climate finance from multilateral funds has always been difficult due to PSIDS special and unique circumstances.

For PSIDS and its donors, the arguments raised by this chapter necessitate a re-think on the 'viability' of current readiness strategies and scope being implemented in PSIDS. The unique and special circumstances of the PSIDS will remain a major challenge which will hinder PSIDS' ability to achieve the readiness progress set by their Asian counterparts. The current 'wholesale approach' to readiness—implementing what has worked in other countries—may not necessarily work in PSIDS, and can even exacerbate PSIDS' climate finance access conundrum. This chapter recommends that the readiness scope in PSIDS should be extended to target sources such as remittances and bilateral sources—traditionally the largest sources of external finance to PSIDS. These two sources offer non-complicated access (does not

levy heavy requirements to recipient countries) to external finance for PSIDS, and are not influenced by the 'climate finance readiness' progress of the country.

5.2.2 The Impact of an equity base GCF Allocation Rules post 2020

The second core objective of this Thesis was to;

Develop a comprehensive understanding of the possible implications of equitable allocation of the GCF adaptation finance on PSIDS post 2020.

The second core chapter addressed this objective. It critically assessed the adaptation finance component of the GCF (i.e. 25% of total funds ring fenced for adaptation in particularly vulnerable countries) to answer the second main objective. Using justice theory, this chapter argued that adaptation finance is best allocated based on the principle of equity and fairness. The chapter then provided a post-2020 scenario analysis of how an equity based allocation policy might impact the climate finance flow to particularly vulnerable countries, with a special emphasis on PSIDS.

An explorative scenario approach was adopted. The explorative scenario is a useful technique in addressing *what can happen* questions. Possible allocation scenarios across countries were formulated on the basis of justice theory. This chapter found that two main equity/fairness principles-–1) equality principle, and 2) the prioritarianism principle—are currently adopted by multilateral climate funds to allocate adaptation finance. Four possible allocation criteria were then developed to operationalize the allocation scenarios; 1) per country for the equality principle; 2) the physical size of countries, (3) total population, and (4) weighted-vulnerability for the prioritarianism principle.

The chapter found that PSIDS relative to other particularly vulnerable developing countries tend to be very sensitive to any possible GCF equitable/fairness allocation policy. More importantly, this chapter highlighted that allocation criteria that emphasised the prioritarianism will disadvantage PSIDS, especially the smaller PSIDS, because it does not guarantee predictability of climate finance flows. Only an allocation criterion based on the *equality principle* will support PSIDS position to

access predictable climate finance flows from the GCF. The findings of this chapter present the argument that if the allocation policy of the GCF does not guarantee predictable finance flows to PSIDS post 2020, then the feasibility of pursing accreditation of national entity is questionable for most PSIDS, especially for smaller PSIDS.

5.2.3 Financing the NDC

The third core objective of this Thesis was to;

> *Develop a comprehensive understanding of how PSIDS could effectively leverage their domestic private sector to mobilize financial resources that can sustain the implementation of their NDC.*

The third core chapter addressed this objective. It adopted a normative scenario research approach to assess how PSIDS' could mobilize domestic private investments toward their NDC. Fiji's NDC served as the case study for this chapter. Fiji's NDC places emphasis on the transformation of its energy sector by promoting investments in renewable energy (RE) technologies. Fiji aims to generate 100% of its electricity generation from RE, which will reduce 30% of its energy sector emission contributions. Private sector investments has been targeted by the Government of Fiji (GoF) to finance this ambitious NDC target.

The normative scenario techniques adopted entailed five key steps, which were: 1) identification of critical investment barriers in RE, 2) plotting of barriers on an axis of significance and uncertainty, 3) identification of new emerging axes, 4) development of scenarios, 5) and validation of the scenarios. In addition, a group of 20 climate finance experts and private sector actors participated in the scenario development process. Their inputs provided the basis for tracing a resourcing pathway into a future where Fiji can endogenously develop its domestic private sector and unlock its investments towards the achievement of its energy target.

This chapter found that for Fiji to mobilize domestic private investments towards RE, it must facilitate an environment where the domestic private sector can endogenously

grow and drive RE investments and develop the RE market. Fiji must advance beyond its current 'victim mentality' posture (i.e. high dependence on donor investment in hard RE infrastructure) towards a future where the internal mobilization of domestic finance is possible (i.e. money matters scenario). The ideal scenario that Fiji should aspire to is where the domestic private sector themselves are allowed to 'organically' grow and develop the RE sector.

The main lesson for the GoF and its donors is that there must be a re-orientation on how public financial resources are being mobilized for the implementation of the NDC. To achieve the 'organic development scenario', Fiji must radically transform its RE investment environment. This transformation is possible through sustainable and long-term resourcing strategies from the GoF and donors. This would mean that the current resourcing strategy of using external public finance to finance hard RE projects, must be re-focused from just creating the right investment environment (readiness) to one that will result in a much better, stable, and well managed investment climate (organic growth). Ultimately, the GoF and its donors should target initiatives that advance RE innovations; this includes sustained support for follow-up RE projects that have proven to be successfully locally, and targeted technology transfer. Unlocking of domestic private finance is possible when the role of the domestic private sector is transformed from mere RE 'up-takers' (result of readiness) to 'initiators' (result of endogenous growth) of RE technologies.

5.3 Limitations

It is important to note that this Thesis primarily focused on addressing the issue of climate finance access from the perspective of the PSIDS and was carried out in the vacuum of credible literature due to the contemporary nature of the issues being addressed. Thus, whilst the study is not an end-point in itself, it facilitates and directs further investigations into climate finance and its accessibility. The PSIDS makes up 15 of the 197 countries that are parties to the UNFCCC, thus the generalizability of the arguments and the findings raised in this Thesis is to be treated with some degree of reservations by other developing countries. While this Thesis recognized this drawback, it is also important to note that the PSIDS are some of the most

disadvantaged groups of countries when it comes to accessing international climate finance despite being labelled as its 'front line' victims. Highlighting how the Paris Agreement will impact vulnerable developing countries, which the Agreement is supposed to safeguard, is critical to ensure that no one is left behind in the global effort of trying to save the planet from the impacts of climate change. The need to focus on the most vulnerable is rooted on the notion of climate justice, which is a major theoretical motivation of this Thesis.

5.4 Revisiting of the Theoretical Frameworks

Consistent with the primary objective of the ToC (theory of change), the main findings of the Thesis (see section 5.2) clearly highlighted the need for 'transformational changes' at the international level (i.e. GCF allocation chapter) and at the national level (i.e. Readiness and NDC chapters) to be pursued and implemented if PSIDS are to be assured a future where climate finance access is no longer a major issue. To facilitate the desired changes needed to occur in the Pacific (i.e. improve access and mobilization of climate finance), this Thesis has filled in part of the 'missing middle', contributing to identification of paths that could be pursued by donors and PSIDS in order to achieve the desired goals. The components, which contribute to the 'missing middle', proposed by this Thesis are the issues discussed in the 3 core chapters. They are related to the call for the transformation of the current thinking process of donors and the PSIDS on how they approach 1) Climate Finance Readiness, 2) The allocation of the GCF finance, and 3) The financing of the NDC. The underlying message of this Thesis is that not only is 'better planning ' critical, but PSIDS as well as donors should be more 'bold' and be more innovative in charting the Pacific's future ability to access climate finance. Addressing the issue of climate finance amongst PSIDS is important in the context of equity, fairness and justice (i.e. climate justice theory). Using the lens of the climate justice theory, this Thesis argues that the current climate finance approach being advanced in the region within the context of 1) readiness, 2) GCF allocation and 3) NDC financing, will perpetuate aspects of the climate injustice faced by PSIDS. Transformative change is therefore critical as an absence of such a paradigm shift on how the PSIDS and donors plan to engage the post-Paris Agreement climate

finance environment will ensure that the long term vision of 'ease of access' to climate finance for the Pacific remains out of reach.

5.5 Recommendations for Future studies

The findings and the arguments raised in this Thesis offer avenues for future research. Of particular interest is the issue of allowing more direct access to climate finance to PSIDS (i.e. more control to developing counties) and the demand for efficient use of finance from sources (i.e. more control by donors) especially the GCF. As per this Thesis, the trend highlighted that 'readiness' is rapidly progressing (increasing chances for more access), but the 'NDC' needs conditional funding indicating the possibility that the current 'allocation approach of the GCF' might not be sufficient in the future. The point of emphasis here is that it is not all about receiving more finance (see Chapter 2 & 3 of this thesis), but also how the finance is spent, i.e. its transformation impacts (see Chapter 4 of this thesis) is also critical. PSIDS are therefore in a dilemma as they are demanding more control (i.e. more direct access) to climate finance for the purpose of taking ownership of their development pathway, but donors on the other hand are exerting stricter expectations on the need for limited finance to have transformational impacts. The GCF offers an ideal case study of understanding the implications of these two competing issues. As the GCF is expected to play a prominent role in the future, and in the light of challenges that it is currently, and will be confronted with, it is expected that the GCF will adopt stricter requirements on how finance is accessed. Thus, future research on how PSIDS should respond and prepare for such scenario is critical.

In addition, future research that focuses on the effectiveness of climate finance channels employed in the Pacific would also be value adding. Of particular interest is the role that the Council of Regional Organisations (CROP)[24] plays in acting as a

[24] The CROP agencies are the regional bodies that have been mandated by the Pacific Island Leaders to improve cooperation, coordination, and collaboration among the various intergovernmental regional organizations to work towards achieving the common goal of sustainable development in the Pacific region. Currently 8 regional organisations makes up the CROP systems in the Pacific, each with a mandate to work in different areas of sustainable development in the region. These are the Forum Fisheries Agencies, the Pacific Aviation

climate finance intermediary for the PSIDS. The PSIDS specifically tasked the CROP to coordinate issues of priority to the region, provide policy advice and assist in facilitating policy formulation at national, regional and international level. The region still wonders why many PSIDS continue to struggle to access adequate climate finance although they channel significant resources towards the CROP. Pursuing this research through a discourse analysis would be interesting in light of growing dissatisfaction with the existing aid structure in the region (Barnett & Campbell, 2010) and the growing frustration at the community level about the lack of 'real' climate finance impact in their community (Maclellan, 2011; Maclellan & Meads, 2016).

5.6 Concluding Remarks

As the euphoria of the Paris Agreement slowly fades and reality slowly sets in, the PSIDS are reminded that access to climate finance will remain a challenge despite the positive rhetoric from the international community. For PSIDS and more importantly its donors, there is a need to seriously re-consider their current approach to how climate finance is accessed and mobilized in the region. The unique and special circumstances of PSIDS emphasise that the PSIDS also need to deploy and pursue '*unique and special strategies'* for climate finance. The slow rate of progress and reform in the climate finance domain and the urgency to access climate finance to address the growing climate change impacts in the region may just prove too costly for some PSIDS in the near future.

Safety Online, the Pacific Power Association, the Pacific Island Development Program, the Secretariat of the Pacific Community, SPREP, the South Pacific Tourism Organisation and The University of the South Pacific.

LIST OF PUBLICATIONS DURING CANDIDACY

1. Samuwai, J., Hills, J.M., 2018. Assessing Climate Finance in the Asia Pacific Region. *Sustainability*, 10 (4), 1-18.

2. Samuwai, J., Hills, J.M., 2018. Gazing Over the Horizon: will the Green Climate Fund allocation rules be significant for Pacific post 2020. [forth-coming in the *Pacific Journalism Review*]

***Other Ranked Peer Review Publication where components of this Thesis was published in*:**

1. Goundar, A., Newell, A., Nuttall, P., Rojon, I., Samuwai, J., 2017. King Canute muses in the South Seas: Why Aren't the Pacific Transforming to low carbon sea transport futures. *Marine Policy*, 81, 80-90.

***Paper presentation in Peer Reviewed International Conferences*:**

1. Samuwai, J., Hills, J.M, Michalena, E., 2018. Investment Scenarios for Achieving Energy Transition in Developing Countries: A Case Example from Fiji. Conference Paper Proceedings in 3rd Hellenic Association for Energy Economics (HAAEE). *Energy Transition: European and Global Perspectives*, Athens, Greece. May 3-5. [Chapter 4/Paper 3]

2. Samuwai, J., Hills, J.M. 2018. Assessing Climate Finance in the Asia Pacific Region. Conference *Paper Proceedings in the Pacific Update Conference*, Suva, Fiji. July 5-6.

Papers are attached in Appendix A.

CONSOLIDATED REFERENCE

Acemoglu, D.. & Robinson, J.A. (2012). The Origins of Power, Prosperity, and Poverty: Why Nations Fail. Crown Business, New York, USA. 1-546.

Adaptation Fund. (2018). Readiness Programme for Climate Finance. Retrieved on 11 April 2018, from https://www.adaptation-fund.org/readiness/.

ADB. (2008). Strengthening Public Finance Management in Pacific Developing Member Countries. Technical Assistance Report. 1-13.

ADB. (2015). Fiji: Building Inclusive Institutions for Sustained Growth: Country Diagnostic Study. Manilla; Fillipines. 1-163.

ADB. (2017a). Pacific Energy Update 2017. Manilla, Phillipines**.** 1-27.

ADB. (2017b). Pacific Private Sector Development Initiative A Decade Of Reform Annual Progress Report 2015–2016. Manilla, Phillipines**.** 1-119.

Alesina, A., & Dollar, D. (2000). Who Gives Foreign Aid To Whom And Why? *Journal of Economic Growth*, *5*(1). 33-63. DOI: https://doi.org/10.1023/A:1009874203400

Atkin, E. (2014). As Sea Level Rises, Fijian Village Begins To Relocate Citizens. Retrieved on 30 October 2017, from https://thinkprogress.org/as-sea-level-rises-fijian-village-begins-to-relocate-citizens-4b3eea5d51bf/.

Atteridge, A., & Canales, N. (2017). Climate finance in the Pacific: An Overview Of Flows To The Region's Small Island Developing States. Working Paper 2017-04. Stockholm Environment Institute, Stockhom, Sweden. 1-74.

Baldacchino, G., & Hepburn, E. (2012). Independence, Nationalism and Subnational Island jurisdictions. *Special Issue of Commonwealth and Comparative Politics, 50*(4). 1-12. DOI: 10.1080/14662043.2012.729725.

Barnett, J. (2001). Adapting to climate change in Pacific Island countries: The Problem Of Uncertainty. *World Development,* 29(6). 977-993. DOI: https://doi.org/10.1016/S0305-750X(01)00022-5

Barnett, J. (2008). The Effect of Aid on Capacity To Adapt To Climate Change: Insights from Niue. *Political Science, 60*(1). 31-45.

Barnett, J., & Campbell, J. (2010). Climate change and small island states: Power, knowledge, and the South Pacific, Earthscan. 1-128.

Barnett, J., Lambert, S., & Fry, I. (2008). The Hazards Of Indicators: Insights From The Environmental Vulnerability Index. *Annals of the Association of American Geographers, 98*(1). 102-119. DOI: https://doi.org/10.1080/00045600701734315

Barr, R., Frankhauser, S., & Hamilton, K. (2010). Adaptation Investments: A Resource Allocation Framework. *Mitigation and Adaptation Strategies for Global Change, 15*(8). 843-858. DOI: 10.1007/s11027-010-9242-1

Barrett, S. (2014). Subnational Climate Justice? Adaptation Finance Distribution And Climate Vulnerability. *World Development, 58*. 130-142. DOI: https://doi.org/10.1016/j.worlddev.2014.01.014

Barrett, S. (2015). Subnational Adaptation Finance Allocation: Comparing Decentralized And Devolved Political Institutions In Kenya. *Global Environmental Politics, 15*(3). 118-139. DOI: https://doi.org/10.1162/GLEP_a_00314

Batista, C., & Narciso, G. (2018). Migrant Remittances And Information Flows: Evidence From A Field Experiment. *The World Bank Economic Review, 32*(1). 203-219. DOI: https://doi.org/10.1093/wber/lhy009

Bawden, T. (2016). COP21: Paris Deal Far Too Weak To Prevent Devastating Climate Change, Academics Warn:Exclusive: Some Of The World's Top Climate Scientists Have Launched A Blistering Attack On The Deal. Retrieved on 14 February 2018, from http://www.independent.co.uk/environment/climate-change/cop21-paris-deal-far-too-weak-to-prevent-devastating-climate-change-academics-warn-a6803096.html.

Baxi, U. (2016). Towards A Climate Change Justice Theory? *Journal of Human Rights and the Environment, 7*(1). 7-31. DOI: https://doi.org/10.4337/jhre.2016.01.01

Bendandi, B., & Pauw, P. (2016). Remittances for Adaptation: An 'Alternative Source' of International Climate Finance? Migration, Risk Management and Climate Change: Evidence and Policy Responses. In A. Milan, B. Schraven, K. Warner and N. Cascone. Cham, Springer International Publishing**,** 195-211.

Betzold, C. (2016a). Aid and Adaptation To Climate Change in Pacific Island Countries. Development Policy Centre Discussion Paper No. 46. Australian National University. 1-26.

Betzold, C. (2016b). Fuelling the Pacific: Aid for Renewable Energy across Pacific Island Countries. *Renewable and Sustainable Energy Reviews, 58*. 311-318. DOI: https://doi.org/10.1016/j.rser.2015.12.156

Betzold, C. (2016c). Who gives aid for adaptation to climate change in the Oceania? Development Policy Center. Retrieved on February 2016, from http://www.devpolicy.org/gives-aid-adaptation-climate-change-oceania-20160805/

Betzold, C. & Weiler, F. (2017). Allocation of aid for adaptation to climate change: Do vulnerable countries receive more support? *International Environmental Agreements: Politics, Law and Economics, 17*(1). 17-36. DOI: https://doi.org/10.1007/s10784-016-9343-8

Bird, N., Beloe, T., Hedger, M., Lee, J., Nicholson, K., O'Donnell, M., Gooty, S., Heikens, A., Steele, P., Mackay, A., & Miller, M. (2012). The Climate Public Expenditure and Institutional Review (CPEIR): Developing A Methodology To Review Climate Policy, Institutions and Expenditure. A Joint UNDP/ODI Working Paper. 1-35.

Blyth, M. (2005). Learning From The Future Through Scenario Planning. 1-12

Börjeson, L., Hojer, M., Dreborg, K-H., Ekvall, T., & Finnveden, G., (2006). Scenario Types And Techniques: Towards A User's Guide. *Futures, 38*(7). 723-739. DOI: https://doi.org/10.1016/j.futures.2005.12.002

Bours, D., McGinn, C., & Pringle, P. (2014). Guidance Note 3: Theory Of Change Approach To Climate Change Adaptation Programming. Oxford, 4 SEA Change Community of Practice and UKCIP**.** 1-12.

Bowen, A. (2011). Raising Climate Finance To Support Developing Country Action: Some Economic Considerations.Working Paper 46. The Center for Climate Change Economics and Policy, University of Leeds & The London School of Economics and Political Science. UK. 1-38.

Briguglio, L. (1995). Small Island Developing States and their Economic Vulnerabilities. *World Development, 23*(9). 1615-1632. https://doi.org/10.1016/0305-750X(95)00065-K

Brown, L. H. (2013). 4 Ways the Green Climate Fund Can Support "Readiness" for Climate Finance. Retrieved on 11 April 2017, from

http://www.wri.org/blog/2013/03/4-ways-green-climate-fund-can-support-readiness-climate-finance

Brown, L., Polycarp, C., & Spearman, M. (2013). Within Reach: Strengthening Country Ownership and Accountability in Accessing Climate Finance. Working Paper. World Resources Institute. Washington DC. USA. 1-36.

Brown, L. H., & Ballesteros, A. (2012). What's Next for the Green Climate Fund? Retrieved 02 October, 2017, from https://www.wri.org/blog/2012/08/whats-next-green-climate-fund.

Brown, J., Bird, N., & Schalatek, L. (2010). Climate Finance Additionality: Emerging Definitions and their Implications. Climate Finance Policy Brief No. 2. Overseas Development Instititute. 1-11.

Brunner, S., & Enting, K. (2014). Climate finance: A Transaction Cost Perspective On The Structure Of State-To-State Transfers. *Global Environmental Change, 27*. 138-143. DOI: https://doi.org/10.1016/j.gloenvcha.2014.05.005

Buchner, B., Oliver, P., Wang, X., Carswell, C., Meatlle, C., & Mazza, F. (2017). Global Landscape of Climate Finance 2017. Climate Policy Initiative**.** 1-20.

Cabello, J. (2015). Where to begin with Climate Justice? Retrieved 17 February, 2019, from https://www.degrowth.info/en/2015/06/where-to-begin-with-climate-justice/

Callaghan, I. (2015). Climate Finance after COP21: Pathways to the Effective Financing of Commitments and Needs. Investor Watch**.** 1-82.

Cameron, E., Shine, T., & Bevins, W. (2013). Climate Justice: Equity and Justice Informing A New Climate Agreement.1-28

Caravani. A., Watson, C., & Schalatek, L. (2015). Climate Finance Regional Briefing: Asia. Climate Funds Update. Climate Finance Fundamentals, 8. 1-4.

Caravani. A., Watson, C., & Schalatek, L. (2016). Climate Finance Thematic Briefings: Adaptation Finance. Climate Funds Update. Climate Finance Fundamentals, 3. 1-4.

Carrozza, I. (2015). Climate Finance in the Asia-Pacific: Trends and Innovative Approaches. UNESCAP. Bangkok, Thailand. 1-43.

CCST. (2015). Trends In Private Sector Climate Finance Report Prepared By The Climate Change Support Team Of The United Nations Secretary‐General On

The Progress Made Since The 2014 Climate Summit- 9 October 2015, Climate Change Support Team, UNFCCC**.** 1-50.

CDNK. (2015). Opinion: Climate finance options for National Climate Funds. Retrieved on 11 April 2018, from https://cdkn.org/2015/12/opinion-climate-finance-options-for-national-climate-funds/?loclang=en_gb.

Center for Global Development. (2015). Developing Countries Are Responsible for 63 Percent of Current Carbon Emissions. Retrieved 22 February, 2018, from https://www.cgdev.org/media/developing-countries-are-responsible-63-percent-current-carbon-emissions.

Chand, D. (2013). Promoting Sustainability of Renewable Energy Technologies and Renewable Energy Service Companies in the Fiji Islands. *Energy Procedia, 32*. 55-63. DOI: https://doi.org/10.1016/j.egypro.2013.05.008

Chandra, T. (2015). Village Relocations. Retrieved 30 October 2017, from http://www.fijitimes.com/story.aspx?id=294897.

Chaum, M., Faris, C., Wagner, G. Buchner, B., Falconer, A., Trabacchi, C., Brown, J., & Sierra, K. (2011). Improving The Effectiveness Of Climate Finance: Key Lessons. 1-20.

CIA. (2017). The World Fact Book: Fiji. Retrieved 02 March 2018, from https://www.cia.gov/library/publications/the-world-factbook/geos/fj.html.

Climate Investment Fund. (2009). The Selection Of Countries To Participate In The Pilot Program For Climate Resilience (PPCR). Report of the Expert Group (established by the Pilot Programme on Climate Resilience Subcommittee, PPCR-SC), to the PPCR Subcommittee, Climate Investment Funds, The World Bank Group, Washington, DC, USA.1-26.

Climate Investment Funds. (2014). Knowledge Note: Enabling Renewable Energy Investments in Low Income Countries, Climate Investment Funds**.** 1-2.

Climate Transparency. (2017). Financing The Transition From Brown To Green: How To Track Country Performance Towards Low Carbon, Climate-Resilient Economies. ODI & HVGP, Berlin. Germany. 1-30.

Comes, M., Dubbert, M., Garschagen, M., Hagenlocher, M., Sabelfeld, R., Lee, Y., Grunewald, L., Lazendorfer, M., Mucke, P., Neuschafer, O., Pott, S., Post, J., Schramm, S., Bolsche, D., Vandemeulebroecke, B., Welle, T. & Birkmann, J.

(2016) *World Risk Report 2016*. Retrieved on 04 August 2017 from https://collections.unu.edu/eserv/UNU:5763/WorldRiskReport2016_small.pdf

Cooke, K., Gogoi, E., & Petrarulo, L. (2017). Overcoming the NDC Implementation Gap: Lessons from Experience. Oxford Policy Management**.** Oxford. UK. 1-16.

COP23 Secretariat. (2017). Climate Action Statement by the Leaders of the Pacific Small Island Developing States. Retrieved on 08 February 2018, from https://cop23.com.fj/pacific-small-island-developing-states-statement/.

Dagnet, Y., & Bevis., W. (2013). Why Climat Justice? Retrieved on 01 April 2018, from http://www.wri.org/blog/2013/07/why-climate-justice

De La Tour, A., Glachant., M., & Meniere., Y. (2011). Innovation and International Technology Transfer: The Case of the Chinese Photovoltaic Industry. *Energy Policy, 39*(2): 761-770. DOI: https://doi.org/10.1016/j.enpol.2010.10.050

Demasters, K. (2018). Investment Opportunities spring from Climate Change. Retrieved on 26 June 2018, from https://www.fa-mag.com/news/investment-opportunities-spring-from-climate-change-37609.html

Dendura, J., & Le., H. (2015). A Methodological Guidebook: Climate Public Expenditure And Institutional Review (CPEIR). UNDP. Bangkok, Thailand. 1-72.

Dimitrov, R. S. (2016). The Paris Agreement on Climate Change: Behind Closed Doors. *Global Environmental Politics, 16*(3). 1-11. DOI: https://doi.org/10.1162/GLEP_a_00361

Dirix, J., Peeters W., & Sterckx., S. (2012). Equal Per Capita Entitlements To Greenhouse Gas Emissions: A Justice Based-Critique. In: Potthast T., Meisch S. (eds) *Climate change and Sustainable Development*. Wageningen Academic Publishers, Wageningen. 121-127. https://doi.org/10.3920/978-90-8686-753-0_16

Donner, S. D., Kandlikar, M., & Webbe, S. (2016). Measuring And Tracking The Flow Of Climate Change Adaptation Aid To The Developing World. *Environmental Research Letters, 11*(5). 1-9. DOI:10.1088/1748-9326/11/5/054006

Dornan, M. (2011). Solar-Based Rural Electrification Policy Design: The Renewable Energy Service Company (RESCO) Model in Fiji. *Renewable Energy, 36*(2). 797-803. DOI: https://doi.org/10.1016/j.renene.2010.07.015

Dornan, M. (2014a). Access to electricity in Small Island Developing States of the Pacific: Issues and Challenges. *Renewable and Sustainable Energy Reviews, 31*. 726-735. DOI: https://doi.org/10.1016/j.rser.2013.12.037

Dornan, M. (2014b). Reform Despite Politics? The Political Economy Of Power Sector Reform In Fiji, 1996–2013. *Energy Policy, 67*. 703-712. DOI: https://doi.org/10.1016/j.enpol.2013.11.070

Dornan, M., & Jotzo, F. (2012). Fiji cant function without Oil: Cheap Renewables Could Reduce The Risk. Retrieved on 20 September, 2017, from https://theconversation.com/fiji-cant-function-without-oil-cheap-renewables-could-reduce-the-risk-5354.

Dornan, M. (2015). Renewable Energy Development In Small Island Developing States Of The Pacific. *Resources, 4*(3). 490-506. DOI: doi:10.3390/resources4030490

Dornan, M., & Jotzo, F. (2015). Renewable Technologies And Risk Mitigation In Small Island Developing States: Fiji's Electricity Sector. *Renewable and Sustainable Energy Reviews, 48*. 35-48. DOI: https://doi.org/10.1016/j.rser.2015.03.059

Dornan, M., & Pryke, J. (2017). Foreign Aid to the Pacific: Trends and Developments in the Twenty-First Century. *Asia & the Pacific Policy Studies, **4**(3)*. 386-404. DOI: https://doi.org/10.1002/app5.185

Dornan, M., & Shah, K.U. (2016). Energy Policy, Aid, and the Development of Renewable Energy Resources in Small Island Developing States. *Energy Policy, 98*. 759-767. DOI: https://doi.org/10.1016/j.enpol.2016.05.035

Doyle, A., & Rampton, R. (2016). Paris Climate Accord To Take Effect; Obama Hails 'Historic Day'. Retrieved 14 February 2018, from https://www.reuters.com/article/us-climatechange-paris/paris-climate-accord-to-take-effect-obama-hails-historic-day-idUSKCN12523G.

Duus-Otterström, G. (2016). Allocating Climate Adaptation Finance: Examining Three Ethical Arguments For Recipient Control. *International Environmental*

Agreements: Politics, Law and Economics, 16(5). 655-670. DOI: https://doi.org/10.1007/s10784-015-9288-3

EBRD. (2015). Green Economy Transition Approach. European Bank for Reconstruction and Development. London. UK. 1-16.

ECA., & SMEC. (2013). Review of the Fiji National Energy Policy: Draft Energy Policy, Economic Consulting Associates. 1-38.

EIA. (2016). Projected growth in CO2 emissions driven by countries outside the OECD. Retrieved 22 February, 2018, from https://www.eia.gov/todayinenergy/detail.php?id=26252.

Eisenack, K., & Stecker, R. (2012). A Framework For Analyzing Climate Change Adaptations As Actions. *Mitigation and Adaptation Strategies for Global Change, 17*(3). 243-260. DOI: 10.1007/s11027-011-9323-9

European Commission. (2016). The Road from Paris: Assessing The Implications Of The Paris Agreement And Accompanying The Proposal For A Council Decision On The Signing, On Behalf Of The European Union, Of The Paris Agreement Adopted Under The United Nations Framework Convention On Climate Change. Brussels. The European Parliment and Council. 1-10.

EY. (2016). Climate Change: The Investment Perspective. Ernst & Young Global Limited. UK. 1-20.

Ezra, C. A. (2016). Climate Change Vulnerability Assessment in the Agriculture Sector: Typhoon Santi Experience. *Procedia-Social and Behavioral Sciences*, 216. 440-451. DOI: https://doi.org/10.1016/j.sbspro.2015.12.058

Falconer, A., & Stadelmann, M. (2014). What is climate finance? Definitions to Improve Tracking And Scale Up Climate Finance. A CPI Brief. Climate Policy Initiative. 1-9.

FAO. (2016). Forest and Climate Change After Paris: An Asia Pacific Perspective-Implications of the UNFCCC COP 21 on forest policy and practice. Food and Agriculture Organisation of the United Nations. Bangkok. Thailand. 1-40.

FDB. (2017). Sustainable Energy Financing Facility. Retrieved on 05 May, 2018, from http://www.fdb.com.fj/sustainable-energy-financing-facility/.

FEA. (2016). Annual Report. Fiji, Fiji Electricity Authority. Suva. Fiji. 1-35.

Ferris, E., Cerenea, M.M., & Petz, D. (2011). On The Front Line Of Climate Change and Displacement: Learning From and With Pacific Island Countries, Brokings Institution. Wahington DC. USA.1-42.

Ford, J. D., & King, D. (2015). A Framework For Examining Adaptation Readiness. *Mitigation and Adaptation Strategies for Global Change, 20*(4). 505-526. DOI: https://doi.org/10.1007/s11027-013-9505-8

Fry, I. (2007). Who Pays to Save Tuvalu? Entwicklung & Ländlicher Raum, Inhalt 5.22-23.

Füssel, H.-M., Hallegatte, S., & Reder, M. (2012). International Adaptation Funding. In: Edenhofer O., Wallacher J., Lotze-Campen H., Reder M., Knopf B., Müller J. (eds) Climate Change, Justice and Sustainability. Springer, Dordrecht. 311-330. DOI: https://doi.org/10.1007/978-94-007-4540-7_29

GCF. (2016). Readiness and Preparatory Support Proposal. Retrieved on 02 March 2016, from https://www.greenclimate.fund/documents/20182/574766/Guidelines_-_Readiness_and_Preparatory_Support_Guidebook.pdf/9eea580f-a109-4d90-b281-c54695114772

GCF. (2017a). GCF Perspectives - Ambassador Aliioaiga Feturi Elisaia of Samoa. Retrieved on 01 May 2018, from https://www.greenclimate.fund/-/gcf-perspectives-ambassador-aliioaiga-feturi-elisaia-of-samoa.

GCF. (2017b). GCF Readiness Support State of Play. Retrieved on 12 June 2017, from http://www.greenclimate.fund/documents/20182/466883/Readiness_Support_State_of_Play.pdf/60519d7a-e334-40d5-a0ab-86f79b60e36d.

GCF. (2019). Projects + Programmes. Retrieved on 18 February 2019, from http://www.greenclimate.fund/what-we-do/projects-programmes?p_p_id=122_INSTANCE_VKj2s9qVF7MH&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=_118_INSTANCE_4ZRnUzRWpEqO__column-2&p_p_col_count=2&p_r_p_564233524_resetCur=true&p_r_p_564233524_categoryId=846529#nav-projects.

GCF. (2018). Empoweing Countries. Retrieved on 11 April 2018, from https://www.greenclimate.fund/how-we-work/empowering-countries.

GGGI/MOE. (2017). Fundamental Assessment Report for the Development of Fiji's NDC Energy Sectort Implimentation Roadmap. Suva, GGGI/MOE.

Gichira, P. S., Agwata, J. F., & Muigua, K. D. (2014). Climate Finance: Fears and Hopes for Developing Countries. *Journal of Law, Policy and Globalization, 22*, 1-7.

GIZ. (2014). Financing Green Growth: A Review Of Green Financial Sector Policies In Emerging And Developing Economies. GIZ. Berlin, Germany**.** 1-112.

GIZ (2016). Lessons Learned from GIZ's Climate Finance Readiness Programme. Retrieved on 11 April 2018, from https://www.slideshare.net/OECD_ENV/lessons-learned-from-gizs-climate-finance-readiness-programme.

Gold, S. (2012). Climate Finance Readiness: A framework to Scale-Up Action. Retrieved on 02 February 2017, from https://www.iea.org/media/technologyplatform/workshops/finance/PestiBertaUNDP.pdf

Gomez-Echeverri, L. (2013). The Changing Geopolitics Of Climate Change Finance. *Climate Policy, 13*(5). 632-648. DOI: https://doi.org/10.1080/14693062.2013.822690

Goundar, A., Newell, A., Nuttall, P., Rojon, I., & Samuwai, J. (2017). King Canute muses in the South Seas: Why aren't Pacific Islands transitioning to low carbon sea transport futures? *Marine Policy, 81*. 80-90. DOI: https://doi.org/10.1016/j.marpol.2017.02.012

Gray, S., Mahony, C.O., Hills, J., O'Dwyer, B., Devoy, R., & Gault, J. (2016). Strengthening Coastal Adaptation Planning Through Scenario Analysis: A Beneficial But Incomplete Solution. *Marine Policy*. DOI: https://doi.org/10.1016/j.marpol.2016.04.031

Gulrajani, N., & Swiss, L. (2017). Why Do Countries Become Donors? Overseas Development Institute. London. UK. 1-28.

Halimanjaya, A. (2015). Climate Mitigation Finance Across Developing Countries: What Are The Major Determinants? *Climate Policy, 15*(2). 223-252. DOI: https://doi.org/10.1080/14693062.2014.912978

Halimanjaya, A. (2016). Allocating Climate Mitigation Finance: A Comparative Analysis of Five Major Green Donors. *Journal of Sustainable Finance & Investment, 6*(3). 161-185. DOI: https://doi.org/10.1080/20430795.2016.1201412

Hall, T. H. (2015). Emotional Diplomacy: Official Emotion On The International Stage. 1st Edition. Cornell University Press. Ithaca. USA.1-264.

Haque, T. A., Knight, D., & Jayasuria, D. (2015). Capacity Constraints and Public Financial Management in Small Pacific Island countries. *Asia & the Pacific Policy Studies, 2*(3). 609-622. DOI: https://doi.org/10.1002/app5.79

Hare, B., Ancygier, A., Marez, L.D., & Parra, P.Y. (2017). Facilitating Global Transition: The Role of Nationally Determined Contributions in Meeting the Long Term Temperature Goal of the Paris Agreement. Expert Perspective for the NDC Partnership. Climate Analytics. 1-7.

Hares, S. (2017). Climate Change offers huge investment opportunity: experts. Retrived on 26 June 2018, from https://www.reuters.com/article/us-global-climatechange-investment-idUSKBN17Q1U2

Hedger, M., & Nakhooda, S. (2015). Finance and Intended Nationally Determined Contributions (INDC): Enabling Implementation. Overseas Development Institute. London. UK.1-13.

Hemstock, S.L., Des Combes, H. J., Martin, T., Vaike, L.F., Mataiva, K., Buliruarua, L-A., Satiki, V., Kua, N., & Marawa, T. (2017). A Case for Formal Education in the Technical, Vocational Education and Training (TVET) Sector for Climate Change Adaptation and Disaster Risk Reduction in the Pacific Islands Region. In: Leal Filho W. (eds) Climate Change Adaptation in Pacific Countries. *Climate Change Management*. Springer, Cham. 309-324. DOI: https://doi.org/10.1007/978-3-319-50094-2_19

Hemstock, S.L., Buliruarua, L., Chan, E.Y., Chan, G.,Des Combes, H.J.,Davey, P., Farrell, P., Griffith, S., Hansen, H., Hatch, T., Holloway, A., Manuella-Morris, T., Martin, T., Renaud, F.G., Ronan, K., Ryan, B., Szarzynski, J., Shaw, D., Yasukawa, S., Yeung, T., & Murray, V. (2016). Accredited Qualifications For Capacity Development In Disaster Risk Reduction And Climate Change Adaptation. *Australasian Journal of Disaster and Trauma Studies, 20*(1). 1-19.

Hesterberg, T. (2014). What Teachers Should Know about the Bootstrap: Resampling in the Undergraduate Statistics Curriculum. 1-83.

Hezel, F. X. (2012). Pacific Island Nations: How Viable are their Economies? East-West Center. Hawaii, USA. 1-44.

Hoad, D. (2016). The 2015 Paris Climate Agreement: Outcomes and Their Impacts on Small Island States. *Island Studies Journal, 11*(1). 315-320.

Howes, S. (2014). A Framework for Understanding Aid Effectiveness Determinants, Strategies and Tradeoffs. *Asia & the Pacific Policy Studies, 1*(1). 58-72. DOI: 10.1002/app5.15

Hu, J., Harmsen, R., Crijns-Graus, W., & Worrell, E. (2018). Barriers to Investment In Utility-Scale Variable Renewable Electricity (VRE) Generation Projects. *Renewable Energy, 121*. 730-744. DOI: https://doi.org/10.1016/j.renene.2018.01.092

IEA. (2015). Energy and Climate Change: World Energy Outlook Special Report. Internationa; Energy Agency. Paris. France. 1-200.

IIED. (2017). Going Local: Fast Tracking Climate Finance to the Most Vulnerable. Retrieved on 14 February 2018, from http://pubs.iied.org/pdfs/17441IIED.pdf.

Investment Fiji. (2017a). Fiji. Retrieved on 15 February 2018, from http://www.investmentfiji.org.fj/pages.cfm/for-exporters/export-opportunities-in-fiji/fastest-growing-exports-1.html.

Investment Fiji. (2017b). Energy. Retrieved on 25 January 2018, from http://www.investmentfiji.org.fj/pages.cfm/for-investors/sector-industry-profiles/energy.html.

IPCC. (2014). Intergovernmental Panel On Climate Change (IPCC): Climate Change Synthesis Report. IPCC. Geneva. Switzerland. 1-169.

Irawan, S., Heikens, A., & Petrini, K. (2012). National Climate Funds: Learning from the experience in Asia Pacific Countries. UNDP Discussion Paper. 1-30.

IRENA. (2013). Pacific Lighthouses Report Renewable Energy Roadmapping for Islands. International Renewable Energy Agency. Abu Dhabi. UAE. 1-55.

IRENA. (2014). Renewable Islands: Settings for Success. International Renewable Energy Agency. Abu Dhabi. UAE. 1-28.

IRENA. (2015a). A Path to Prosperity: Renewable Energy for Islands: Second Edition. International Renewable Energy Agency. Abu Dhabi. UAE. 1-84.

IRENA. (2015b). Fiji Renewables Readiness Assessment. International Renewable Energy Agency. Abu Dhabi. UAE. 1-60.

IRENA. (2017). Untapped Potential For Climate Action Renewable Energy In Nationally Determined Contributions. International Renewable Energy Agency. Abu Dhabi. UAE. 1-36.

IRENA, & CPI. (2018). Global Landscape of Renewable Energy Finance 2018. International Renewable Energy Agency. Abu Dhabi. UAE.1-44.

Jafar, M. (2000). Renewable energy in the South Pacific—Options and Constraints. *Renewable Energy, 19*(1). 305-309. DOI: https://doi.org/10.1016/S0960-1481(99)00045-2

Jakob, M., & Steckel, J.C. (2014). How Climate Change Mitigation Could Harm Development In Poor Countries. *Wiley Interdisciplinary Reviews: Climate Change, 5*(2). 161-168. DOI: https://doi.org/10.1002/wcc.260

Jayaraman, T. K. (2016). Remittances on the rise in the Pacific. Retrieved on 13 June 2017, from http://www.fijitimes.com/story.aspx?id=351765.

Johansen, K., & Emborg, J. (2018). Wind farm acceptance for sale? Evidence from the Danish Wind Farm Co-Ownership Scheme. *Energy Policy, 117*. 413-422. DOI: https://doi.org/10.1016/j.enpol.2018.01.038

Juswanto, W., & Ali, Z. (2016). Renewable Energy and Sustainable Development in Pacific Island Countries. Policy Brief No 2016-5. Asian Development Bank Institute. Tokyo, Japan. 1-6.

Kalu, C. U., & Onyinye, M.O. (2015). Domestic Private Investment and Economic Growth in Nigeria: Issues and Further Consideration. *International Journal of Academic Research in Business and Social Sciences, 5*(2). 302-313.

Kaly, U., Pratt, G. & Mitchell, J. (2004). The Environmental Vulnerability Index. Retrieved on 05 February 2017, from http://gsd.spc.int/sopac/evi/Files/EVI%202004%20Technical%20Report.pdf

Kanbur, R. (2015). Education for Climate Justice. The Many Faces of Climate Justice: An Essay Series on the Principles of Climate Justice. Mary Robinson Foundation. 1-12.

Keeley, A. R. (2017). Renewable Energy in Pacific Small Island Developing States: The Role Of International Aid And The Enabling Environment From Donor's Perspectives. *Journal of Cleaner Production 146.* 29-36. DOI: https://doi.org/10.1016/j.jclepro.2016.05.011

Khan, A., & Amelie, V. (2015). Assessing Climate Change Readiness In Seychelles: Implications For Ecosystem-Based Adaptation Mainstreaming And Marine Spatial Planning. *Regional Environmental Change, 15*(4). 721-733. DOI: https://doi.org/10.1007/s10113-014-0662-4

Kharas, H. (2015). Aid and Climate Finance. Brookings Institute. 1-5. Retrieved on 03 July 2018, from https://www.brookings.edu/wp-content/uploads/2016/08/global_20160818_aid_climate_finance.pdf

Klein, R. J., & Möhner, A. (2011). The Political Dimension of Vulnerability: Implications for the Green Climate Fund. *IDS Bulletin 42*, (3). 15-22. DOI: https://doi.org/10.1111/j.1759-5436.2011.00218.x

Laniran, T. J., & Adeniyi, D.A. (2015). An Evaluation of The Determinants of Remittances: Evidence From Nigeria. *African Human Mobility Review, 1*(2). 1-15.

Lefevre, B., & Leipziger, D. (2014). Readiness for Transport Climate Finance: A Framework for Preconditions to Access Climate Finance in the Transport Sector.1-36.

Levin, K.,Rich, D., Yamil, B., Comstock, M., Tirpak, D., Mcgray, H., Noble, I., Mogelgaard, K., & Waskow, D. (2015). Designing and Preparing Intended Nationally Determined Contributions (INDCs). World Resources Institute, Washington DC. USA. 1-124.

Lin, J., & Streck, C. (2009). Mobilising Finance For Climate Change Mitigation: Private Sector Involvement in International Carbon Finance Mechanisms. *Melbourne Journal of International Law, 10.* 1-32.

Lo, J. (2016). Why can't poor countries access the climate finance they were promised. Retrieved on 22 May 2016, from http://www.theguardian.com/global-development-professionals-network/2016/feb/15/small-island-states-green-climate-fund

Luong, P. J., & Weinthal, E. (2010). Oil Is Not A Curse: Ownership Structure And Institutions In Soviet Successor States, Cambridge University Press.New York. USA.1-399.

Maack, J. N. (2001). Scenario Analysis: A Tool For Task Managers. 62-87.

Maclean, J., Tan, J., Tirpak, D., Sonntag-O'Brien, V., & Usher, E. (2008). Public Finance Mechanisms to Mobilize Investment in Climate Change Mitigation: An Overview of Mechanisms being used today to help scale up the climate mitigation markets, with a particular focus on clean energy sector. UNEP.Nairobi. Kenya. 1-40.

Maclellan, N. (2011). Turning The Tide: Improving Access To Climate Financing In The Pacific Islands. Lowy Institute for International Policy. Sydney. Australia. 1-16.

Maclellan, N. (2012). Accountability for climate finance in the Pacific. Retrieved on 15 January 2016, from http://www.devpolicy.org/accountability-for-climate-finance-in-the-pacific/

Maclellan, N., & Meads, S. (2016). After Paris: Climate Finance in the Pacific: Oxfam Research Report September 2016. Oxfam. New Zealand. 1-96.

Maclellan, N., Meads., S, & Coates, B. (2012). Owning Adaptation In The Pacific: Strengthening Governance Of Climate Adaptation Finance. Oxfam. New Zealand. 1-79.

Maggioni, E. (2010). *Justice implications of adaptation to Climate Change and its governance.* Retrieved on 05 December 2017, from http://www.diss.fu-berlin.de/docs/servlets/MCRFileNodeServlet/FUDOCS_derivate_000000001614/Maggioni__Justice_Implications_of_Adaptation_to_Climate_Change_and_its_Governance.pdf

Maiese, M. (2003) Distributive Justice: Beyond Intractability. Eds. Guy Burgess and Heidi Burgess. Conflict Information Consortium, University of Colorado, Boulder. Retrieved on 02 February 2016, from http://www.beyondintractability.org/essay/distributive-justice

Manly, B. F. J. (1992). Bootstrapping for Determining Sample Sizes In Biological Studies. *Journal of Experimental Marine Biology and Ecology, 158*(2). 189-196.

Marchal, V., Dellink, R., Vuuren, D., Clapp, C., Chateau, J., Lanzi, E., Magne, B, Vliet, J. (2011). OECD Environmental Outlook to 2050:Chapter 3: Climate Change Pre-Release Version. OECD**.** 1-91.

Markandya, A., Gallarraga, I., & Rubbelke, D. (2017). Climate Finance: Theory And Practice, World Scientific Publishing Co. Pte. Ltd. Singapore.

Mason, C. H. J. (2015). Financial Mechanism for Clean Energy in Small Island Developing States. The World Bank**.** Wahington DC. USA. 1-52.

Masullo, I., Larsen, G., Brown, L., & Dougherty-Choux, L. (2015). Direct Access to Climate Finance: Lessons Learned by National Institutions. Working Paper. World Resources Institute. Washington DC. USA. 1-32.

Mathews, J. A., Kidney, S., Mallon, K., & Hughes, M. (2010). Mobilizing Private Finance To Drive An Energy Industrial Revolution. *Energy Policy*, *38*(7). 3263-3265. DOI: https://doi.org/10.1016/j.enpol.2010.02.030

McNamara, K. E. (2013). Taking Stock Of Community-Based Climate-Change Adaptation Projects In The Pacific. *Asia Pacific Viewpoint, 54*(3). 398-405. DOI: https://doi.org/10.1111/apv.12033

McNamara, K. E., & Des Combes, H.J. (2015). Planning for community relocations due to climate change in Fiji. *International Journal of Disaster Risk Science, 6*(3). 315-319. DOI: https://doi.org/10.1007/s13753-015-0065-2

Mendoza, M. E. T., Naret, H., Ballaran, V. G., & Arias, J. K. B. (2014). Assessing vulnerability to climate change impacts in Cambodia, the Philippines and Vietnam: an analysis at the commune and household level. *Journal of Environmental Science and Management*, *17*(2), 78-91.

Michalena, E., & Hills, J.M. (2018). Paths of Renewable Energy Development in Small Island Developing States of the South Pacific. *Renewable and Sustainable Energy Reviews, 82*. 343-352. DOI: https://doi.org/10.1016/j.rser.2017.09.017

Michalena, E., Kouloumpis, V., & Hills, J.M. (2018). Challenges for Pacific Small Island Developing States in achieving their Nationally Determined Contributions (NDC). *Energy Policy, 114*. 508-518. DOI: https://doi.org/10.1016/j.enpol.2017.12.022

Milčiuvienė, S., & Paškevičius, J. (2014). The Investment Environment for Renewable Energy Development in Lithuania: The Electricity Sector. *Baltic Journal of Law & Politics, 7*(1). 29-48. DOI: https://doi.org/10.2478/bjlp-2014-0003

Miller, M. (2012). Climate Public Expenditure and Institutional Reviews (CPEIRs) in the Asia-Pacific Region: What have We Learnt? UNDP. Asia Pacific Regional Center.1-28.

Mimura, N. (1999). Vulnerability of Islands in the South Pacific to sea level rise and climate change. *Climate Research, 12.* 137-143.

Minang, P. A., Noordwijk, M. V., Duguma, L.A., Alemagi, D., Do, T.H., Bernard, F., Agung, P., Robiglio, V., Catacutan, D., Suyanto, S., Armas, A., Aguad, C.V.,Feudjio, M., Galundra, G., Maeyani, R., White, D., Widayaki, A., Kahurani, E., Namirembe, S., & Leimona, B (2014). "REDD+ Readiness progress across countries: time for reconsideration. *Climate Policy*, *14*(6). 685-708. DOI: https://doi.org/10.1080/14693062.2014.905822

Ministry of Economy. (2017a). 5 Year and 20-Year National Development Plan: Tranforming Fiji. The Government of Fiji, Suva, Fiji. 1-144.

Ministry of Economy. (2017b). Fiji NDC Implementation Roadmap 2017-2030 Setting a pathway for emissions reduction target under the Paris Agreement. The Government of Fiji. Suva, Fiji. 1-62.

Mitchell, T., Tanner, T., Wilkinson, E., Roach, R., Boyd, S. (2006). Overcoming The Barriers. Mainstreaming Climate Change Adaptation in Developing Countries. Institute of Development Studies, Brighton. UK. 1-24.

Muenzer-Jones, V., & Johnson, D. (2016). Recent Developments In Asian Green Bond Markets. Retrieved on 12 June, 2017, from http://www.nortonrosefulbright.com/knowledge/publications/137413/recent-developments-in-the-asian-green-bond-markets.

Müller, B. (2013). The Allocation of (Adaptation) Resources Lessons from Fiscal Transfer Mechanisms. Oxford Energy and Environment Brief. The Oxford Institute of Energy Studies, University of Oxford. UK. 1-20

Naigulevu, F. (2017). Banking System Liquidity remains High. Retrieved on 19 April 2018, from http://www.fijitimes.com/story.aspx?id=407331.

Nakhooda, S. (2012). Climate Finance: Readiness and Strenghtening Instituions: Technical Meeting Summary. Discussion Paper, Cape Town, South Africa. 1-16.

Nakhooda, S., & Calland, R. (2013). Climate Finance Readiness: Preliminary Approach And Insights From Efforts In Southern Africa. 1-4.

Nakhooda, S., Fransen, T., Kuramochi, T., Caravani, A., Prizzon, A., Shimizu, N., Tilley, H., Halimanjaya, A., & Welham, B. (2013). Mobilising international climate finance: Lessons from the Fast-Start Finance Period. ODI, WRI and Institute of Global Environmental Strategies, & Open Climate Network.1-66.

Nakhooda, S., Watson, C., & Barnard, S. (2015). Climate Finance Pledges at COP21. Retrieved on 11 May 2016, from https://www.odi.org/opinion/10196-infographic-climate-finance-pledges-cop21-paris.

NASA. (2016). Earth Observatory- Natural Hazards. Retrieved on 30 October 2017, from https://earthobservatory.nasa.gov/NaturalHazards/view.php?id=87562.

Nurse, L. A., McLean, R.F., Agard, J., Briguglio, L.P., Duvat-Magnan, V., Pelesikoti, N., Tompkins, E., & Webb, A.,(2014). Small Islands: In Climate Change 2014 Impacts; Impacts, Adaptation a& Vulnerability. Part B Regional Aspects. Contribution to Workinf Group II to the Fifth Assessment Report of the Intergovenmnetal Pannel on Climate Change. Barros, V.R., Field, C.B., Dokken, D.J., Mastrandrea, M.D., Mach, K.J., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., et al., Eds.; Cambridge University Press: Cambridge, UK; New York, NY, USA, 2014. 1613–1654.

Nussbaum, M. C. (2012). Climate change: Why Theories of Justice Matter. *Chicago Journal of International Law, 13*(2). 469-488.

OECD. (2015a). Small Island Developing States (SIDS): Financing the 2030 Agenda for Sustainable Development. 1-6.

OECD. (2015b). Toolkit To Enhance Access To Adaptation Finance: For Developing Countries That Are Vulnerable To Adverse Effects Of Climate Change Including LDCs, SIDS and African States, OECD.1-52.

OECD. (2016). 2020 Projections of Climate Finance towards the USD 100 billion Goal: Technical Note. OECD,1-44.

OECD. (2017). Climate Change: OECD DAC External Development Finance Statistics. Retrieved on 09 August 2017, from http://www.oecd.org/dac/stats/climate-change.htm.

OECD., & The World Bank. (2016). Climate and Disaster Resilience Financing in Small Island Developing States. A Report Jointly Authored By The Organization For Economic Co-Operation And Development (OECD) And The Small Island States Resilience Initiative (SISRI) Team in the Climate Change Group of The World Bank. Washington DC. USA.1-96.

Oko, M. (2016). NDC Partneship Rocks Marrakech, World Resource Institute. Retrieved on 06 December 2017, from http://www.wri.org/blog/2016/11/ndc-partnership-rocks-marrakech

Oxfam. (2015). Oxfam's Initial Analysis Of The Paris Agreement: What Will The Paris Agreement Be Remembered For? Retrieved on 14 February 2018, from https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/post_cop21_analysis_final_181215.pdf.

Paavola, J., & Adger, W.N., (2006). Fair Adaptation to Climate Change. *Ecological Economics, 56*(4). 594-609. DOI: https://doi.org/10.1016/j.ecolecon.2005.03.015

Panizzon, M. (2008). Labour Mobility: A Win-Win-Win Model For Trade And Development. The Case Of Senegal. Retrieved on 05 April 2017, from https://www.iom.int/jahia/webdav/shared/shared/mainsite/projects/documents/gtdf_flyer_en.pdf

Pappas, C., & Williams, I. (2011). Grey Literature: Its Emerging Importance. *Journal of Hospital Librarianship, 11*(3). 228-234. DOI: https://doi.org/10.1080/15323269.2011.587100

Pasisi, C., Hook, S., Medrana, R., Petrini, K., & Taloburi, E. (2013). Pacific Climate Change Finance Assessment: Nauru Case Study- Final Report. 1-100.

Patel, S. (2011). Climate Finance: Engaging The Private Sector A Background Paper For Mobilizing Climate Finance, A Report Prepared At The Request Of G20 Finance Ministers. World Bank**.** 1-56.

Pauw, W. (2015). Not a Panacea: Private-Sector Engagement in Adaptation and Adaptation Finance In Developing Countries. *Climate Policy, 15*(5). 583-603. DOI: https://doi.org/10.1080/14693062.2014.953906

Pauw, W., Klein, R.J.T. Wellinga, P., & Biermann, F. (2016). Private Finance For Adaptation: Do Private Realities Meet Public Ambitions? *Climatic Change, 134*(4). 489-503. DOI: https://doi.org/10.1007/s10584-015-1539-3

Persson, A., & Remling, E. (2014). Equity and efficiency in adaptation finance: initial experiences of the Adaptation Fund. *Climate Policy, 14*(4). 488-506. DOI: https://doi.org/10.1080/14693062.2013.879514

Pickering, J., Betzold, C., & Skovgaard, J. (2017). Special Issue: Managing Fragmentation and Complexity in the Emerging System of International Climate Finance. *International Environmental Agreements: Politics, Law and Economics, 17* (1). 1-16. DOI 10.1007/s10784-016-9349-2

Pickering, J., Skovgaard, J., Kim, S., Roberts, J.T., Rossati, D., Stadelmann, M., & Reich, H. (2015). Acting On Climate Finance Pledges: Inter-Agency Dynamics And Relationships With Aid In Contributor States. *World Development, 68*. 149-162. DOI: https://doi.org/10.1016/j.worlddev.2014.10.033

PIDF. (2015). Suva Declaration on Climate Change. Pacific Island Development Forum. Suva. Fiji**.** 1-4.

PIDF. (2016). Climate Change Forum: Post Cop21 Paris Agreement. Retrieved on 14 February 2018, from http://pacificidf.org/climate-change-forum-post-cop21-paris-agreement/.

PIFS. (2015). Pacific Experiences With Modalities Relevant For Climate Change Financing. Suva, Pacific Island Forum Secretariat. Suva, Fiji. 1-30

PIFS. (2017). 2017 Forum Foreign Ministers Meeting – Outcomes. Retrieved on 26 February 2018, from http://www.forumsec.org/pages.cfm/newsroom/announcements-activity-updates/2017-1/pacific-islands-forum-foreign-ministers-meeting.html.

Pitt, H., & Blandford, L. (2017). Policy Paper: Mobilizing Private Sector Investment In Support Of Nationally Determined Contributions. Center For Clean Air Policy. Washington DC. USA. 1-29.

Plunkett, E., & Sabhlok, V. (2016). Mind the Gap: Bridging the Climate Financing Gap with Innovative Financial Mechanisms- Insight Brief 1 / November 2016**.** Global Green Growth Institute. Seoul, Korea. 1-27.

Prasad, R. D., Bansal, R.C., & Raturi, A. (2017). A Review of Fiji's Energy Situation: Challenges and Strategies as a Small Island Developing State. *Renewable and Sustainable Energy Reviews, 75*. 278-292. DOI: https://doi.org/10.1016/j.rser.2016.10.070

Rai, N. (2015). Deepening Readiness for Climate Finance: The Role of the Political Economy. Briefing. International Institute for Environment and Development. London. UK. 1-4.

Rawls, J. (2009) A Theory of Justice, Havard University Press.

RBF. (2012). Reserve Bank Introduces Agriculture And Renewable Energy Loans Ratio. Press Release No. 06/2012. Reserve Bank of Fiji. Suva. Fiji.

Reuters. (2017). Climate measures agreed in Paris not enough - Merkel. Retrieved on 14 February 2018, from https://www.reuters.com/article/us-climate-change-accord-merkel/climate-measures-agreed-in-paris-not-enough-merkel-idUSKBN1DF27G.

Riddell, R. C. (2008). Does Foreign Aid Really Work? Oxford University Press.UK.

Robie, D., & Chand, S. (2017). Bearing Witness 2016: A Fiji Climate Change Journalism Case Study. *Pacific Journalism Review, 23*(1). 186-204.

Robinson, S. A. (2015). Climate change adaptation trends in small island developing states. *Mitigation and Adaptation Strategies for Global Change, 22*(4), 669-691. DOI:10.1007/s11027-015-9693-5

Robinson, S., & Dornan, M. (2017). International Financing for Climate Change Adaptation in Small Island Developing States. *Regional Environmental Change, 17*(4). 1103-1115. DOI: https://doi.org/10.1007/s10113-016-1085-1

Samuwai, J., & Hills, J.M. (2018). Assessing Climate Finance Readiness in the Asia-Pacific Region. *Sustainability, 10*(4). 1-18. DOI: https://doi.org/10.3390/su10041192

Schalatek, L., Barnard, S., Nakhooda, S., & Caravani, A. (2012). Climate Finance Regional Briefing: Asia and Pacific. Climate Funds Update. Climate Finance Fundamentals, 8. 1-2. (Replace Barnand 2013).

Schalatek, L., Nakhooda, S., & Watson, C. (2016). The Green Climate Fund. Climate Funds Update. Climate Finance Fundamentals (11). 1-8.

Scheffran, J., Marmer, E., & Sow, P. (2012). Migration As A Contribution To Resilience And Innovation In Climate Adaptation: Social Networks And Co-Development In Northwest Africa. *Applied Geography 33*. 119-127. DOI: https://doi.org/10.1016/j.apgeog.2011.10.002

Schoemaker, P. J. (1995). Scenario Planning: A Tool For Strategic Thinking. *Sloan Management Review*, *36*(2). 25-40.

Schlosberg, D., & Collins, L.B. (2014). From Environmental to Climate Justice: Climate Change and the discourse of environmental justice. *WIREs Climate Change.*DOI: 10.1002/wcc.275

Schwartz, P. (1996). The Art of the Long View: Planning for the Future in an Uncertain World. Crown Business. 1-288.

Selin, H. (2016). Climate Finance and Developing Countries:The Need for Regime Development. GEGI Working Paper No. 009. Boston University. Global Economic Governance Initiative. 1-14.

Sen, A. (1995). Inequality Re-examined. Havard University Press. 1-207.

Sharma, P., Roca, E., Dakai, V., & Manoa, S. (2014). An Assessment of Fiji's Banking Sector on a Global Scale: 2000–2011. Policy Research Working Paper 1. Reserve Bank of Fiji, Suva, Fiji. 1-31.

Smit, B., & Wandel, J. (2006). Adaptation, adaptive capacity and vulnerability. *Global Environmental Change, 16*(3), 282-292. DOI:10.1016/j.gloenvcha.2006.03.008

Smith, R., & Hemstock, S. (2012). An Analysis of the Effectiveness of Funding for Climate Change Adaptation Using Tuvalu as a Case Study. *International Journal of Climate Change: Impacts & Responses, 3*(1). DOI: 10.18848/1835-7156/CGP/v03i01/37095

Sokona, Y., & Denton, F. (2001). Climate Change Impacts: Can Africa Cope With The Challenges? *Climate Policy*, *1*(1). 117-123. DOI: 10.3763/cpol.2001.0110

SPC. (2017). Private Investment is the way to go. Retrieved on 21 February 2018, from http://www.spc.int/blog/private-sector-investment-is-the-way-to-go/.

SPREP. (2014). If we save Tuvalu, we save the world - UN Climate Convention, Peru. Retrieved on 15 February 2018, from http://www.sprep.org/climate-change/qif-we-save-tuvalu-we-save-the-worldq-un-climate-convention-peru.

SPREP. (2016). The Paris Agreement and the Pacific Islands. Retrieved on 12 February 2018, from http://www.sprep.org/climate-change/the-paris-agreement-and-the-pacific-islands.

SPSE. (2016). South Pacific Stock Exchange Annual Report. Suva, Fiji.1-62.

Stadelmann, M., Persson, A., Ratajczak-Juszko, I., & Michaelowa, A. (2014). Equity And Cost-Effectiveness Of Multilateral Adaptation Finance: Are They Friends Or Foes? *International Environmental Agreements: Politics, Law and Economics, 14*(2). 101-120. DOI: https://doi.org/10.1007/s10784-013-9206-5

Stadelmann, M., Roberts, T., & Michaelowa, A. (2011). New and Additional to What? Assessing Options for baselines to assess climate finance pledges. *Climate and Development*, *3*(3). 175-192. DOI: https://doi.org/10.1080/17565529.2011.599550

Steinbach, D., Varma. D., Madan, P., Pandey, A., Khanna, P., & Nakhooda, S. (2014). Enhancing India's Readiness To Access And Deliver International Climate Finance.1-110.

Stewart, R. B., Kingsbury, B., & Rudyk, B. (2009). Climate Finance: Regulatory And Funding Strategies For Climate Change And Global Development. NYU Press. 1-352.

Strain, D. (2016) Responding to disaster; How poverty and vulnerability are linked in Mumbai. Retrieved on 07 Febraury 2018, from http://www.futureearth.org/blog/2016-nov-16/responding-disaster-how-poverty-and-vulnerability-are-linked-mumbai

Taibi, E., Gualberti, G., Bazillian, M., & Gielen, D. (2016). A Framework For Technology Cooperation To Accelerate The Deployment Of Renewable Energy In Pacific Island Countries. *Energy Policy, 98*. 778-790. DOI: https://doi.org/10.1016/j.enpol.2016.03.009

The Commonwealth. (2013). Improving Access to Climate Finance for Small and Vunerable States: A Report of the Commonwealth Expert Group On Climate Finance to the Commonwealth Heads of Government Meeting. London, UK. 1-24.

The Government of Fiji. (2015). Sustainable Energy For all (SE4ALL): Rapid Assessment and Gap Analysis. Suva, Department of Energy**.** 1-68.

The Nature Conservacy. (2012). Climate Finance Readiness: Lessons Learned in Developing Countries.1-24

The Republic of Kiribati. (2018). Relocation. Retrieved on 15 February 2018, from http://www.climate.gov.ki/category/action/relocation/.

The World Bank (2015a). Financing Renewable Energy Options for Developing Financing Instruments Using Public Funds. The World Bank**.** 1-60.

The World Bank. (2015b). From Billions to Trillions: MDB Contributions tp Financing for Development. Retrieved on 14 May 2018, from http://pubdocs.worldbank.org/en/692914365543030 71/dfi-idea-action-booklet.pdf.

The World Bank (2015c). REDD+ Country Participants. Retrieved on 13 June 2017, from https://www.forestcarbonpartnership.org/redd-country-participants.

The World Bank. (2017a). Climate Finance. Retrieved on 14 February 2018, from http://www.worldbank.org/en/topic/climatefinance.

The World Bank. (2017b). Fiji Issues First Developing Country Green Bond, Raising $50 Million for Climate Resilience. Retrieved 17 November 2017, from http://www.worldbank.org/en/news/press-release/2017/10/17/fiji-issues-first-developing-country-green-bond-raising-50-million-for-climate-resilience.

The World Bank. (2017c). Sustainable Energy Finance Project. Retrieved on 07 March 2018, from http://projects.worldbank.org/P098423/sustainable-energy-finance-project?lang=en&tab=documents&subTab=projectDocuments.

The World Bank. (2017d). The World Bank In Pacific Islands. Retrieved on 03 October 2017, from http://www.worldbank.org/en/country/pacificislands/overview.

Thomson, J. (2014). A History of Climate Justice. *Solutions 5* (2), 89-92.

Thwaites, J., & Amerasinghe, N.M. (2018). New UN Assessment Deliver Good News on Climate Finance, But No Time for Complacency. World Resource Instutute. Retrieved on 17 February 2019, from https://www.wri.org/blog/2018/11/new-un-assessment-delivers-good-news-climate-finance-no-time-complacency

Timilsina, G. R., & Shah, K.U. (2016). Filling The Gaps: Policy Supports And Interventions For Scaling Up Renewable Energy Development In Small Island Developing States. *Energy Policy, 98*. 653-662. DOI: https://doi.org/10.1016/j.enpol.2016.02.028

Tortora, P., & Soares, R. (2016). Climate and Disaster Resilience Financing in Small Island Developing States, Organisation for Economic Co-operation and Development and the Small Island States Resilience Initiative team, Climate Change Group, World Bank. DOI: http://dx. doi. org/10.1787/9789264266919-en.

Tuilevuka, N. (2016). $2.98 billion damage caused by TC Winston. Retrieved on 30 October 2017, from https://www.newswire.com.fj/national/tc-winston/2-98-billion-damage-caused-by-tc-winston/.

UNCTAD. (2015). New and Additional Climate Finance: A Continuing Lack of Clarity. Policy Brief No.42. United Nations Conference on Trade and Development. 1-4.

UNDP. (2015). Budgeting for Climate Change: How Governments Have Used National Budgets To Articulate A Response To Climate Change. UNDP. Bangkok, Thailand. 1-46.

UNEP. (2014). Financial Institutions Taking Action On Climate Change: A Report On How Climate Leadership Is Emerging In The Finance Sector - And On How Public And Private Actors Needto Work Together To Grow Leadership Into A New Normal. UNEP. Nairobi. Kenya. 1-36.

UNEP. (2015). What Is Climate Finance Readiness. Retrieved on 07 June 2017, from http://www.gcfreadinessprogramme.org/what-climate-finance-readiness.

UNEP. (2016a). The Adaptation Finance Gap Report. Nairobi. Kenya**.** 1-72.

UNEP. (2016b). The Emission Gap Report 2016. A UNEP Synthesis Report. Nairobi. Kenya. 1-86.

UNFCCC. (1992). United Nations Framework Convention On Climate Change.1-25.

UNFCCC. (2005). Climate Change: Small Island Developing States. 1-32.

UNFCCC. (2009). Draft decision -/CP.15 Proposal by the President Copenhagen Accord: FCCC/CP/2009/L.7. 1-5.

UNFCCC. (2014). LDC Country Information. Retrieved on 15 February 2018, from http://unfccc.int/cooperation_and_support/ldc/items/3097.php.

UNFCCC. (2015). The Paris Agreement. *FCCC/CP/2015/L.9/Rev.1*. 1-32.

UNFCCC. (2016). Aggregate effect of the intended nationally determined contributions: an update. Synthesis report by the Secretariat. Bonn, Germany, 1-75.

UNFCCC. (2017). Regional Dialogue on Nationally Determined Contributions (NDCs) for Africa. Dialogue Report Rabat, Morocco. 1-10.

UNFCCC. (2018a). Introduction to Climate Finance. Retrieved on 23 May 2018, from https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance/introduction-to-climate-finance

UNFCCC. (2018b). Paris Agreement - Status of Ratification. Retrieved on 02 February 2018, from https://unfccc.int/process/the-paris-agreement/status-of-ratification.

UNFCCC. (2018c). What is the financial mechanism? What are the other funds?. Retrieved on 24 May 2018, from http://bigpicture.unfccc.int/content/climate-finance/what-is-the-financial-mechanism-what-are-the-other-funds.html

UNU-EHS. (2015). World Risk Report 2015. United Nations University- Institute for Environment and Human Security Berlin, Germany.1-74.

Urmee, T., & Harries, D. (2012). The solar home PV program in Fiji – A successful RESCO approach? *Renewable Energy, 48.* 499-506. DOI: https://doi.org/10.1016/j.renene.2012.06.017

Urpelainen, J. (2012). Strategic problems in North–South Climate Finance: Creating Joint Gains For Donors And Recipients. *Environmental Science & Policy 21*. 14-23. DOI: https://doi.org/10.1016/j.envsci.2012.03.001

USAID. (2016). Extract from USAID Request for Proposal (RFP) No. SOL-492-16-000004 Climate Ready (READY) Activity. Retrieved on 05 January 2016, from https://govtribe.com/project/climate-ready-ready-activity

Vandeweerd, V., Glemarec, Y., & Billett, S. (2014). Readiness for Climate Finance. A Framework For Understanding What It Means To Be Ready To Use Climate Finance. UNDP, New York, USA. 1-32.

Venugopal, S., & Patel, S. (2013). Why Is Climate Finance So Hard to Define? Retrieved on 13 June 2016, from http://www.wri.org/blog/2013/04/why-climate-finance-so-hard-define.

Venugopal, S., & Srivastava, A. (2012). A Primer on Public Climate Financing Instruments used to Leverage Private Capital.Working Paper. World Resource Institute. Washington DC. USA.1-36.

Wan, G., & Sebastian, I. (2011). Poverty in Asia and the Pacific: An Update. ADB Economic Working Paper Series**.**1-37.

Weiler, F., Klock, C., & Dornan, M. (2018). Vulnerability, Good Governance, Or Donor Interests? The Allocation Of Aid For Climate Change Adaptation. *World Development, 104.* 65-77. DOI: https://doi.org/10.1016/j.worlddev.2017.11.001

Weischer, L., Warland, L., Eckstein, D., Hoch, S., Michaelowa, A., Koehler, M., & Wehner, S., (2016). Investing In Ambition–Analysis Of The Financial Aspects In (Intended) Nationally Determined Contributions. Briefing Paper. GIZ. 1-28.

Weisser, D. (2004). Power Sector Reform In Small Island Developing States: What Role For Renewable Energy Technologies? *Renewable and Sustainable Energy Reviews, 8*(2). 101-127. DOI: https://doi.org/10.1016/j.rser.2003.10.002

Williams, M., & McDuie-Ra, D. (2017). Combatting Climate Change in the Pacific: The Role of Regional Organizations, Springer.1-36.

Wolf, F., Surropp, D., Singh, A., & Leal, W. (2016). Energy Access and Security Strategies in Small Island Developing States. *Energy Policy, 98*. 663-673. DOI: https://doi.org/10.1016/j.enpol.2016.04.020

Wolff, J. (1998). Fairness, Respect, and the Egalitarian Ethos. *Philosophy & Public Affairs, 27*(2). 97-122. DOI: http://www.jstor.org/stable/2672834

World Economic Forum. (2016a). Green Investment. Retrieved on 20 March 2018, from http://reports.weforum.org/green-investing-2013/introduction/.

World Economic Forum. (2016b). Private Leverage Achieved By Different Instruments Varies Depending On The Definition And Context. Retrieved 14 on May 2018, from http://reports.weforum.org/green-investing-2013/leveraging-private-investment/?doing_wp_cron=1526291296.3183989524841308593750.

World Economic Forum. (2017). The Global Competitiveness Report 2017–2018. Geneva; Swizerland**.** 1-393.

World Travel & Toursim Council. (2017). Travel & Tourism Economic Impact 2017 Fiji. 1-24.

WRI. (2015). WRI Supports Adoption of Landmark Paris Agreement on Climate Change. Retrieved 14 on February 2018, from https://www.wri.org/image/wri-supports-adoption-landmark-paris-agreement-climate-change.

Yaqoot, M., Diwan, P., & Kandpal, T.C. (2016). Review of Barriers to the Dissemination of Decentralized Renewable Energy Systems. *Renewable and Sustainable Energy Reviews, 58*. 477-490. DOI: https://doi.org/10.1016/j.rser.2015.12.224

Yu, X., & Taplin, R. (1997). A Survey: International Aid for Renewable Energy in the Pacific Islands since the 1970s. *Energy Policy, 25*(5). 501-516. DOI: https://doi.org/10.1016/S0301-4215(97)00038-4

Yu, Y. A. (2016). Climate Finance in and Beyond the Paris Agreement: Implementing Climate Finance Commitments in the Asia and the Pacific Region. UN ESCAP. Bangkok, Thailand. 1-33.

Zhang, H.-B., Dai, H-C., Lai, H-X., & Wang, W-T. (2017). US withdrawal from the Paris Agreement: Reasons, Impacts, and China's Response. *Advances in Climate Change Research, 8*(4). 220-225. DOI: https://doi.org/10.1016/j.accre.2017.09.002

Zhang, Z., & Maruyama, A. (2001). Towards a Private–Public Synergy In Financing Climate Change Mitigation Projects. *Energy Policy, 29*(15). 1363-1378. DOI: https://doi.org/10.1016/S0301-4215(01)00038-6

APPENDIX A

Paper 1: Assessing Climate Finance Readiness in the Asia-Pacific Region

Jale Samuwai[1] and Jeremy Maxwell Hills[2,3]

[1]Pacific Centre for Environment and Sustainable Development, The University of the South Pacific, Suva, Fiji

[2]Institute of Marine Resources, The University of the South Pacific, Suva, Fiji

[3]Sustainability Research Center (ML28), University of the Sunshine Coast, Australia

Published in: **Sustainability** (2018), 10 (4), 1-18. DOI:10.3390/su10041192

Statement of Contributions of Joint Authorship

Jale Samuwai: (Candidate)

Writing and compiling of manuscript, established methodology, data analysis, preparation of tables and figures.

Dr. Jeremy Maxwell Hills: (Principal Supervisor)

Supervised and assisted with manuscript compilation, editing and co-author of paper.

This research paper (Accepted Version) is the refined and streamlined version of Chapter 2.

sustainability

MDPI

Article

Assessing Climate Finance Readiness in the Asia-Pacific Region

Jale Samuwai [1,*] and Jeremy Maxwell Hills [2]

[1] Pacific Centre for Environment & Sustainable Development, The University of the South Pacific, Laucala Campus, Private Mail Bag, Suva, Fiji Islands

[2] Institute of Marine Resources, The University of the South Pacific, Laucala Campus, Private Mail Bag, Suva Fiji Islands; jeremy.hills@usp.ac.fj

* Correspondence: jalecuruki5@gmail.com; Tel.: +679-994-5586

Received: 3 February 2018; Accepted: 11 April 2018; Published: date

Abstract: Readiness is the current mantra in the climate finance discourse and is a key determinant for accessing climate finance. This study develops and applies an analytical 3-dimensional framework to appraise climate finance readiness in selected Asia-Pacific countries. Three dimensions of readiness are identified: (1) *Policies and Institutions*, (2) *Knowledge Management and Learning*, and (3) *Fiscal Policy Environment.* Using the Climate Public Expenditure and Institutional Review as the basis for such framework, the study uncovers a massive readiness gap between countries in the Asian sub-region and those in the Pacific sub-region. The study also found that readiness has a predictable, yet small, impact on the magnitude of climate finance accessed. This suggests that improving readiness alone is not sufficient to unlock climate finance, as access to climate finance is to a larger extent determined by other factors; this is critical to shaping readiness endeavors for the Pacific Small Island Developing States (PSIDS), as well as for donors. This study argues for a re-think in the PSIDS current readiness approach, reducing emphasis on multilateral and private flows and diversifying through practical and uncomplicated bilateral and remittance sources. These two sources of finances have a good track record of consistently mobilizing external finance to PSIDS despite their climate finance readiness status. Broadening readiness efforts towards these two alternative funding sources extends the feasibility of the current readiness approach. The present direction of climate finance readiness offers a continuing access dilemma to many of the PSIDS, especially the poorest and most vulnerable.

Keywords: *Climate Finance; Readiness; Asia-Pacific; Small Island States; Bilateral; Remittances; CPEIR; PSIDS; Climate Change*

1. Introduction

Access to climate finance remains an on-going negotiation issue within the United Nations Framework Convention on Climate Change (UNFCCC). Precisely determining how much climate finance has been mobilized so far is challenging, as estimates differ depending on definitions and accounting procedures. Donors tend to

mobilize a significant portion of their climate finance contributions outside of the UNFCCC financial mechanisms, further complicating their accounting [1]. Reasons for the use of non-UNFCCC sources are manifold, ranging from proximity to donors' interest, to domestic laws and political environment, aid effectiveness, donor visibility, and flexibility [2]. Nevertheless, one thing is certain: climate finance commitments have increased significantly following the adoption of the landmark 2015 Paris Agreement [3].

A global stocktake of climate finance sources indicated that there are more than 50 international public funds, 60 carbon markets, and 6000 private equity funds [4,5], as well as 99 multilateral and bilateral climate funds, currently in operation [6]. Such proliferation of climate finance sources is a blessing and a curse for poor and small vulnerable countries [7]. The blessing is the increased number of potential funding opportunities available, while the curse is the further fragmentation of an already convoluted climate financing landscape [7]. Consequently, the increase in climate financing sources has triggered a race for *readiness* amongst developing countries as they compete to maximize access to, and leverage from, these varied opportunities.

While no definition of readiness has achieved broad consensus, it is generally understood as the process of enhancing the capabilities of developing countries to receive and spend climate finance wisely, as well as report on its transformative impacts [4,8,9]. Readiness has become a common currency of the global climate finance discourse, because it is regarded as the pre-requisite for access to predictable and quality climate finance [10,11].

There is a growing global effort, specifically through the Green Climate Fund (GCF), to provide readiness support to developing countries, especially the particularly vulnerable countries (within the UNFCCC process, countries classified as Least Developing Countries (LDCs), Small Island Developing States (SIDS), and Africa are recognized as being particularly vulnerable to climate change). This is deemed necessary, because the route to readiness is not only complex but also heavily resource-centric [12]. The objective of *levelling the playing field* is fundamental to the readiness focus of multilateral funds such as the GCF, in order to ensure all developing countries effectively participate in the global climate finance architecture [13]. It is also important to note that the GCF readiness approach, like other multilateral climate funds such as the Adaptation Fund, tends to adopt a narrow scope of readiness by assessing institutions rather than adopt a country-wide perspective. Readiness as per the GCF relates to the preparation of a national accredited entity (NAE) of a developing country to directly access finance from the Fund. To date, 123 readiness projects covering 88 developing countries and costing USD 39.5 million have been approved by the GCF [14].

However, given the multiple sources of climate finance that exist to date [1] and the growing emphasis on the role of private finance in funding climate related activities [15–17], readiness needs to be viewed as a nationwide phenomenon rather than a mere institutional issue. This is because donors are now stressing the importance of countries facilitating an attractive enabling/investment environment so that private finance can catalyze public climate finance [18]. This processes of 'creating an

attractive investment environment' is understood by many as the 'readying phase', as it involves activities that make a country better positioned to attract international and domestic private sector investments in climate compatible projects [19,20]. Activities under this readiness approach include strengthening of regulatory frameworks, institution building, capacity building, and provision of incentives to attract private sector investments towards climate change initiatives [11,20].

Holistically understanding the progress of readiness across countries is quite difficult due to the sparsity of existing readiness literature and the varying foci of readiness support. However, more important is the absence of a universal appraisal framework on which readiness progress can be evaluated and tracked.

The absence of such a readiness appraisal framework is driven by the nascent and evolving understanding of the climate finance readiness concept [21,22]. This complexity is evident in the numerous working definitions of readiness in the existing literature, and in the plethora of readiness-related activities being implemented by donors in developing countries [22]. Moreover, most readiness studies tend to focus on readiness challenges and how to redress such issues [22]. Minimal research is focused on how to evaluate readiness progress at a more strategic level or compare and contrast readiness progress between countries in order to identify opportunities for inter-country learning and collaboration.

This paper attempts to bridge this knowledge gap by developing a consistent and coherent readiness framework, founded on existing literature and driven by empirical analysis. Such a framework could contribute to improving how donors approach readiness by providing further guidance on readiness-related investments in the long term, more effective targeting of areas that need strengthening in national policy, effective longitudinal monitoring of readiness progress, and a better understanding of the magnitude of risks posed by climate change in relation to a country's abilities [23]. This framework adds a critical element that has been largely absent in existing readiness initiatives: a set of criteria/indicators by which countries could evaluate and appraise their readiness progress. Four main questions guided this study: (1) *What components of a readiness framework can consistently appraise the readiness progress of developing countries?* (2) *What indicators appropriately capture such readiness components?* (3) *How would countries fare in evaluation using such a framework?* and (4) *Does countries' readiness progress significantly influence the amount of climate finance accessed?* Such an appraisal framework for readiness is purposeful, as it can promote targeted south-south cooperation through cross-country comparison and knowledge exchange. To operationalize and validate the readiness appraisal framework, 12 Asia-Pacific countries were studied.

The structure of the paper is as follows: Section 2 briefly outlines the case study countries, while the methods used and their respective results are explained in Section 3. The discussions are elaborated in Section 4. Section 5 highlights the limitations of the study with the conclusion provided in Section 6.

2. Overview of the Asia-Pacific Region

Excluding Australia, New Zealand, Japan, and South Korea, the Asia-Pacific region is comprised of more than 40 developing countries, home to more than half of the global population and the largest number of the world's poor [24]. The Asia-Pacific region is considered to be particularly vulnerable to the impacts of climate change relative to any other region in the world [25]. The region is also the largest recipient, and spender, of climate related finance, although finance flows unevenly among countries [26]. Greenhouse gas (GHG) emissions are increasing in the region, especially in large Asian countries due to rapid population growth [26]. Mitigation finance, which accounts for 67% of the total climate finance in the region, is mainly channelled to a few large and populous countries [26].

The bias towards mitigation underscores the ineffectiveness of the international climate financing architecture at addressing the pressing needs of Pacific Small Island Developing States (PSIDS), which are uniquely vulnerable and whose GHG emissions are minimal. The PSIDS consist of 15 countries from the Pacific sub-region for whom accessing climate finance is a continuous challenge [27–29]. Unlike their larger Asian neighbors, the PSIDS prioritizes adaptation due to their geographical location and topography. Securing quality adaptation finance is difficult, as its return is humanitarian in nature when compared to the commercial returns of mitigation initiatives. It has been estimated that the PSIDS accounts for 4–6% of the total climate finance in the Asia-Pacific region, with bilateral sources being the primary mobilization channel [26,27,29].

While the climate finance mobilized to the Asian countries and the PSIDS vary greatly in form, quantity, and modalities, most of these finances are still delivered outside national budgetary systems through short-term projects. Developing countries have been highly critical of the ineffectiveness of this modality, claiming it as burdensome and insufficient to cover the cost of climate change efforts [30]. Developing countries have also argued that the modality of short-term projects has further hampered their capacity-building efforts and institution-building capabilities [31,32]. Other notable criticisms of using such a funding modality are that projects are not strongly nation-driven, are often biased towards donor needs and interests, and are generally unsustainable [32].

There is increasing mobilization of readiness support in the region to enhance and scale up countries' abilities to effectively access climate finance [14]. As a first step to ensuring country ownership of climate change projects, Asia-Pacific countries are increasingly mobilizing domestic finance through national budgetary systems [33]. Such exercise has been argued to strengthen the capacity of the national systems to act as a vehicle of channelling and delivering international climate finance in-country [33]; this has been also the primary focus of many readiness programs in Asia-Pacific [14].

3. Methods and Results

A three-phase approach was adopted to carry out this study. The first and the second phases involve the conceptualization of a readiness appraisal framework. The Climate Public Expenditure and Institutional Review (CPEIR) provided the foundation for developing a consistent appraisal framework. These reports are publically available on the UNDP Governance of Climate Change Finance website. The CPEIR country reports share common principles and present findings using a common structure. Unlike other existing reporting platform, the CPEIR is closely related to the issue of readiness, as it is specially designed to assess the existing national systems and processes of a country to access and manage climate finance. The CPEIR also represents an extensive assessment of the national enabling environment by international experts, which is synonymous with readiness in literature [22,34]. The CPEIRs are primarily prepared by independent actors in partnership with national governments. CPEIRs in Asia were undertaken by the UNDP, while those of the PSIDS were conducted by the Pacific Island Forum Secretariat (PIFS), a leading intergovernmental organization in the Pacific. The involvement of these external parties in the CPEIR development process implies a degree of reliability and confidence in the information. In total, 12 developing countries from the Asia-Pacific have completed a CPEIR or an equivalent, 6 of which are PSIDS. The third and final phase of the study presented here then links the readiness scores of countries (phase 2 results) to the total climate finance accessed to determine if a significant relationship exists between the two.

The research technique and method employed in this study closely mirrored that of [35], who conducted an appraisal on the preparedness level of 12 PSIDS for renewable energy investments. The data used in their analysis were derived primarily from the national reports prepared by the International Renewable Energy Agency (IRENA) for each of the 12 PSIDS. The publication of [35]'s work in a top-tiered energy policy journal provides merit that the method applied in this study is acceptable, despite a limited sample size and scope of information used.

3.1. Phase 1—Determining a Common Scale

The main aim of the first phase was to develop a common scale for comparing countries' readiness progress. As a first step, the CPEIR was exhaustively analyzed, and the *problems* explicitly mentioned in these reports were extracted. These *problems* served as the basis for a common scale on which a consistent comparison of the CPEIRs was undertaken. In total, 200 explicitly mentioned readiness-related *problems* were extracted from the 12 reports ($N = 12$). An extensive thematic analysis was then conducted, which yielded 48 common overarching *problems* that were classified into 7 broad themes (Appendix A: Table A1). Countries were then assessed against these 48 *problems*, employing a binary coding technique to indicate its presence (1) or absence (0). The rationale for using the binary coding technique instead of a weighting system that articulates the magnitude of the *problems* is due to the limited degree of information in the CPEIRs.

3.2. Phase 2—Determining the Readiness Dimensions & Indicators

To establish a more parsimonious framework of readiness, the 48 problems were reduced to a smaller number of readiness dimensions in this second phase of the analysis. Reduction of the 48 problems to a small number of key axes of variation in readiness removes confounding issues of covariation/overlap between problems an d provides a more tractable framework for analysis and interpretation. Principal Component Analysis (PCA) is a well-established ordination technique that objectively converts a set of observations of possibly associated variables (*problems*, in this case) into a set of values of uncorrelated variables called principal components (readiness dimensions). Thus, a PCA was conducted to analyze the 48 *problems* for the 12 target countries (Phase 1 outcome) and establish a small number of uncorrelated dimensions of readiness.

Sixty percent of the variation in the *problem data* was explained by the first three axes (PCA1 = 31%, PCA2 = 19%, and PCA3 = 10%). A conservative approach was used to determine which *problem* categories were aligned to the PCA axes, by only considering factor loadings of >0.5, as those that are contributing in a meaningful way to an axis. Thus, loadings in PCA1 were deemed to be more closely associated with *Institutions and Policies* (I & P), while PCA2 was more aligned with *Knowledge Management and Learning* (KM & L), and PCA3 related more to the *Fiscal Policy Environment* (FPE). These 3 PCA axes formed the core dimension of the study's conceptual readiness framework.

Once the PCA axes were determined, potential progressive readiness indicators were then formulated with guidance from existing literature [4,21–23,36–41]. Countries were then scored against these axes (dimensions) using the same binary technique as in Phase 1 in an attempt to capture their readiness progress across the PCA-generated readiness dimensions. Sixty progressive indicators (20 for each dimension) were formulated as an indicative measure of readiness progress (Table 1). Countries' performance on the framework was then compared and contrasted by aggregating their progressive readiness indicator scores. The countries' scores on each readiness dimension are as tabulated in (Figure 1).

Table 1. Readiness Themes and Progressive Indicators.

Readiness Dimension	Proposed Indicator
Institutions and Policies	1. A national entity has been accredited by the GCF or the Adaptation Fund. 2. A coordination mechanism for development partners/donors for climate change related funding, dialogue, and programming exists. 3. A coordination mechanism between other conventions relevant to Climate Change (CC) exists.

	4. A national strategy or plan to implement national climate change priorities exists. 5. CC priorities are mentioned explicitly in the national climate policy. 6. There is routine political engagement at national and provincial levels. 7. There is a national strategy on how to meet the risks and opportunities of CC. 8. There is a legal framework with incentives and compliance mechanisms that reflect CC priorities. 9. The core functions and roles of national institutions relating to CC are explicitly mentioned. 10. Collaboration with non-traditional stakeholders exists. 11. CC related acts and policies have been passed and endorsed by parliament. 12. A national climate change committee has been set-up. 13. There is a formal mechanism whereby all relevant stakeholders meet to discuss a range of climate change issues. 14. Climate change focal points have been established at national, subnational, and community levels. 15. National guidelines, which advise planning authorities on how to integrate climate change in their planning process, have been established. 16. A specialized climate change department has been set up. 17. The climate change department is adequately funded and staffed. 18. Long-term program and project planning mechanisms that can respond to the risks and opportunities of CC have been established. 19. Frameworks to manage planning of CC programming at the national level exist. 20. Frameworks to manage planning of CC programming at the provincial level exist.
Knowledge Management and Learning	1. CC knowledge is generated and codified at national and local levels. 2. CC knowledge is shared and accessible through appropriate media/platforms. 3. Local governments and stakeholders have access to national and/or regional sources of expertise on CC. 4. Global and regional learning have been adapted to the national context. 5. Global, regional, or national 'good practices' have been contextualized to address community context.

		6. Government collaboration with research institutions to identify, apply, and institutionalize CC knowledge. 7. National and local technical capacities to analyze CC issues and plan, implement, monitor, and evaluate CC programs have been identified and strengthened. 8. Routine public awareness programs have been undertaken. 9. CC information can be accessed by the communities. 10. Environment-related education programs have been implemented at community level. 11. Local knowledge has been 'scaled up' at provincial and national level. 12. Specialized training is conducted in partnership with regional and multinational development partners. 13. Knowledge tools have been established in key ministries to link climate change in national budgeting planning cycles. 14. A standardized methodology and key performance indicators to evaluate adaptation/mitigation program's effectiveness exists at the national level. 15. Budgetary allocation for human resources to manage national climate change programs has been made. 16. A national strategy is in place to guide capacity building in CC. 17. Existing planning process takes into consideration available evidence on CC and lessons learned from past CC programming. 18. Risk management, CC modeling, and CC scenarios inform planning at the national level. 19. Risk management, CC modeling, and CC scenarios inform planning at the local level. 20. A central data management system has been established at national level to track, store, and monitor climate change projects at national level and community level.
Fiscal Policy Environment		1. Have routinely accessed climate finance from variety of sources. 2. An assessment estimating the total national climate financing needs has been undertaken. 3. CC policies have been costed. 4. A national climate fund has been established. 5. PFM performance scores favorably in PFM assessments reports. 6. Long-term financial commitments for CC-related investments have been made by government.

7. A national climate financing policy has been developed with international development partners.
8. Special market conditions have been created to incentivize private sector to invest in CC-related investments.
9. Constant budgetary support from donors for CC activities has been received.
10. A pipeline of national priority climate change projects exists.
11. Innovative financing options have been developed to respond to the challenges of CC.
12. There is sufficient financial resource mobilization for CC projects aligned to national priorities.
13. A functioning financial management and reporting systems are in place for CC financing.
14. Partnerships have been established between public and the private sector for CC programming.
15. MRV system for domestic climate finance exists.
16. MRV system for international climate finance exists.
17. Government budget allocation at the local level reflects CC priorities.
18. Non-traditional stakeholders including CSOs and private sector participate in CC program planning, implementation, and M & E.
19. Key fiscal information can be easily accessed by the public.
20. National audit reports are scrutinized by legislative bodies.

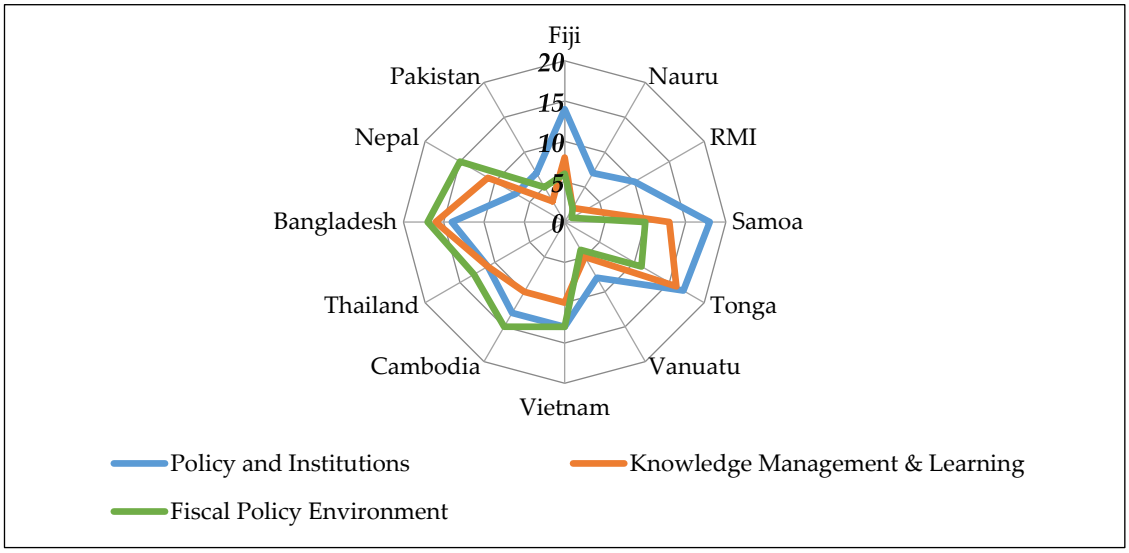

Figure 1. Indicative readiness progress of countries in the Asia-Pacific Region as per the study's framework.

3.3. Phase 3—Linking Countries' Readiness Progress to Climate Finance Accessed

The purpose of this phase is to determine if there is a statistically significant relationship between the countries' readiness scores as per the framework (Phase 2 results) and the total climate finance accessed. A simple multivariate model was formulated to evaluate such relationship. The model derived is as follows:

$$CF_c = \beta_0 + \beta_1 RE_1 + \beta_2 GDPpc_2 + \beta_3 P_3 + \beta_4 G_4 + \varepsilon$$

in which *CF* is the dependent variable and denotes the average climate finance accessed by countries (*c*) in 2016 as per the Organisation for Economic Co-operation and Development (OECD) database. This study does not distinguish between mitigation and adaptation when assessing *CF*. Thus, specific variables such as vulnerability and country status (i.e., SIDS or LDC) that influence access to adaptation finance [42], or carbon emission intensity and carbon sinks for mitigation finance [43,44], were not included in the model. This study's main aim is to assess whether readiness per se significantly influences access to climate finance. The average figure is used, as the OECD provides a lower and an upper estimate of *CF* received by *c* in 2016 (Appendix A: Table A2). The OECD database, despite its limitations [1,42], represents an attempt to provide comprehensive and detailed information on the amount of climate finance provided by OCED countries. In determining the portion of aid dedicated to climate change, donors voluntary tag their contributions using climate makers that have been developed by the OECD (i.e., mitigation and adaptation markers). The climate markers do not provide the exact amount of climate finance provided; however, they can provide an approximation of the climate finance amount directed to developing countries, as well as provide a common standard and reporting rules for donors, allowing for comparability at the international level. The OECD database includes bilateral contributions, multilateral contributions, and, in some instances, contributions by non OECD countries. Non-OECD countries voluntary report their contributions in the OECD database. The OECD database has been the most commonly used database for studies examining climate finance issues [1,42–45].

The predictor variable of *emphasis* of the model is *RE– the aggregate readiness score of countries as per the study's framework β–* represents the beta value that measures how strong of an influence each variable has on the dependent variable, while ε represents the residual or the error term. The 2016 gross domestic product per capita *(GDPpc*) of *c*, their respective aggregate population (*P*), and the quality of their governance *(G)* act as the control variables for the model; *P*, *GDPpc*, and *G* were derived from 2016 World Bank database. Akin to other studies [42,43], this study calculated *G* using the average scores of *c* across the six indicators of the quality of governance provided by the World Bank. There is a need to control for the potential confounding effects of *GDPpc*, *P*, and *G*, as literature have identified these three common factors as having significant relationship with *CF* flows to countries [42–

44,46,47]. *P* and *G* have been argued to be positively related to *CF*, meaning high *P* and *G* will result in high *CF* flows [42–44], while *GDPpc* has a negative relationship with *CF*, indicating that poorer countries tend to receive more *CF*, all else being equal [42,46]. A hierarchical multivariate regression (enter method) using the SPSS software was employed to run the model.

In computing the results, SPSS produces the outcomes of the multivariate regression in two models (Appendix B: Tables A3–A5). Model 1 presents the outcomes if only the control variables *P*, *GDPpc*, and *G* are considered. Model 2, which is the model of emphasis in this study, presents the extended version of the outcomes after accounting for the control variables. A summary of the study's model key outcomes is illustrated below (Table 2).

Table 2. Summary of Model 2 Key Statistical Outcomes.

Statistic	Value	Significant level
Adjusted R square	0.922	$p < 0.05$
F	33.53	$p < 0.001$
Beta :		
Population	0.596	$p < 0.05$
GDP per capita	−0.271	$p < 0.05$
Governance	0.301	$p > 0.05$
Readiness	0.247	$p < 0.05$

As per the SPSS outputs, both Model 1 and Model 2 are significant, with the former scoring an *Adjusted R square* of 86.5% and the latter scoring an *Adjusted R square* of 92.2% (Appendix B: Table A3). The Adjusted R squares represent the percentage of variability explained by the variables. In other words, the control variables alone account for around 87% (Model 1) of the variability, and when *RE* is factored in (Model 2) the percentage of variability explained increases to 92.2%. This indicates that *RE* has a positive impact on the predictive power of the model. It is interesting to note that, while the actual change in the *R square* score is only 4.9% (indicating that *RE* explains an additional 4.9% of the variance on its own), the change is statistically significant (*Sig.F Change = 0.034 ~ p < 0.05*). In other words, the addition of *RE* as an additional predictor variable of *CF* despite having a small impact is still statistically significant.

Model 2 is a significant predictor of *CF*. The *F* test indicates a score of (*F = 33.53*), which is statistically significant at $p < 0.001$. This means that when controlling for the confounding variables of *P*, *G*, and *GDPpc*, and using *RE* as the only predictor variable, the model as a whole is statistically significant in predicting *CF*.

Finally, the standardized coefficient (i.e., β weight) was assessed in order to evaluate the strength of how each of the predicator variables of the study (*P*, *G*, *GDPpc*, and *RE*) influence CF. The higher the β value, the greater the impact of the predictor variable on the dependent variable. The results indicated that while *P, G, and RE* have positive β values, with *P* (0.596), *G* (0.301), and *RE* (0.247), only *P* and *RE* make a statistically significant contribution to the model, with both being significant at $p < 0.05$. The β value of *GDPpc* was (−0.271), supporting the negative relationship argument with *CF* [42,46], with the relationship being significant at $p < 0.05$. While the limited sample size could explain the lack of a significant relationship between *G* and *CF*, the low significance could also relate to the argument that unlike multilateral funds, most large bilateral donors such as the USA and France (whose contributions make up a significant portion of total global aid*)* are not very selective about the governance quality of countries they channelled their aid to [46,48]. The results

therefore indicate that *P*, *GDPpc*, and *RE*, as the largest unique contributors to the model after the overlapping effects of other variables, have been statistically removed.

4. Discussion

4.1. Rationalizing the Difference in Readiness Progress

The countries' scores across the three readiness dimensions of this study's framework highlighted that their readiness progress varies greatly across the sub-regions. The Asian countries seem to perform better on average across the 3 readiness dimensions (*Avg = 35*) when compared to the PSIDS (*Avg = 25*). They also appear more ready to access climate finance from diverse sources [49] (see also Appendix A: Table A2). Access to climate finance in PSIDS is still primarily limited to bilateral sources and multinational entities, with grants being the main instruments [49].

The performance of big Asian countries across the readiness dimensions of *I & P, KM & L*, and *FPE* is evident in the variety of financial instruments they are using to mobilize climate finance. These innovative ways of mobilizing climate finance include the issuing of instruments such as green bonds, tax-free infrastructure bonds for renewable energy project [50], and the establishment of National Climate Funds (NCF) to pool domestic and international climate finance [51,52]. Creating the environment to implement these financing mechanisms is complex and requires robust *I & P* framework, a high degree of technical knowledge and learning (*KM & L*), and a vibrant financial sector (*FPE*) to be in place [4,12,22,23,31]. From the perspectives of climate finance providers, the synergy of these dimensions is indicative of an enabling environment in which climate finance can be effectively managed and directed to achieving its objective [4,13,41]. In addition, Asian countries' progressive performance in these three readiness dimensions could also be attributed to the fact that most of them are active participants in the REDD+ programme, an innovative and unique financial mechanism for generating climate finance flows to developing countries [53]. Their progressive 'finance footprint' has therefore not only placed them in a much better position to successfully navigate the complex climate finance architecture but also prepared the right domestic environment to attract this finance.

For the PSIDS, the readiness framework indicates a massive readiness gap relative to their larger Asian neighbors. However, PSIDS performed relatively better in the *I & P* dimension (*Avg = 22*) compared to the Asian sub-region (*Avg = 17*). The positive progress in the *I & P* dimension could be linked to the argument that SIDS in general have some of the most sophisticated governance and policy arrangements due to their history and topography [35,54]. Moreover, such positive progress in regard to this readiness dimension could also be explained by fact that the majority of the finance channelled to PSIDS (86%) was geared towards strengthening climate change sector policies [27]. However, the PSIDS still lagged behind the Asia countries in the remaining two readiness dimensions (i.e., *KM & L* and *FPE*). The major underlying readiness challenges for PSIDS in these two dimensions are hereditary in nature due to their special and unique circumstances [55,56]. Like other SIDS, PSIDS suffer from a chronic lack of knowledge-based capacities to implement innovative financial

instruments, and, furthermore, their financial sector is largely underdeveloped or non-existent in some cases due to their very small and largely undiversified economies [57]. Thus, PSIDS are in a conundrum, as despite their progress in the *I & P* dimension, their physical context seriously hinders their ability to capitalize on these gains and translate them into concrete actions in the readiness dimensions of *KM & L* and *FPE*.

4.2. Linking Readiness Progress to Climate Finance Accessed

While the study notes that the readiness effects are too recent for full impact to be apparent, as there may be a time lag from readiness initiatives to capturing the effects in the indicators, the results revealed that readiness has a predictable but small impact on the magnitude of climate finance accessed. This argument is based on the evidence concerning the *R squared change* value of the model and, more importantly, the *β value* of *RE*, which indicates that improving the readiness status of a country will require significant work addressing improvements captured by the progress indicators, but have a small, although predictable and positive effect on climate finance accessed. This also indicates that the readiness status of a country does not exist in a vacuum, and that it is inextricably linked to other contextual factors in determining access to climate finance.

In addition, the current approach to readiness largely focuses on accessing finance from multilateral funds and does not differentiate between mitigation and adaptation. If readiness were to be discussed within the context of the USD100 billion goal of the Paris Agreement, then it is clear that the current concept of readiness is in the context of mitigation only (see Decision 1/CP21 para 53.). The Paris Agreement also prioritizes the role of the private sector in mobilizing climate finance because of its 'catalyzing capabilities', and the current readiness discourse is in line with such position [15]. Even within the GCF, in which USD 39.5 million has been mobilized for readiness and an explicit 50:50 allocation for mitigation and adaptation is a policy, funds dispersed to approved projects so far indicate that mitigation finance still accounts for 41%, compared to the 26% for adaptation, and the remainder for projects that are cross cutting in nature [58]. This infers that the current readiness approach tend to focus on attracting more mitigation finance than adaptation finance. The PSIDS are therefore at a disadvantage within the current discourse of readiness, as their climate priorities are geared towards adaptation instead of mitigation activities.

Although some gains have been made, increasing the level of finance available for adaptation, a significant gap still exists [59]. Within the context of this study, the imbalance of climate finance against adaptation clearly indicates the need to not only significantly scale-up the availability of adaptation finance globally but to also increase the support that will 'ready' countries to access this finance. For most particularly vulnerable countries such as the PSIDS, facilitating access to sustainable adaptation finance is critical to ensure their effective participation in the global climate finance architecture.

Moreover, the study also suggests that the level of precedence given to readiness in relation to access to climate finance contradicts the goal of the UNFCCC. Under the Convention, while the purpose of climate finance is to assist developing countries,

Article 4(4), specifically mentions the need to provide adaptation assistance to those that are particularly vulnerable to the impact of climate change. While all countries can reasonably claim vulnerability to climate change, SIDS are explicitly recognized in the Convention as particularly vulnerable. Other vulnerability studies have also affirmed this position. For example, within the Asia-Pacific region, the PSIDS are considered more vulnerable to their Asian counterparts as per the NDGain Vulnerability index, with mean and standard deviation scores of *0.48* and *0.029,* respectively, compared to the scores of the latter (*M = 0.45, SD = 0.058*).

For PSIDS, as well as the donors of readiness initiatives in the region, such findings provide 'food for thought' on the viability of the current approach for readiness. Evidence seems to indicate that the current approach to readiness will yield little improvement to the PSIDS' demand for more access to quality climate finance. Thus, an alternative readiness pathway should be explored.

4.3. Readiness for Bilateral and Remittance Finance—An Alternative

The proposition that PSIDS should re-orient their readiness efforts towards bilateral support and remittances as alternative sources of sustainable climate finance is founded on the fact that they are, and have been, the primary sources of external finance assistance to SIDS [60], and that their flow into countries is largely insensitive to the quality of the enabling/investment environment of a country [61,62].

Since bilateral sources have been the dominant source of climate finance for PSIDS, leveraging such a source to its full potential is critical. For PSIDS, it makes more sense to explore such option, as bilateral finances are largely driven by diplomacy and thus are unaffected by the stringent readiness requirements demanded by private and multilateral sources. While some may argue that bilateral sources cannot be a sustainable source of long-term climate finance, it is critical to point out that Article 4(4) of the Convention provides the basis to believe that, at least in the context of climate finance, bilateral flows will be ongoing indefinitely. Moreover, the special circumstances of the PSIDS provide a moral basis for indefinite bilateral support for climate finance, as there is evidence that a majority of the PSIDS economies will never reach their full development potential [63]. PSIDS may therefore consider re-orienting their readiness approach to promote scaling up of their global diplomacy efforts, enhancing the capacity of their foreign affairs ministries and tasking such ministries with playing a more prominent role in the area of climate change. The ultimate goal of readiness initiatives in this area is to scale up existing bilateral relationships, as well as build new ones. As developing countries are also increasingly mobilizing climate finance beyond their borders, PSIDS should take an aggressive approach in diversifying their bilateral relations and actively pursue new bilateral relationships for the purpose of securing new sources of finance.

Remittances also offer an ideal source of climate finance and are worth exploring, as they account for more than 40% of external financial assistance to SIDS [60]. For PSIDS, the influx of remittance from diasporas continues to increase significantly [64] and now accounts for a significant portion of the PSIDS GDP. For example, remittance in Samoa accounts for 23% of GDP [65]. While evidence indicates that only 5% of

such finance flow is used for productive investments [65], there is huge potential for remittance finances to be an alternative source of climate finance for PSIDS. Existing evidence also indicates that remittance finance meets the desired characteristics of climate finance: predictability, sustainability, adequateness, and accessibility [65]. Remittance relative to private sector investment continues to flow, regardless of the existing investment environment, as it is largely motivated by the individual interest and market mechanisms [61]. The remittance pathway provides an opportunity for PSIDS to also re-orient their readiness focus on an enabling environment that prioritizes new entrepreneurial opportunities that can effectively harness the potential of remittance to trigger diaspora's investment in building national and community resilience to climate change. Senegal and Mexico provide two case studies in which governments have been actively promoting policies that facilitate an enabling environment in which diasporas can invest and contribute to domestic development [66,67].

Regarding the readiness for bilateral and remittances as per the understanding of this study, while it can be seen as a component of the larger climate finance readiness package, it represents a different blend of readiness from that promoted by multilateral sources of climate finance. For example, the readiness for remittances as argued by this study promotes an enabling environment in which innovative finances such as green bonds can be used to raise new sources of climate finances. While it can be argued that green bond is part of readiness, the target area, however, differs, as this study argues that instead of only targeting the private sector entities to invest in green bonds, the scope should be extended to also include diasporas (indicating that the readiness activities will be different), and this is where the focus on readiness in PSIDS should be concentrated on given their largely underdeveloped private sector.

5. Limitation of this Study

The small sample size of this study (i.e., $N = 12$) had a potential impact on the quality on results and generalizability of its findings. In fact, the results of this study should be treated with some reservations, as the bootstrap analysis of the model suggests that the bootstrap estimates varied considerably from the original sample (Appendix B: Table A6). The authors of [68,69] argued that this could indicate that the sample size used might not be satisfactory. The sample size is, however, as such because only 12 countries in the Asia-Pacific region have completed, and have publically availed their CPEIR. The author of [68] also argued that the results should be not be disregarded altogether if this is the case as "*...it may still be better than anything else that is available*"(pg.196). In line with this argument, this paper offers the first critical insights on how climate finance readiness has progressed in the region. Future research could fill this data gap and build strong evidence based on the impacts of readiness and climate finance, especially from the perspectives of PSIDS as more countries in the region release their CPEIR studies in the future.

6. Conclusions

This study provides critical insight in to the current approach to readiness. Firstly, evidence from the Asia-Pacific region indicates that readiness plays a small but predictable role in accessing climate finance. Effective access to climate finance cannot be achieved just by focusing on improving readiness, because access is inextricably linked and influenced by other factors. Readiness does not exist in isolation, permitting a dramatic improvement through appropriate input by governments and donors. Secondly, while the understanding of readiness does not differentiate between mitigation and adaptation finance, it is biased towards mitigation because of the precedence it places on creating an enabling environment that is private sector-centric. Thirdly, the emphasis on readiness as the new currency in the climate finance discourse suggests a divergence from the original understanding and objective of climate finance, as encapsulated in the Convention. Climate finance is intended to be treated differently from normal official development aid (ODA); thus, there is an expectation of donors, especially multilateral funds such as those continuously raised during the UNFCCC process, to not place stringent access requirements to climate finance aimed at particularly vulnerable countries. This is echoed in the consistent call from particularly vulnerable countries to the UNFCCC for simplified and enhanced direct access to multilateral climate funds.

These critical insights, as well as the massive readiness gap between the Asian countries and the PSIDS, question whether the PSIDS stand any realistic chance of being ready to access predictable and long-term climate finance. The PSIDS and its donors should rethink their current approach to readiness towards other alternative funding sources, as there is a strong indication that the current readiness pathways will yield little benefits to PSIDS. The misalignment between the PSIDS climate change needs (adaptation centric) and the current readiness approach (mitigation centric) is further exacerbated by the PSIDS' chronic lack of resources and capacity due to their special circumstances. Thus, the feasibility of PSIDS ever achieving a readiness status similar to their Asian counterparts is highly unlikely.

Bilateral and remittance finances offer a practical alternative for uncomplicated sources of climate finance that the PSIDS could target for their readiness efforts due to their strong track record of consistently mobilizing external financial assistance in-country. In addition, the flow of finances from these two sources is to a larger extent insensitive to the quality of the enabling/investment environment status of a country. It is worth exploring the potential of mobilizing quality and predictable climate finance on customizing readiness to suit these two sources. For the PSIDS, the current readiness approach, which tends to emphasize access from multilateral funds and the private sector, provides little assurance that it will improve their 'access to climate finance' conundrum and thus should be extended to bilateral and remittances sources. Thus, as radical as this study's readiness recommendation may be, the impact of on-going and prolonged inaccessibility of multilateral funds, as well as private finance for a majority of the PSIDS, will be severe, and existential for some.

Acknowledgments: The authors wish to thank Morgan Wairiu and Professor Elisabeth Holland for their comments on the earlier draft versions of the paper, and Karuna Reddy for his technical assistance in interpreting the SPSS results.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Common climate finance readiness problems derived from the CPEIRs.

Policies/Laws/Regulations	***Inclusive Decision Making***	***Power Structure***	
Delays in CC related policies /plans/strategies being endorsed and approved by cabinet.	Minimal engagement/consultations with private sector, civil societies, and communities.	Fragmented institutional settings.	Weak fiscal policy environment.
CC policies/plans/strategies are still being developed or in draft.	Lack of structured systems/processes in place to engage all relevant stakeholders.	Uncertain institutional arrangement due to volatile political environment.	Lack of long term budget projection.
Existing CC related polices/plans/strategies are too broad and unclear.	Non-traditional stakeholders no adequately represented in the decision making bodies.	Weak institutional links between central line ministries and other bodies.	Weak accountability mechanism in place.
Existing CC related polices/plans/strategies are out of date.	CC-related materials are not easily accessible by the public.	Over-governance: too many committees with similar roles and responsibilities	Lack of a structured approach to holistically capture and classify CCE in national budgets.

Key CC policies/legislations missing.	***Coordination*** Inconsistent flow of information amongst key line ministries.	Lack of clear mandates on roles and responsibilities.	***Evidence based decision making*** Lack of reliable, complete, and up to date data.
Knowledge Management Lack of technical and specialized knowledge at in line ministries and agencies.	Critical CC policies/plans/strategies not harmonized and linked.	Existing CC related decision making bodies' lack leadership and political backing.	Lack of a formal data management system to support evidence-based policy making.
Lack of systematic training needs assessment within line ministries and agencies.	Mainstreaming/integrating of climate change into existing strategies/plans/policies is difficult.	***Public Finance Management*** No/narrow national definition of climate finance.	Lack of a formal procedure on data sharing amongst government, donors, and other stakeholders.
High staff turn-over.	Lack of a formalized planning process.	Lack of budget support received.	Lack of systematic M & E systems and established indicators at all levels to assess performance of projects.
Heavy reliance on international consultants.	Misalignment between CC policies and its allocated resources.	Heavily dependent on single bilateral donor.	Lack of formal data management system to capture and store funding from other sources.

Lack of human capacity within key line ministries and agencies.	Lack of coordination amongst central CC line ministries during CC project life cycles.	Weak PFM in place.	Responsibilities of M & E not clear amongst line ministries.
Lack of long-term plan and financial commitments to build capacity at all levels.	Lack of awareness across line ministries on CC related issues.	Frequent delays in disbursement of funds through national systems.	Disparate collection/storage of data and monitoring amongst key line ministries and agencies.
Lack of knowledge at the community level.	Infrequent & inconsistent meetings of key national CC committees responsible for coordinating CC issues.	Fragmented budgeting structure and process.	Unclear and broad CC related targets being set.

Table A2. Climate Finance Accessed in 2016 [70].

Countries	USD (Millions)			Grants (%)	Debt (%)	Instrument
	Lower Bound	Upper Bound	Average			
Fiji	6.97	22.45	14.71	100		0
Nauru	0.141	2.67	1.4055	100		0
RMI	0.12	11.83	5.975	100		0
Samoa	9.14	67.17	38.155	99		1
Tonga	3.04	10.31	6.675	48		52
Vanuatu	35.4	77.23	56.315	55		45
Vietnam	1441	1081	1261	9		90
Cambodia	78.4	161.8	120.1	28		72
Thailand	7	1377	692	1		99
Bangladesh	897	1634	1265.5	13		87
Nepal	66.4	67.9	67.15	77		23
Pakistan	108	1071	589.5	11		89

Appendix B

Table A3. Model summary results.

			Change Statistics		
Model	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change
1	0.865	166.70143	0.902	24.425	0.000
2	0.922	126.50826	0.049	6.891	0.034

Table A4. ANOVA [a] results.

Model		Sum of Squares	Mean Square	F	Sig.
1	Regression	2,036,234.120	678,744.707	24.425	0.000 [b]
	Residual	222,314.930	27,789.366		
	Total	2,258,549.050			
2	Regression	2,146,518.663	536,629.666	33.530	0.000 [c]
	Residual	112,030.387	16,004.341		
	Total	2,258,549.050			

[a] Dependent Variable: CF; [b] Predictors: (Constant), Govern_quality, GDP_pc, Population; [c] Predictors: (Constant), Govern_quality, GDP_pc, Population, Readiness.

Table A5. Coefficients [a] results.

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	−106.652	101.086		−1.055	0.322
	Population	3.145×10^{-6}	0.000	0.468	1.919	0.091
	GDP_pc	−333.058	165.896	−0.244	−2.008	0.080
	Govern_quality	0.352	0.177	0.487	1.989	0.082
2	(Constant)	−349.370	120.142		−2.908	0.023
	Population	4.002×10^{-6}	0.000	0.596	3.112	0.017
	GDP_pc	−370.269	126.693	−0.271	−2.923	0.022
	Govern_quality	0.218	0.144	0.301	1.514	0.174
	Readiness	24.492	9.330	0.247	2.625	0.034

[a] Dependent Variable: CF.

Table A6. Bootstrap for Coefficients results.

Model	B	Bootstrap [a]				
		Bias	Std. Error	Sig. (2-Tailed)	BCa 95% Confidence Interval	
					Lower	Upper
1	−106.652	72.116 [b]	139.419 [b]	0.695 [b]	0.000 [b]	0.000 [b]
	3.145×10^{-6}	3.112×10^{-6} [b]	6.610×10^{-6} [b]	0.515 [b]	-3.435×10^{-6} [b]	2.611×10^{-5} [b]
	−333.058	140.887 [b]	247.911 [b]	0.541 [b]	0.000 [b]	0.000 [b]
	0.352	−0.245 [b]	0.554 [b]	0.561 [b]	−0.587 [b]	0.762 [b]
2	−349.370	175.477 [c]	243.379 [c]	0.421 [c]	0.000 [c]	0.000 [c]
	4.002×10^{-6}	2.968×10^{-6} [c]	8.797×10^{-6} [c]	0.353 [c]	-2.021×10^{-5} [c]	5.230×10^{-5} [c]
	−370.269	159.302 [c]	244.986 [c]	0.396 [c]	0.000 [c]	0.000 [c]
	0.218	−0.197 [c]	0.623 [c]	0.601 [c]	−0.477 [c]	0.527 [c]
	24.492	−10.175 [c]	16.624 [c]	0.404 [c]	5.558 [c]	22.997 [c]

[a] Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples; [b] based on 999 samples; [c] based on 993 samples.

References

1. Buchner, B.; Oliver, P.; Wang, X.; Carswell, C.; Meattle, C.; Mazza, F. Global Landscape of Climate Finance 2017. Climate Policy Initiative. Available online: https://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2017/ (accessed on 9 March 2018).
2. De Sépibus, J. Green Climate Fund: How Attractive Is It to Donor Countries? *Carbon Clim. Law Rev.* 2015, *9*, 298–313.
3. Nakhooda, S.; Watson, C.; Barnard, S. Climate finance pledges at COP21. 2015. Available online: https://www.odi.org/opinion/10196-infographic-climate-finance-pledges-cop21-paris (accessed on 11 May 2017).
4. Vandeweerd, V.; Glemarec, Y; Billett, S. *Readiness for Climate Finance: A Framework for Understanding What It Means to Be Ready to Use Climate Finance*; United Nations Development Programme: New York, NY, USA, 2014; pp. 1–28.
5. Habtezlon, S. *Gender and Climate Change*; UNDP: New York, NY, USA, 2016; pp. 1–12.
6. OECD. *Climate Fund Inventory Report to the G20 Climate Finance Study Group Prepared by the Organisation for Economic Co-Operation and Development*; OECD: Paris, France, 2015; pp. 1–10.
7. Jakob, M.; Steckel, J.C.; Flachsland, C.; Baumstark, L. Climate finance for developing country mitigation: blessing or curse? *Clim. Dev.* 2015, *7*, 1–15.
8. UNEP. What Is Climate Finance Readiness? 2015. Available online: http://www.gcfreadinessprogramme.org/what-climate-finance-readiness (accessed on 7 June 2017).
9. Falconer, A.; Stadelmann, M. Five Ways to Build Effective Climate Finance Readiness Programs. 2015. Available online: https://climatepolicyinitiative.org/2015/10/06/five-ways-to-build-effective-climate-finance-readiness-programs/ (accessed on 11 April 2018).
10. Nakhooda, S.; Calland, R. Climate Finance Readiness: Preliminary approach and insights from efforts in Southern Africa. ODI, 2012. Available online: https://www.giz.de/expertise/downloads/giz2012-en-climate-finance-readiness-preliminary-approach.pdf (accessed on 3 May 2017).
11. PCCP. Climate Change Finance Readiness for the Pacific. 2016. Available online: https://www.pacificclimatechange.net/project/climate-change-finance-readiness-pacific (accessed on 11 April 2018).
12. Masullo, I.; Larsen, G.; Brown, L.; Dougherty-Choux, L. *Direct Access to Climate Finance: Lessons Learned by National Institutions*; Working Paper; World Resources Institute: Washington, DC, USA, 2015; pp. 1–32.
13. GCF. Empoweing Countries. Available online: https://www.greenclimate.fund/how-we-work/empowering-countries (accessed on 11 April 2018).

14. GCF. GCF Readiness Support State of Play. 2017. Available online: http://www.greenclimate.fund/documents/20182/466883/Readiness_Support_State_of_Play.pdf/60519d7a-e334-40d5-a0ab-86f79b60e36d (accessed on 12 June 2017).
15. UNFCCC. *The Paris Agreement FCCC/CP/2015/L.9/Rev.1*; UNFCCC: Bonn, Germany, 2015; pp. 1–32.
16. Pauw, W.; Klein, R.J.T.; Biermann, F. Private finance for adaptation: Do private realities meet public ambitions? *Clim. Chang.* 2016, *134*, 489–503.
17. UNEP. *The Emission Gap Report 2016. A UNEP Synthesis Report*; United Nations Environment Programme: Nairobi, Kenya, 2016; pp. 1–86.
18. CCST. *Trends in Private Sector Climate Finance Report Prepared by the Climate Change Support Team of the United Nations Secretary-General on the Progress Made Since the 2014 Climate Summit—9 October 2015;* Climate Change Support Team, UNFCCC: New York, NY, USA, 2015; pp. 1–50.
19. World Bank. Climate Finance for Adaptation and Resilient Building. 2016. Available online: https://www.unece.org/fileadmin/DAM/env/water/meetings/Water_Convention/2016/6th_Workshop_on_Water_and_Climate_Change_Adaptation_in_Transboundary_Basins/Presentations/S.2.1.Leb_Climate_Finance_Instruments_forTransboundaryWatersWorkshop_v2.pdf (accessed on 11 April 2018).
20. Whitley, S.; Norman, M.; Trujillo, N.C. Mobilizing Private Finance in Lower-Income Countries; ODI: London, UK, 2016; pp. 1–30.
21. Nakhooda, S. Climate Finance: Readiness and Strengthening Institutions: Technical Meeting Summary. Discussion Paper. 2012. Available online: https://www.odi.org/sites/odi.org.uk/files/odi-assets/events-documents/4947.pdf (accessed on 29 May 2017).
22. GIZ. Lessons Learned from GIZ's Climate Finance Readiness Programme. 2016. Available online: https://www.slideshare.net/OECD_ENV/lessons-learned-from-gizs-climate-finance-readiness-programme (accessed on 11 April 2018).
23. Minang, P.A.; Van Noordwijk, M.; Duguma, L.A.; Alemagi, D.; Do, T.H.; Bernard, F.; Agung, P.; Robiglio, V.; Catacutan, D.; Suyanto, S. REDD+ Readiness progress across countries: time for reconsideration. *Clim. Policy* 2014, *14*, 685–708.
24. UNDP. Asia and the Pacific. 2018. Available online: http://www.asia-pacific.undp.org/content/rbap/en/home/regioninfo.html (accessed on 11 April 2018).
25. Carrozza, I. *Climate Finance in the Asia-Pacific: Trends and Innovative Approaches*; MDPP, WP/15/08; UNESCAP: Bangkok, Thailand, 2015; pp. 1–42.
26. Barnard, S.; Nakhooda, S.; Caravani, A.; Schalatek, L. Climate Finance Regional Briefing: Asia, Climate Finances Update. 2015. Available online:

https://us.boell.org/sites/default/files/uploads/2015/11/cff8_2015_eng_asia.pdf (accessed on 30 September 2017).

27. Atteridge, A.; Canales, N. *Climate finance in the Pacific: An overview of flows to the region's Small Island Developing States*; Working Paper 2017-04; SEI: Stockholm, Sweden, 2017; pp. 1–74.
28. Maclellan, N. Turning the tide: improving access to climate financing in the Pacific Islands. 2011. Available on: https://www.lowyinstitute.org/publications/turning-tide-improving-access-climate-financing-pacific-islands (accessed on 30 September 2017).
29. Betzold, C. Who gives aid for adaptation to climate change in the Oceania? 2016. Available online: http://devpolicy.org/gives-aid-adaptation-climate-change-oceania-20160805/ (accessed on 28 October 2017).
30. Ministry of Finance Government of India, Climate Change Finance. *Analysis of a Recent OECD Report: Some Credible Facts Needed*; Climate Change Finance Unit, Department of Economic Affairs, Government of India: New Delhi, India, 2015; pp. 1–20.
31. USAID. Extract from USAID Request for Proposal (RFP) No. SOL-492-16-000004 Climate Ready (READY) Activity. 2016. Available online: https://govtribe.com/project/climate-ready-ready-activity (accessed on 11 April 2018).
32. Clissold, R.; Clark, T.; Priebbenow, B.; MacNamara, K. Panacea for the Pacific? Evaluating Community-Based Climate Change Adaptation. 2018. Available online: https://www.newsecuritybeat.org/2018/02/panacea-pacific-evaluating-community-based-climate-change-adaptation/ (accessed on 11 April 2018).
33. UNDP. *Budgeting for Climate Change: How Governments Have Used National Budgets to Articulate a Response to Climate Change*; UNDP: Bangkok, Thailand, 2015; pp. 1–46.
34. Brown, L.H. 4 Ways the Green Climate Fund Can Support "Readiness" for Climate Finance. World Resource Institute. 2013. Available online: http://www.wri.org/blog/2013/03/4-ways-green-climate-fund-can-support-readiness-climate-finance (accessed on 26 September 2017).
35. Michalena, E.; Hills, J.M. Paths of renewable energy development in small island developing states of the South Pacific. *Renew. Sustain. Energy Rev.* 2018, *82*, 343–352.
36. Lefevre, B; Leipziger, D. Readiness for Transport Climate Finance: A Framework for Preconditions to Access Climate Finance in the Transport Sector. 2014. Available online: https://trid.trb.org/view/1287989 (accessed 3 September 2017).
37. Ford, J.D.; King, D. A framework for examining adaptation readiness. *Mitig. Adapt. Strateg. Glob. Chang.* 2015, *20*, 505–526.

38. Khan, A.; Amelie, V. Assessing climate change readiness in Seychelles: implications for ecosystem-based adaptation mainstreaming and marine spatial planning. *Reg. Environ. Chang.* 2015, *15*, 721–733.
39. GCF. Readiness and Preparatory Support Proposal. 2016. Available online: http://www.greenclimate.fund/documents/20182/466883/Readiness_Support_State_of_Play.pdf/60519d7a-e334-40d5-a0ab-86f79b60e36d (accessed on 23 January 2017).
40. The Nature Conservacy. *Climate Finance Readiness: Lessons Learned in Developing Countries*; The Nature Conservacy: Berlin, Germany, 2012; pp. 1–24.
41. Adaptation Fund. Readiness Programme for Climate Finance. 2018. Available online: https://www.adaptation-fund.org/readiness/ (accessed on 11 April 2018).
42. Robinson, S.; Dornan, M. International financing for climate change adaptation in small island developing states. *Reg. Environ. Chang.* 2016, *17*, 1–13.
43. Halimanjaya, A. Climate mitigation finance across developing countries: what are the major determinants? *Clim. Policy* 2015, *15*, 223–252.
44. Halimanjaya, A. Allocating climate mitigation finance: A comparative analysis of five major green donors. *J. Sustain. Financ. Invest.* 2016, *6*, 161–185.
45. Betzold, C.; Weiler, F. Allocation of aid for adaptation to climate change: Do vulnerable countries receive more support? *Int. Environ. Agreem. Politics Law Econ.* 2017, *17*, 17–36.
46. Alesina, A.; Dollar, D. Who gives foreign aid to whom and why? *J. Econ. Growth* 2000, *5*, 33–63.
47. Riddell, R.C. *Does Foreign Aid Really Work?* Oxford University Press: Oxford, UK, 2008; pp. 1–536.
48. Howes, S. A Framework for Understanding Aid Effectiveness Determinants, Strategies and Tradeoffs. *Asia Pac. Policy Stud.* 2014, *1*, 58–72.
49. OECD. Climate Change: OECD DAC External Development Finance Statistics. 2017. Available online: http://www.oecd.org/dac/stats/climate-change.htm (accessed on 9 August 2017).
50. Muenzer-Jones, V.; Johnson, D. Recent Developments In Asian Green Bond Markets. 2016. Available online: http://www.nortonrosefulbright.com/knowledge/publications/137413/recent-developments-in-the-asian-green-bond-markets (accessed on 12 June 2017).
51. Irawan, S.; Heikens, A.; Petrini, K. *National Climate Funds: Learning from the Experience in Asia Pacific Countries*; UNDP Discussion Paper; UNDP, Asia Pacific Regional Center: Bangkok, Thailand,2012; pp. 1–32.
52. CDNK. Opinion: Climate finance options for National Climate Funds. 2015. Available online: https://cdkn.org/2015/12/opinion-climate-finance-options-for-national-climate-funds/?loclang=en_gb (accessed on 11 April 2018).

53. World Bank. REDD+ Country Participants. 2015. Available online: https://www.forestcarbonpartnership.org/redd-country-participants (accessed on 13 June 2017).

54. Baldacchino, G.; Hepburn, E. Independence, nationalism and subnational island jurisdictions. *Spec. Issue Commonw. Comp. Politics* 2012, *50*.395-402.

55. Briguglio, L. Small island developing states and their economic vulnerabilities. *World Develop.* 1995, *23*, 1615–1632.

56. Nurse, L.A.; McLean, R.F.; Agard, J.; Briguglio, L.P; Duvat-Magnan, V.; Pelesikoti, N.; Tompkins, E.; Webb, A. Small islands. In *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*; Barros, V.R., Field, C.B., Dokken, D.J., Mastrandrea, M.D., Mach, K.J., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., et al., Eds.; Cambridge University Press: Cambridge, UK; New York, NY, USA, 2014; pp. 1613–1654.

57. OECD. The World Bank. *Climate and Disaster Resilience Financing in Small Island Developing States*; A report jointly authored by the Organization for Economic Co-operation and Development (OECD) and the Small Island States Resilience Initiative (SISRI) team in the Climate Change Group of the World Bank; OECD. World Bank: Washington, DC, USA, 2016; pp. 1–96.

58. GCF. PROJECTS + PROGRAMMES. 2017. Available online: http://www.greenclimate.fund/what-we-do/projects-programmes?p_p_id=122_INSTANCE_VKj2s9qVF7MH&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=_118_INSTANCE_4ZRnUzRWpEqO__column-2&p_p_col_count=2&p_r_p_564233524_resetCur=true&p_r_p_564233524_categoryId=846529#nav-projects (accessed on 04 October 2017).

59. UNEP. *The Adaptation Finance Gap Report*; UNEP: Nairobi, Kenya, 2016; pp. 172.

60. OECD. Small island developing states (SIDS): Financing the 2030 Agenda for Sustainable Development. 2015. Available online: http://www.oecd.org/dac/environment-development/SIDS_flyer_COP.pdf (acessed on 25 June 2017).

61. Laniran, T.J.; Adeniyi, D.A. An evaluation of the determinants of remittances: Evidence from Nigeria. *Afr. Hum. Mobil. Rev.* 2015, *1*. 179–203.

62. Batista, C.; Narciso, G. Migrant Remittances and Information Flows: Evidence from a Field Experiment. *World Bank Econ. Rev.* 2018, *32*, 203–219.

63. Hezel, F.X. *Pacific Island Nations: How Viable are Their Economies?* Pacific Island Policy 7; East-West Center: Honolulu, HI, USA, 2012; pp. 1–33.

64. Jayaraman, T.K. Remittances on the rise in the Pacific. 2016. Available online: http://www.fijitimes.com/story.aspx?id=351765 (accessed on 13 June 2017).

65. Bendandi, B.; Pauw, P. Remittances for Adaptation: An 'Alternative Source' of International Climate Finance? Migration, Risk Management and Climate Change. *Evid. Policy Responses* 2016, *6*, 195–211.
66. Panizzon, M. Labour mobility: A win-win-win model for trade and development. The case of Senegal. 2008. Available on: https://www.iom.int/jahia/webdav/shared/shared/mainsite/projects/documents/gtdf_
flyer_en.pdf (accessed on 18 June 2017).
67. Scheffran, J.; Marmer, E.; Sow, P. Migration as a contribution to resilience and innovation in climate adaptation: Social networks and co-development in Northwest Africa. *Appl. Geogr.* 2012, *33*, 119–127.
68. Manly, B.F.J. Bootstrapping for determining sample sizes in biological studies. *J. Exp. Mar. Biol. Ecol.* 1992, *158*, 189–196.
69. Hesterberg, T. What Teachers Should Know about the Bootstrap: Resampling in the Undergraduate Statistics Curriculum. *arXiv* 2014, 1–83, arXiv:1411.5279.
70. OECD. Climate Related Development Finance: A partner country perspective. 2016. Available online: https://public.tableau.com/views/Climate-relateddevelopmentfinance-RP/CRDF-Recipient?:embed=y&:display_count=no&%3AshowVizHome=no%20#3 (accessed on 9 March 2018).

Paper 2: Gazing over the Horizon: will the Green Climate Fund allocation rules be significant to the Pacific post- 2020?

Jale Samuwai[1] and Jeremy Maxwell Hills[2,3]

[1]Pacific Center for Environment and Sustainable Development, The University of the South Pacific, Suva, Fiji

[2]Institute of Marine Resources, The University of the South Pacific, Suva, Fiji

[3]Sustainability Research Center (ML28), University of the Sunshine Coast, Australia

Submitted to the Pacific Journalism Review

Statement of Contributions of Joint Authorship

Jale Samuwai: (Candidate)

Writing and compiling of manuscript, established methodology, data analysis, preparation of tables and figures.

Dr. Jeremy Maxwell Hills: (Principal Supervisor)

Supervised and assisted with manuscript compilation, editing and co-author of paper.

This research paper (submitted version) is the refined and streamlined version of Chapter 3.

Gazing over the Horizon: will an equitable Green Climate Fund allocation policy be significant to the Pacific post-2020?

Abstract

The establishment of the Green Climate Fund (GCF) in which a significant portion of the ambitious USD100 billion per year for climate change response goal by 2020 should be channelled, has increased expectations and optimism amongst developing countries, especially those that are particularly vulnerable to climate change. Portrayed as a '*timely saviour'* to the climate finance needs of vulnerable countries, the allocation of GCF funds among countries will be key to low carbon and resilient futures. Its broad allocation policy increases the possibility that particularly vulnerable countries who have struggled to access international climate finance will continue to face such challenges. Adopting an equitable/fair principle of allocation, this paper highlights a number of scenarios on the possible impact of the post-2020 climate financing environment on particularly vulnerable countries with a special focus on the Pacific Small Island Developing States (PSIDS). This study argues that PSIDS are extremely sensitive to GCF allocation mechanisms. While the study supports the notion of '*balanced allocation'* as currently advanced by the GCF, the precarious situation of PSIDS necessitates a re-think on how the GCF finance is to be allocated. Rhetoric recognising the GCF just as a premium and unique "game changer" fails to adequately inculcate future climate finance uncertainties for the Pacific.

Keywords

Climate change, climate finance, Pacific Small Island Developing States, Green Climate Fund, adaptation finance, allocation

1. Introduction

The establishment of the Green Climate Fund (GCF) in 2011 to mobilize climate finance to developing countries received a lot of fanfare and positive accolades from the world media and world leaders (Rowling, 2012; Azevedo 2017). The GCF has been referred to as *unique* (Kumar, 2017), a *game changer* (The Guardian, 2014), the world l*argest* (Arkin, 2018) and *premium* multilateral climate fund (Friends of the Earth, 2014), and the primary channel which will deliver a significant portion of the 2020 USD 100 billion global climate finance goal to developing countries. The GCF purpose is to not only support ambitious and innovative climate actions that will limit global emissions and enhance resilience of developing countries (GCF, 2018), but also to correct the '*inequality of climate finance distributions*' that many developing countries have been arguing as being unfair (Harvey, 2014).

Donors have pledged an ambitious USD 10.2 billion to the GCF by 2018, and additional contributions are expected through the GCF to reach the USD 100 billion climate finance goal by 2020. The GCF has also been used as an ideal platform by donor countries to showcase their global commitment to the fight against climate change, attracting showers of praise from developing countries and the media community alike. Because of the ambitious cause that it advance and its promise of 'big money', the GCF has been portrayed and viewed by developing countries, especially the Pacific Small Island Developing States (PSIDS); one of the most extremely vulnerable group of countries of the world, as a '*timely saviour'* to their climate finance needs (GCF, 2017). In other words, the GCF because of the positive messaging that surrounds it when it was established, has to a larger extend been

presented to developing countries as the 'solution' to their future climate change problem; an 'infinite' source of climate finance. To date, the GCF has become synonymous with the term climate finance within the climate change discourse.

However, a critical evaluation of the current GCF allocation policy highlighted that 'nothing can be further from the truth'. While the resources directed to the GCF is 'substantial', there is concern that its current allocation policy which advances a '*geographical balance approach'* (GCF, 2014) can disadvantage particularly vulnerable countries in the future. Under the GCF, particularly vulnerable countries consist of the Least Developed Countries (LDCs), Small Island Developing States (SIDS) and Africa. Such open-ended allocation policies can further marginalise particularly vulnerable countries who have continuously struggled to access quality and predictable finance from multilateral climate funds, and it does little to solve the current problem of ad hoc, inadequate and inconsistent flow of climate finance into such countries. Sporadic inflows of finance further exacerbate countries vulnerabilities, and reduce their resilience to climate change (Maclellan, 2011). To effectively address climate change impacts, long-term support is necessary, but such support cannot be planned or implemented without requisite funding and a degree of certainty (Müller, 2015).

In addition, the need to bring the GCF allocation policies to the fore in public discourse stems from the *race for accreditation*[25] that is currently underway among developing countries. The perception of future 'big money' flowing into the GCF has incentivised developing countries to mobilise significant national resources to strengthen their institutional capacities so that they gain accreditation to the GCF, and directly access its resources pre-2020[26]. While seeking GCF accreditation is important, such efforts may be in vain if a degree of predictability for finance to be accessed (i.e. allocation) is not guaranteed post-2020. It is therefore critical for the GCF to initiate a process to determine how best to allocate adaptation finance among particularly vulnerable countries, so that such countries could also maximise such opportunity post-2020.

2. The Pacific Situation

Scattered over the largest ocean in the world, the PSIDS are considered to be at the front line of climate change (Robie & Chand, 2017). Emphasis to shed light on the PSIDS climate finance situation is driven by the absence of their voice in mainstream climate finance literature (Dreher & Voyer, 2015). Existing academically oriented climate finance studies tend to aggregate the PSIDS unique and special situations with that of the larger Asia countries in the Asia-Pacific region, resulting in the 'drowning' of PSIDS voices (Maclellan, 2011). Without discounting the climate change realities of other particularly vulnerable countries, fair attention to the PSIDS climate finance needs is warranted because some PSIDS are now facing existential threat.

---

[25] Accreditation refers to the evaluation process that international, regional, and national institutions have to go through if they want to directly access the GCF. To be accredited, an institution has to meet the robust standards required by the GCF.

[26] From 2020 to 2025, the goal is to mobilize USD100 billion of climate finance each year. A new climate finance goal is expected to be determined in 2025.

Fifteen PSIDS; Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, the Marshall Islands, Nauru, Niue, Palau, Papua New Guinea (PNG), Samoa, the Solomon Islands, Timor Leste, Tonga, Tuvalu and Vanuatu are signatory of the United Nations Framework Convention on Climate Change (UNFCCC).

Accessing predictable and adequate adaptation finance is the priority of PSIDS due to their topography. The amount of adaptation climate finance channelled to the PSIDS is relatively modest compared to other developing countries and is largely ad hoc in nature (Atteridge & Canales 2017). Of the USD 1.3 billion for adaptation finance mobilized to the Asia-Pacific region, only 4.6% were channelled to PSIDS (Barnard,et al., 2015). Bilateral agencies are the main sources of finance in the region. Accessing quality and predictable finance from multilateral climate funds is a constant challenge for the PSIDS due to their chronic capacity constraints. In addition, the total climate finance received is diluted as significant portion of the amount (~8% to 20%) is deducted as management fees by international accredited entities (IAE): multilateral agencies such as the UNDP, World Bank, the Asian Development Bank etc. who accessed these Funds on the PSIDS' behalf (Atteridge & Canales, 2017).

Due to their very small population, PSIDS are regarded as the highest receiver of climate finance on a per capita basis. However, critics have argued that this fact can be misleading as it does not reflect PSIDS realities (Dirix et al., 2012). PSIDS unlike other SIDS, are scattered across 15% of the globe's surface, and are some of the remotest countries from major global markets; making the mobilization of climate finance not only challenging but also very costly (The World Bank, 2017). The point being communicated here is that PSIDS have not be able to access their 'fair' share of climate finance relative to their situation, and as a consequence exacerbated their already extreme vulnerability (Maclellan 2011).

For its part, the GCF has ramped up its effort to mobilize climate finance to the PSIDS. In total, the GCF is currently co-financing 7 major projects in the Pacific (Appendix: Table 1). While these efforts are commended and appreciated, it is still highly uncertain how the PSIDS will fare in future GCF disbursement cycles under a '*geographical balance'* allocation policy. There is great uncertainty as to whether PSIDS can consecutively secure such significant financing from the GCF in light of other developing countries' growing climate change needs. To date Fiji, through the Fiji Development Bank is the only PSIDS that has attained accreditation from the GCF.

The high degree of uncertainty in future funding access to the GCF should motivate the PSIDS to engage the GCF to initiate constructive discussions on the need for a concrete yet *fair* allocation policy that will ensure a predictable funding pathway for the most vulnerable countries. In light of PSIDS circumstances, the ideal GCF allocation criteria would be one that will result in the flow of predictable and quality finance that will not only enable effective and cost-effective response to PSIDS' immediate adaptation needs, but also to their long-term resilience (Maclellan & Meads, 2016).

3. Justification for Equitable/Fair Allocation of Adaptation finance

Fairness according to the seminal work of John Rawls is synonymous with the concept of equity (Rawls, 1958). Thus, the push for equity as the basis of adaptation finance allocation is driven by the idea of 'restitution'- an obligation that needs to be settled as inferred by the polluter pay principle of the UNFCCC (Eisenack & Stecker, 2012). Moreover, the absence of a robust allocation polices that take care of special case

countries like the PSIDS have resulted in the marginalisation of particularly vulnerable countries, underlying the importance of equitable process within the financial mechanisms of the UNFCCC (Müller, 2013). The role of equity in climate finance allocation is critical, as noted by (Sokona & Denton, 2001), to "*assure that vulnerable people in the remotest outposts of the world do not become imprisoned in perennial cycles of destitution and impoverishment at the mercy of climate events'* (p. 120). While equity might be a broad and politically sensitive concept, it is perceived as relevant in the policy discourse around the allocation of adaptation climate finance (Persson & Remling, 2014).

Equity has four general principles, 1) equality, 2) prioritarianism, 4) sufficientarianism, and 5) the leximin principle (Persson & Remling, 2014). All equity principles have merits in the allocation of adaptation finance (Grasso, 2010), but this study identified that only two are currently being operationalized by multilateral climate funds. These are (1) *the equality principle,* which demands funds be equally distributed to all countries despite their different circumstances (Paavola & Adger, 2006), and (2) the *prioritarianism principles,* which prioritizes funding for those that are worse affected by climate change; *the most vulnerable* (Stadelmann et al., 2014).

These two equity principles are prevalent in the allocation of adaptation finance and can be attributed to the different rationale of equity between developed (donors) and developing countries (recipients) (Maggioni, 2010). Maggioni (2010) argues that the *equality principle* reflects the argument of developed countries that there is a limit to resources that can be provided, thus, for fairness sake, all eligible countries should get an equal share. Müller (2013) provided further support, arguing that treating all eligible countries as equal, despite their circumstances, is politically justifiable as it ensures that funding is available to all.

The *prioritarianism principle,* on the other hand, champions developing countries' preference for channelling adaptation finance to those who really need it (Maggioni, 2010). Stadelmann et al. (2014) supported such stance, stressing that vulnerable countries needs should be prioritised, and should be given the bulk of finance (Paavola & Adger, 2006). These rationales are based on the unequal vulnerabilities and responsibilities of countries in terms of their contributions and sensitivity to climate change (Grasso, 2010).

Allocating finance on the basis of vulnerability has been strongly criticized as it is a political construct (Klein & Möhner 2011; Füssel et al., 2012), is difficult to measure and compare (Stadelmann et al., 2014), and is subjective (Barnett et al., 2008). Füssel et al. (2012), Müller (2013) and Ferreira (2017) have, however, proposed various modified forms of 'vulnerability' as the basis for allocating adaptation finance. These studies have argued that poverty indicators are the best proxy for vulnerability and should be taken into account when designing an equitable climate finance allocation framework (Ferreira, 2017).

4. The Method

To illustrate the potential implication of an equity driven GCF allocation policy on the PSIDS, this article focuses specifically on the *ring fenced provision* of the GCF adaptation finance. The GCF allocates 50% of GCF finance to adaptation and then splits that into two equal portions: (i) LDCs, SIDS and African States, and (ii) the remaining developing countries (of UNFCCC non-Annex I) creating an impression of special treatment for particularly vulnerable countries.

Using the *equality* and the *prioritarianism principle* as the basis for allocation, this study then formulated relevant allocation indicators (Table 2) to highlight the possible futures of GCF adaptation finance for PSIDS post-2020, when the GCF is intending to be mobilized towards USD 100 billion per annum. This paper recognizes that allocation decisions are complex, value laden and have a political dimension (Barr et al., 2010), thus its aim is to merely highlight how an equity base GCF allocation decisions for adaptation finance could be significant (or not) in relation to the PSIDS precarious situation.

Principle	Example of use in practice	Proposed indicators	Justification of indicators	Sources of data
Equality	- GCF readiness: USD 1 million per year & USD 3 million per country -Adaptation Funding cap of USD 10 million -The Global Environment Facility country cap	-***Per-country***	(Müller, 2013) (Füssel et al., 2012)	UNFCCC country listing
Prioritarianism	-GCF ring fenced provision: 50% of adaptation finance is reserved for LDCs, SIDS and Africa -LDCF prioritized LDCs -Adaptation Fund prioritized SIDS and LDCs	-***Total vulnerable population*** -***Total land mass*** -***Weighted Vulnerability*** (i.e. population weighted against vulnerability index of countries)	(Füssel et al., 2012) (Climate Investment Fund, 2009) (Müller, 2013) (Barr et al., 2010)	2016 World Bank & 2014 SREP Vulnerability Index

Table 2. Allocation Indicators/Criteria and Data Sources

Moreover, the analysis was conducted assuming 5 important caveats:

- The USD 100 billion goal each year by 2020 has been achieved;
- The GCF is the primary vehicle of shifting these finances;
- The ring-fenced USD 25 billion is ready to be allocated post-2020;
- All countries are able to submit GCF-compliant applications greater than the overall GCF limit requiring GCF to determine allocation;

- 97 countries[27] are eligible to access the special funding provision of the GCF.

5. Results

PSIDS experience can be compared with other identified ring-fenced groups in relation to the four allocation criteria (Figure 1). It is also important to note that this study by no mean proposes that the PSIDS should actually receive the amount derived from these allocation scenarios; it rather wants to highlight the unpredictability of flows in light of no concrete and clear allocation principles.

From the onset (Figure 1), it is clear that the four allocation basis will significantly impact the PSIDS and the wider SIDS. While the allocation amount due to the LDCs and the African states also varies, the amount that these countries are poise to receive under the four allocation basis ranges well above the USD 257 million mark (i.e. the amount a country can receive if a *per country criteria* is used). This seems to suggest that LDCs and African states are relatively better off compared to PSIDS and SIDSs irrespective of the allocation basis used, as the possibilities of large scale and predictable finance is highly certain to these countries.

When compared to the wider SIDSs grouping, the sensitivity of the PSIDS to the allocation criteria is quite evident. The wider SIDS grouping receives an average of USD 26 million if allocation were to be made on the basis of *population*, *land-area* and *weighted vulnerability*. The PSIDS on the other hand, tend to exhibit a significant degree of variation in the finance flows when allocation is done on the same 3 bases. The PSIDS average allocation, as per *land area* is USD 24 million. This amount decreases by 57% if allocation is done on the basis of *population* and 65% if allocation is done on the basis of *weighted vulnerability*. It is important to also note that the PSIDS overall data is heavily skewed by PNG.

The ratio of finances as per the 3 allocation basis increases significantly for PSIDS and the wider SIDS grouping if allocation were done on a *per country* basis. For SIDS, the *per country* allocation amount is on average 10 times more the amount if allocation was to be done on the basis of *population, total land area and weighted vulnerability*. On the other hand, the range of increase varies significantly for PSIDS with the *per country* basis allocation being 23 times more when compared to the amount of the *population* criteria, 10 times more when compared to the *total land area* criteria and 29 times more when compared to *weighted vulnerability*.

[27] 97 developing countries who are parties to the UNFCCC fit the requirements of the special ring-fenced portion of the GCF adaptation finance.

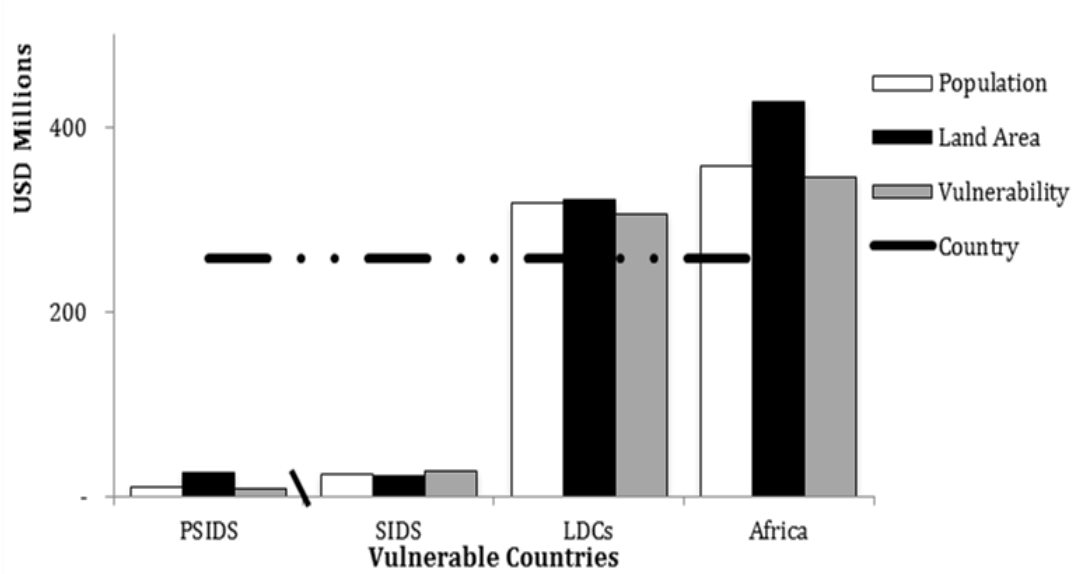

Figure 1. Average allocations by vulnerable country grouping

At the regional level, the impact of the four allocation criteria within the PSIDS is also quite significant across countries and allocation criteria (Figure 2). Within the PSIDS, if the GCF allocations were made on the basis of *population*, those PSIDS categorized as Pacific Smaller island States (PSIS)[28] will be the most disadvantaged as they only account for 0.03% of the Pacific's population. Niue will be most deprived PSIDS if allocations are to be done on a *population* basis, because its total of population is less than 2000. Timor-Leste, Fiji, Solomon and to some extent Vanuatu will experience small but significant climate finance flow due to their high population. PNG, the most populous PSIDS (~64% of Pacific population), stands to gain the chunk of adaptation finance in the region.

PNG will again, benefit the most, should the GCF decides to allocate adaptation finance on the basis of *land area* as it accounts for more than 85% of the total land area in the Pacific. While other larger PSIDS such as Timor-Leste, Fiji, Solomon and Vanuatu, might also receive significant inflow of adaptation finance, the difference in the ratio between the amounts they receive with that of PNG under such allocation is quite significant (~ 25 times). The PSIS whose combined land area only accounts 0.01% of the total land area in the Pacific will be the most penalized under this allocation criterion. Moreover, the ratio of the aggregated allocation amount of PSIS when compared to that of other bigger PSIDS is also quite substantial. Larger PSIDS could receive up to 28 times more adaptation finance under such allocation when compared to PSIS. This difference increases exponentially when compared with that of PNG's allocations.

The impact of a possible allocation based on *weighted vulnerability* significantly varies amongst PSIDS when compared against their possible allocations

[28] This grouping is exclusive to six Pacific Smaller Island States (PSIS); Cook Islands, Marshall Islands, Nauru, Niue, Palau and Tuvalu. These islands are made up of low-lying atolls.

under the *population* and *total land area* criterion. Fiji, FSM, Samoa and Kiribati each stands to receive an increase of approximately 200% in adaptation finance when compared against the amount they could possibly receive from the *population* and *land area* allocation criteria, while the magnitude of the increase in Tonga is 0.7%.

For the remaining PSIDS, allocation using *weighted vulnerability* is less when compared to the *population* and the *land area* allocations. The most notable PSIDS as per (Figure 2) where the *weighted vulnerability* allocation might result in reduced adaptation flows are PNG, Solomon and Vanuatu. PNG seems to be most sensitive PSIDS under this allocation criterion as its adaptation finance can reduce by 84% when compared against the *total land area* and a 50% reduction when compared against the *population* allocation criteria. However, PNG position is still relatively better off under the *weighted vulnerability* criterion criteria when compared across the wider PSIDS.

The *per country* allocation criteria is a definite *game-changer* for all the PSIDS. When compared to the other three allocation criteria, all the PSIDS stand to gain significant flow of climate finance with an allocation of USD 257m per country. With the exception of the *land area* allocation to PNG, the difference between the *per country* allocation to that of *population* and *weighted vulnerability* is quite significant across PSIDS. For example, Fiji (the second best positioned country behind PNG) stands to gain 17 times the amount of climate finance if allocations were to be done by a *per country* basis rather than *population*, 19 times when compared to allocation by *land area* and 10 times when compared to *weighted vulnerability* allocations. These ratios are much higher for the remaining PSIDS, especially for PSIS.

To surmise, Figure 2 clearly depicts a high degree of climate finance flow variation to each PSIDS under each allocation criteria. It indicates the high sensitivity level of the PSIDS to the possible allocation criteria, which are done on the basis of *population, land-area, weighted vulnerability* and a *per country* basis. While PNG, Fiji, Solomon, Timor-Lester and Vanuatu are in a much better position to leverage these allocation criteria, the amount they could receive however, significantly varies depending on the allocation criteria used. Allocations to PSIS are significantly less when compared to other PSIDS but could experience large and predictable scale finance if allocation were done on a *per country* basis.

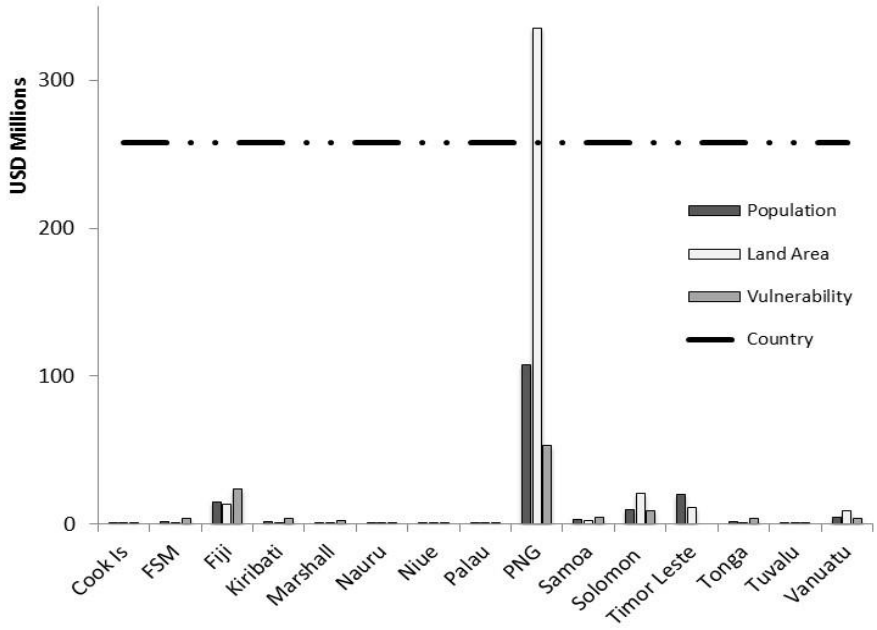

Figure 2. PSIDS share if the GCF ring fenced amount is allocated by *Population, Land Area, Weighted Vulnerability* and a *Per Country* basis.

5.1 The effect of GCF finances on existing finance flows

The impact of the GCF on the existing scale of PSIDS adaptation finance flows was also examined using the 2016 Organization for Economic Co-operation and Development (OECD) data. The OECD database comprehensively track the by-country climate finance flow to all developing countries. In computing the effect, the OECD adaptation flow was calculated as a ratio of the finance figure derived from this study's post-2020 allocation criteria. Ratios 1> indicates that the GCF allocations will have an impact on current level of financing. While the 2016 flows are not fully comparable to the GCF 2020 flow prediction, the aim is to try and identify the significance of the GCF instrument compared to existing climate finance targeted at adaptation, rather than make any precise comparisons.

If the GCF allocation is done by *population*, the existing adaptation for 80% of PSIDS do not surpass the ratio of 1, suggesting that the level of finance that these PSIDS will receive, might be no greater than what they already received as adaptation finance in 2016 (Figure 3). Only 3 PSIDS: PNG, Fiji and the Marshall Islands are poised to experience more than 100% increase in existing finance. PNG stands to gain more than 5 times their existing adaptation finance should allocation be done on the basis of *population*. Existing adaptation finance of PNG stands to increase 16 times if allocation is done on a *total land area* basis.

In terms of *weighted vulnerability* criteria, PNG, Fiji and Solomon's existing adaptation finance increases by more than 100%. PNG will benefit the most among the PSIDS as their existing adaptation finance increases more than 6 times. FSM, Samoa, Marshall, Kiribati, Tonga and Vanuatu are likely to also experience an increase in their adaptation finance. The PSIS did not experience a significant increase in their existing adaptation finance, which could be largely attributed to the minimal amount of adaptation finance they have been receiving and also their small population base.

On a *per country* allocation, the existing adaptation finance across most of the PSIDS increases significantly. The PSIS existing climate finances will increase significantly under this allocation criteria; for Nauru this increase is projected to be 600 times >. For non PSIS, the degree of funding increase is also significant as on average the existing climate finance will increase 10 times on a *per country* basis.

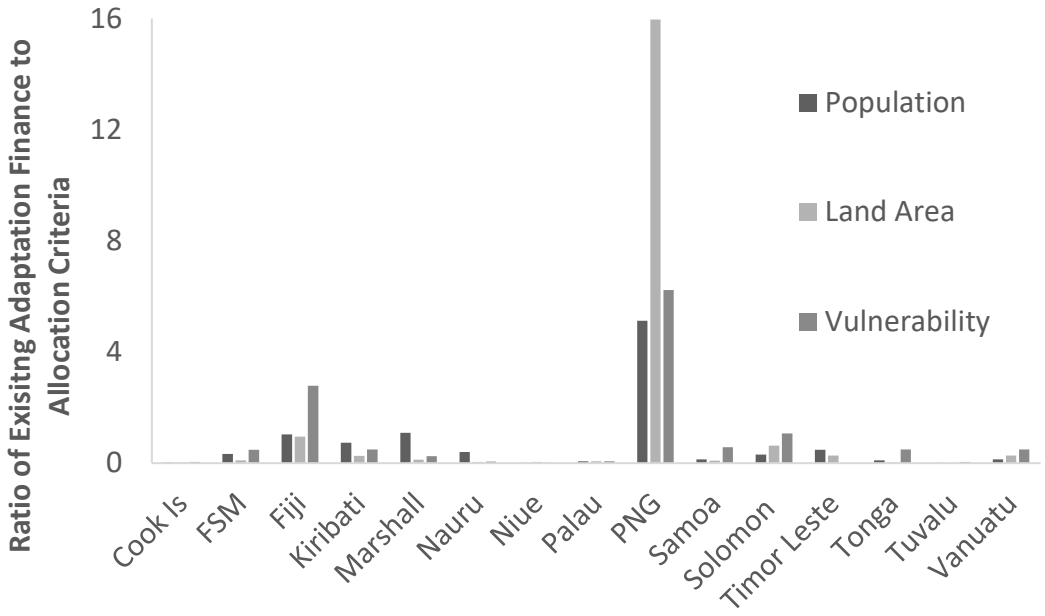

Figure 3. GCF ring-fenced allocation as a ratio of the PICs existing adaptation flow

The impacts of the proposed allocation criteria for particularly vulnerable countries' development are summarised in (Figure 4). To highlight the sensitivity of the four allocation criteria to a country's development status, this study calculated the maximum as well as the minimum allocation across the allocation criteria, and then computed the ratio. The ratio was then graphed against the country's 2016 gross national income (GNI) provided by the World Bank.

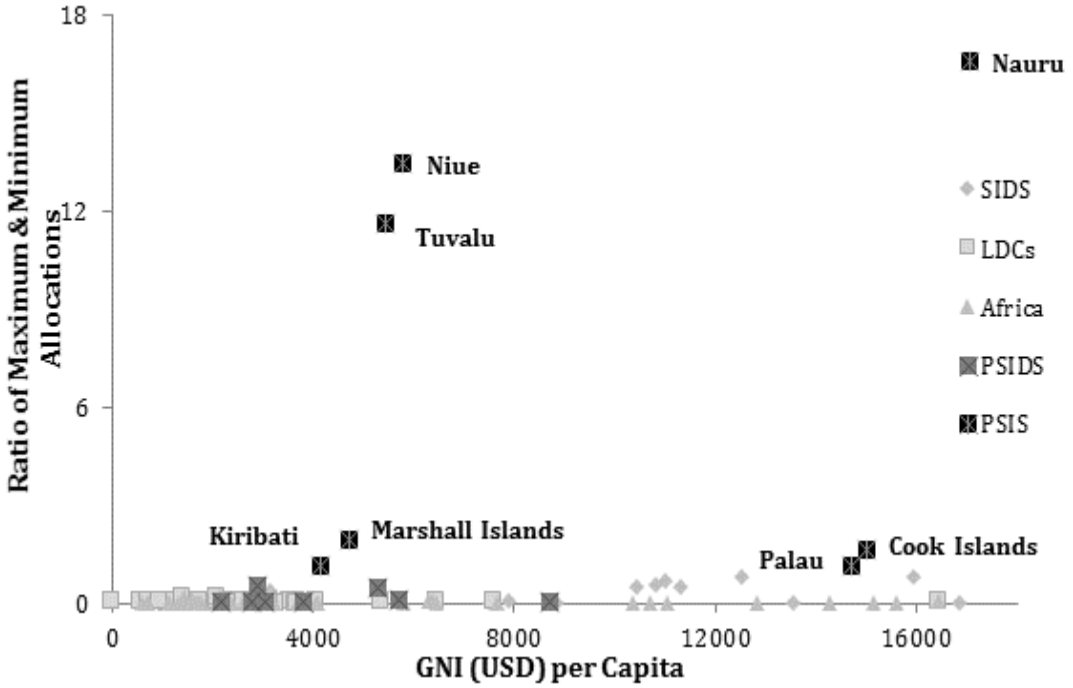

Figure 4. Ratio of Maximum and Minimum Allocations across the GNI of Vulnerable Countries

The potential financial flows (Figure 4) are more stable across the LDCs and the African States. This seems to suggest that, the even though LDCs and most of the African States are fairly poor, the potential amount that they stand to gain from any potential GCF allocation criteria will be more *predictable* compared to the SIDS. The data also suggest that PSIDS are *more sensitive* to any GCF allocation criteria despite their relatively affluent economies. PSIS are *most sensitive* to potential allocation criteria of the GCF. PSIDS high reliance on external support suggests that the GCF allocation criteria really matter in their development context, and this dependence is even more critical in the context of PSIS. The potential of the GCF to support adaptation endeavours is thus much more uncertain for PSIS.

6. Discussions

As the GCF mobilizes towards 2020, once countries have established access channels and become conversant in the access process, GCF is likely to be oversubscribed and will need to address allocation issues. The analyses highlighted above are some key indicative scenarios, based on the equity principle to help elaborate the significance of potential future GCF adaptation flows to PSIDS.

For the GCF, finding equitable and fair criteria by which to allocate adaptation finance in a manner that will satisfy all the particularly vulnerable countries will be difficult. At the international level, equitable criteria based on the *prioritarianism principle* will favour larger, populous LDCs and African States relative to the SIDS. This trend is also reflected at the regional level, where the finance allocations are also skewed towards more populous and bigger PSIDS. Only the *equality principle* seems to guarantee that predictable adaptation finance will flow to all PSIDS.

The analyses also identify PSIDS as being very sensitive to any allocation criteria by the GCF, which increases the uncertainty of predictable climate finance flow. Depending on the allocation criteria adopted by the GCF, the existing climate finance flow to PSIDS can be significantly scaled-up, or can remain largely unchanged; this is likely to have serious implications on their resilience development pathways.

Accessing the GCF ring-fenced adaptation fund is further complicated because the 15 PSIDS will still have to compete with 84 other countries. In a competitive funding environment, PSIDS are more likely to go under-funded because the existing process of the GCF emphasises the need for '*paradigm shift-oriented projects'* (GCF, 2018). This means that the GCF will prioritise the *quality* of the funding proposal over a country's special circumstances. With chronic shortages of local specialists competent in writing and designing quality funding proposals, PSIDS will struggle to compete for GCF funding.

7. Conclusion

This study supports the growing voice of concern that the GCF is not the '*saviour*' that it was initially made out to be, and it needs to do more for developing countries that are particularly vulnerable to climate change. The critical question that this study raises is in relation to post-2020 funding allocation of the GCF, which has received very little attention in the public discourse. There is a critical need to initiate frank and open discussion on the future allocation policy of the GCF, as many developing countries are currently prioritizing national accreditation but paying little attention to post-2020 allocation.

PSIDS stand out as being very sensitive to potential GCF post-2020 allocation. Apart from the *equality principle*, any equitable allocation criterion that promotes the *prioritarianism principle* seems to indicate that the access to predictable finance promises of the GCF is highly uncertain. While strengthening institutional capacities will be an up-side for PSIDS in pursuing direct access to the GCF, the broad allocation policy of the GCF and its competitive funding-oriented criteria raises legitimate questions about whether pursing national accreditation is worthwhile for PSIDS, especially the PSIS.

To reduce the uncertainty associated with the post-2020 GCF climate finance flows, this paper strongly recommends that the GCF consider a uniform funding floor *per country* within the GCF ring-fenced provision, in order to ensure a predictable resourcing pathway for the small and the particularly vulnerable countries.

To conclude, there is an urgent need for the media community in the Pacific to 'up its game' when advocating for climate change issues in the region, in particular in relation to climate finance. The Pacific media must do more to provoke discussions in all aspects of climate change, especially those future issues that can have long term implications. As argued bv Professor David Robie, '*we are running out of time… [and] news media itself is not terribly good when it comes to long-term issues. It tends to respond to immediate issues and consequences. It lacks the attention span for longer term challenges*."(Media Watch, 2018). The GCF future allocation policy is a critical long term issue that needs to be urgently discussed publically and addressed because further delays will only galvanise the probability of some PSIDS being 'off the horizon' in the near future. Rhetoric recognising the GCF just as a premium and unique game changer fails to adequately inculcate future uncertainties for the Pacific.

References

Arkin, F. (2018). DevExplains: Green Climate Funds. Retrieved on 01 May 2018, from https://www.devex.com/news/devexplains-green-climate-funds-91802

Atteridge, A., & Canales, N. (2017). Climate finance in the Pacific: An overview of flows to the region's Small Island Developing States. Working Paper 2014-04. Stockholm Environment Institute. Stockhom. Retrieved on 01 March 2017, from https://www.sei-international.org/publications?pid=3083

Azevedo, L. (2017). Green Climate Fund + Climate Investment Funds = Global Finance Architecture. Retrieved on 01 April 2018, from https://www.afdb.org/en/blogs/a-race-against-time/post/green-climate-fund-climate-investment-funds-global-finance-architecture-17508/

Barnard, S., Nakhooda, S., Caravani, A., & Schalatek, L. (2015). Climate Finance Regional Briefing: Asia Climate Finance Fundamentals. London: ODI. 1-4.

Barnett, J., Lambert, S., & Fry, I. (2008). The Hazards of Indicators:Insights from the Environmental Vulnerability Index. Annals of the Association of American Geographers 98(1), 102-119.

Barr, R., Frankhauser, S., & Hamilton, K. (2010). Adaptation investments: a resource allocation framework. Mitigation and Adaptation Strategies for Global Change 15(8), 843-858. DOI 10.1007/s11027-010-9242-1

Climate Investment Fund. (2009). The selection of countries to participate in the pilot program for climate resilience (PPCR). Report of the Expert Group (established by the Pilot Programme on Climate Resilience Subcommittee, PPCR-SC), to the PPCR Subcommittee, Climate Investment Funds. Washington, DC, USA, The World Bank Group.

Dirix, J., Peeters, W., & Sterckx, S.(2012). Equal per capita entitlements to greenhouse gas emissions: a justice based-critique. In Climate Change and Sustainable Development (pp 121-127). Wageningen Academic Publishers.

Dreher, T., & Voyer, M. (2015). Climate refugees or migrants? Contesting media frames on climate justice in the Pacific. Environmental Communication 9(1): 58-76. https://doi.org/10.1080/17524032.2014.932818

Eisenack, K., & Stecker, R. (2012). A Framework for Analyzing Climate Change Adaptations as Actions. Mitigation and Adaptation Strategies for Global Change, 17(3), 243-260. DOI: 10.1007/s10027-001-9323-9

Ferreira, P.G. (2017). Equitable Allocation of Climate Adaptation Finance Considering Income Levels Alongside Vulnerability. CIGI Papers: No. 152. Center for International Governance Innovation.

Friends of the Earth. (2014). Green Climate Fund. Retrieved on 01 May 2018 from https://foe.org/projects/green-climate-fund/.

Füssel, H-M., Hallegate, S., & Reder, M. (2012). International Adaptation Funding. In: Edenhofer O., Wallacher J., Lotze-Campen H., Reder M., Knopf B., Müller J. (eds) Climate Change, Justice and Sustainability. https://doi.org/10.1007/978-94-007-4540-7_29

Grasso, M. (2010). An Ethical Approach to Climate Adaptation Finance. Global Environmental Change, 20(1), 74-81. doi:10.1016/j.gloenvcha.2009.10.006

GCF (2018). Empoweing Countries. Retrieved on 11 April 2018 from https://www.greenclimate.fund/how-we-work/empowering-countries.

GCF. (2017). GCF Perspectives - Ambassador Aliioaiga Feturi Elisaia of Samoa. Retrieved on 01 May 2018, from https://www.greenclimate.fund/-/gcf-perspectives-ambassador-aliioaiga-feturi-elisaia-of-samoa.

GCF. (2014). Policies and Procedures for the Initial Allocation of Fund Resources GCF/B.06/05 Retrieved on February from https://www.greenclimate.fund/documents/20182/24940/GCF_B.06_05__Policies_and_Procedures_for_the_Initial_Allocation_of_Fund_Resources.pdf/c58faf81-d780-4918-94d4-407a49af501e?version=1.1

Harvey, C. (2014). Countries Are Donating Billions To A Global Fund — Here's What It's For. Retrieved on 30 April 2018, from http://www.businessinsider.com/what-is-the-green-climate-fund-2014-12.

Klein, R. J., & Möhner, A. (2011). The Political Dimension of Vulnerability: Implications for the Green Climate Fund. IDS Bulletin 42(3), 15-22. DOI: 10.1111/j.1759-5436.2011.00218.x

Maclellan, N. (2011). Turning the tide: improving access to climate financing in the Pacific Islands. Retrieved on 10 March 2017 from https://www.lowyinstitute.org/publications/turning-tide-improving-access-climate-financing-pacific-islands

Kumar, R. (2017). Workshop on Green Climate Fund. Retrieved on 1 April 2018, from http://www.cookislandsnews.com/item/66392-workshop-on-green-climate-fund.

Maclellan, N. (2011). Improving Access To Climate Financing For The Pacific Islands. Retrieved on 01 April 2018, from https://www.lowyinstitute.org/publications/improving-access-climate-financing-pacific-islands

Maclellan, N., & Meads, S. (2016). After Paris; Climate Finance in the Pacific Islands. Oxfam Research Report: New Zealand, Oxfam.

Maggioni, E. (2010). Justice implications of adaptation to Climate Change and its governance. Retrieved on 05 December 2017, from http://www.diss.fu-berlin.de/docs/servlets/MCRFileNodeServlet/FUDOCS_derivate_000000001614/Maggioni__Justice_Implications_of_Adaptation_to_Climate_Change_and_its_Governance.pdf

Media Watch. (2018) Asia Pacific Media must ‘empower people’ on climate action, say PMC. Retrieved on 01 April 2018, from https://asiapacificreport.nz/2018/03/26/asia-pacific-media-must-empower-people-on-climate-action-says-pmc/

Müller, B. (2013). The Allocation of (Adaptation) Resources Lessons from fiscal transfer mechanisms. Retrieved on 10 March 2017 from https://www.oxfordenergy.org/publications/the-allocation-of-adaptation-resources/

Paavola, J. & Adger, W.N. (2006). Fair adaptation to climate change. Ecological Economics 56(4), 594-609. https://doi.org/10.1016/j.ecolecon.2005.03.015

Persson, A. & Remling, E. (2014). Equity and efficiency in adaptation finance: initial experiences of the Adaptation Fund. Climate Policy 14(4), 488-506. http://dx.doi.org/10.1080/14693062.2013.879514

Rawls, J. (1958). Justice as Fairness. The Philosphical Review, 67(2), 164-194. DOI: 10.2307/2182612

Robie, D., & Chand, S. (2017). Bearing Witness 2016: A Fiji climate change journalism case study. Pacific Journalism Review , 23(1), 186-205.
Rowling, M. (2012). New UN Climate Fund must work for the Poor – NGOs. Retrieved 30 April 2018, from http://wedo.org/new-un-climate-fund-must-work-for-the-poor-ngos/.
Sokona, Y., & Denton, F. (2001). Climate change impacts: can Africa cope with the challenges? Climate Policy 1(1), 117-123. http://dx.doi.org/10.3763/cpol.2001.0110
Stadelmann, M., Persson, A., Ratajczak-Juszzko, I., & Michaelowa, A. (2014). Equity and cost-effectiveness of multilateral adaptation finance: are they friends or foes? International Environmental Agreements: Politics, Law and Economics, 14(2), 101-120. https://doi.org/10.1007/s10784-013-9206-5
The Guardian (2014). Countries pledge $9.3bn for Green Climate Fund. Retrieved on 1 April 2018, from https://www.theguardian.com/environment/2014/nov/20/countries-pledge-93bn-for-green-climate-fund.
The World Bank. (2017). The World Bank in Pacific Islands. Retrieved on 15 September 2017 from http://www.worldbank.org/en/country/pacificislands

Appendix

Country	Project Total in USD millions	Time Approved	Project Type	Access Modality	GCF Funding in USD millions	Other Parties USD millions
Fiji	222	2015	Adaptation	IAE	31	191
Tuvalu	38.9	2016	Adaptation	IAE	36	2.9
Vanuatu	26.6	2016	Adaptation	IAE	23	3.7
Multiple PSIDS	26	2016	Mitigation		17	9
Samoa	65.7	2016	Adaptation	IAE	57.7	8
Solomon Islands	234	2017	Mitigation & Adaptation	IAE	86	148
Nauru	65.2	2017	Mitigation & Adaptation	IAE	26.9	17.6
Marshall Islands	44.1	2018	Adaptation	IAE	25.1	19.1

Table 1. GCF Approved Funding to the PSIDS (GCF, 2018)

Paper 3: Investment Scenarios for achieving energy transition in developing countries: a case example from Fiji.

Jale Samuwai[1] , Jeremy Maxwell Hills[2,3], Evanthie Michalena[4]

[1]Pacific Center for Environment and Sustainable Development, The University of the South Pacific, Suva, Fiji

[2]Institute of Marine Resources, The University of the South Pacific, Suva, Fiji

[3]Sustainability Research Center (ML28), University of the Sunshine Coast, Australia

[4] University of Fiji, Fiji

Accepted paper proceedings for the 3rd Hellenic Association for Energy Economics (HAEE), Greece, Athens, 3-5 May, 2018.

This paper has been submitted for a special edition in the Renewable Energy Journal and was accepted as a paper proceedings of the 3rd HAEEE conference in Greece, 3rd -5th May 2018.

Statement of Contributions of Joint Authorship

Jale Samuwai : (Candidate)

Writing and compiling of manuscript, established methodology, data analysis, preparation of tables and figures.

Dr. Jeremy Maxwell Hills: (Principal Supervisor)

Supervised and assisted with manuscript compilation, editing and co-author of paper.

Dr. Evanthie Michalena: (Associate Supervisor for this paper only)

Assisted with compilation, editing and co-author of paper.

This research paper (submitted version) is the refined and streamlined version of Chapter 4.

Investment Scenarios for Achieving Energy Transition in Developing Countries: a Case Example from Fiji

Jale Samuwai[a], Jeremy M. Hills[bc] and Evanthie Michalenac[c*]

[a] Pacific Center for Environment & Sustainable Development, The University of the South Pacific, Laucala Campus, Private Mail Bag, Suva, Fiji Islands

[b] Institute of Marine Resources, The University of the South Pacific, Suva, Fiji.

[c] Sustainability Research Centre, University of the Sunshine Coast, Maroochydore DC Qld 4558 Australia.

Tel:(+679) 9085271, e-mail: michalena@hotmail.com[29]

Abstract:

Private finance is seen as the financing panacea for resourcing Nationally Determined Contributions (NDC) submitted by>160 countries to the UN system. Mobilizing private investment is challenging, especially for vulnerable Pacific Small Island Developing States (PSIDS).The fourteen PSIDS have submitted ambitious NDCs, in which transition towards a sustainable energy environment through investment in renewable energy (RE) is central. Presently, RE investments in PSIDS are primarily external donor finance however, reliance on limited and uncertain external finance is unlikely to deliver the required energy transition. A future scenario methodology was used with Fiji as a case-study; the analysis provided insight into alternative trajectories towards transition. Based on the scenario analysis, a NDC Resource Mobilization Framework was developed. Conclusions suggest that donors should re-orientate their priorities from investments in RE installations, towards investments that upgrade the current RE readiness levels and promote a long term perspective of 'organically growing' the local private RE sector. Channelling resources to target initiatives that will endogenously grow the domestic private sector is critical for PSIDS, as well as other developing countries, which represent a majority of the NDCs and which are projected to dominate global growth in energy demand for decades to come.

[29] Corresponding author

E-mail address: michalena@hotmail.com, Present address: Alkiviadou 186-188, 18536, Piraeus, Greece

Keywords

Climate Change; NDC, Pacific SIDS; Renewable Energy; private sector; climate finance

Nomenclature

ADB: Asian Development Bank
ANZ: Australia & New Zealand Banking Group
BAU: Business As Usual
COP: Conference of the Parties
DPCC: Development Partners in Climate Change
FDB: Fiji Development Bank
FEA: Fiji Electricity Authority
GCF: Green Climate Fund
GIZ: German Corporation for International Cooperation
GDP: Gross Domestic Product
GHG: Greenhouse Gas
GoF: Government of Fiji
IPP: Independent Power Producer
NDC: Nationally Determined Contribution
PSIDS: Pacific Small Island Developing States
RE: Renewable Energy
SEFP: Sustainable Energy Financing Project
SE4LL: Sustainable Energy for All
SIDS: Small Island Development States
SDGs: Sustainable Development Goals
UNDP: United Nations Development Programme
UNFCCC: United Nations Framework Convention on Climate Change

1. Introduction

1.1 NDC financing challenges

The landmark 2015 Paris Agreement (hereon referred to as the Agreement) heralded in a new era of global climate change governance. The Agreement set an ambitious target to limit the rise of global temperature to below 2^0C above pre-industrial level and encourage efforts to limit the increase to below 1.5^0C. Critical to the achievement of this goal are countries' Nationally Determined Contribution (NDC) which contains the pledges they have made of emission reductions and resilient development(UNFCCC, 2015).

To date, 169 Parties have submitted their first NDC in which investment in renewable energy (RE) is central (UNEP, 2016; UNFCCC, 2016; Hare et al., 2017; IRENA, 2017). Eighty six percent of submitted NDC have explicitly identified investment in RE as either a mitigation or adaptation strategy, with 64% of the Parties including some form of quantifiable RE targets in their NDC (IRENA, 2017). Energy production

and use accounts for two thirds of the world's greenhouse gas (GHG) emissions (IEA, 2015) thus, the heavy emphasis on RE investments provide indication that the transformation of the energy sector will be essential to the achievement of the objectives of the Agreement (IRENA, 2017).

However, the lack of financial resources to accelerate the NDCs implementations is a cause of global concern (UNEP, 2016; Weischeret al., 2016; Cooke et al., 2017). It is estimated that the current shortfall of existing NDCs will result in a rise of global mean temperature to 3.4^0C, and as a consequence, exacerbate the cost of addressing future climate change impacts(UNEP, 2016).The rate of developing countries emissions is rapidly increasing, and forecasts indicate that it will soon outpace those of developed countries (Marchal et al., 2011; Center for Global Development, 2015; EIA, 2016). The unsuccessful implementation of developing countries NDCs, will not only hinder the global efforts against climate change, it will also have severe economic and social implication globally; exacerbating the situation of the most vulnerable communities in the process (UNEP, 2016).

There is also growing uncertainty regarding the scale and the predictability of available climate financing opportunities in the future (Oxfam, 2015; OECD, 2016; Selin, 2016; UNEP, 2016; Markandya et al., 2017). This financing uncertainty is driven by the realities of the global political environment such as the withdrawal of the USA; a major donor to the UN system (Zhang al., 2017)as well as the vagueness of the Agreement's language regarding climate finance (Oxfam, 2015). In the Agreement, while developed countries have committed to mobilizing USD100 billion a year from public and private sources by 2020(UNFCCC, 2015), they however, did not commit to individual financial target. Rather, developed countries will decide on a voluntary basis the magnitude they will provide, over what time period, in what form, as well as the delivery channel that will be used (Selin, 2016). This uncertainty surrounding external climate finance undermines the abilities of developing countries especially small developing countries like the Small Island Developing States (SIDS) who are challenged with severe chronic resource limitation, and are heavily dependent on international climate finance to fulfill their obligations as per the Agreement (Briguglio, 1995; OECD, 2015; Betzold, 2016a; Atteridge and Canales, 2017). These countries must now rethink strategies on how to attract and mobilize new and innovative resources to source sustainable finances for their NDC implementation.

Private financing has been advocated as the panacea for the short fall and the uncertainty of public financing sources (Mathews et al., 2010; Pauw,2015; Pauw et al., 2016; World Economic Forum, 2016; IRENA, 2017). The focus on the potential of the private sector is driven by two major factors, 1) the private sector is the custodian of a large pool of capital that could be directed towards climate change activities(UNEP, 2014; Buchner et al., 2017). It is estimated that market value of assets, corporate and government bonds, and loans that is managed by the global financial sector alone is worth USD 225 trillion(UNEP, 2014). Secondly, private finance has catalytic properties that could effectively scale-up the 'reach' and the scope of influence of public financing (UNEP, 2014; Mason, 2015; World Economic Forum, 2016). In the right environment a given amount of public finance could leverage 3-15 times the amount of commercial financing (Maclean et al., 2008).

Strategies on how to mobilize private investments specifically from the domestic private sector towards climate change efforts are well established (Zhang and Maruyama, 2001; Lin and Streck, 2009; Stewart et al., 2009; Mathews et al., 2010, Bowen, 2011; Patel, 2011; GIZ, 2016).The involvement of the domestic private sector in countries development efforts has been argued to be an important bulwark against the 'resourcing curse' that is plaguing many developing countries (Luong and Weinthal, 2010). While foreign private investments flowing to host countries is beneficial in speeding up economic growth and development, the domestic private finance has a much greater multiplier/catalytic effect; underscoring the need of strengthening the participation of the domestic private sector (Kalu and Onyinye, 2015). In addition, domestic private sector have been argued to have a much better stake and interest in bettering the overall status of the economy, and can tend to have more leverage in domestic politics when compared to foreign private investments (Acemoglu and Robinson, 2012). In addition, the global climate finance flows also provide greater affirmation on the critical role of the domestic private sectors as evidence indicate that 79% of the global climate finance in the 2015-2016 period was raised domestically, and was retained in the country of origin for the purpose of advancing further domestic climate investments (Buchner et al., 2017).However, the suitability and the success of strategies that stimulate the domestic private sector has been a 'mix bag' across developing countries because of the heterogeneous nature of countries' climate change and economic context (Weisser, 2004; Dornan, 2011; Pauw, 2015; Dornan and Shah, 2016). This is true for SIDS, whose circumstances are recognized as special and unique (Briguglio, 1995), and yet have made ambitious RE targets in their NDC.

For SIDS, mobilizing domestic private investments towards RE investments is a challenge (IRENA, 2015b). Despite the domestic private sector potential in financing the transformation of the energy sector, most SIDS are unable to effectively leverage investments from their domestic private sector due to the significant barriers of investments in the energy environment of SIDS (Jafar, 2000; Dornan, 2015; Prasad et al., 2017). These investment barriers include the lack of good infrastructure, unstable political environment, weak legal systems, lack of macroeconomic stability and lack of readily available skilled labor and good institutions (Keeley, 2017). As a consequence, investments in the energy sector of SIDS is predominantly driven by external public finance (i.e. concessional and non-concessional finance) which tend to prioritize investments in 'hard' RE infrastructure (Betzold, 2016b; Dornan and Shah, 2016; Michalena and Hills, 2018). Sustainable energy experts in the region have long argued that such a financing modality is neither adequate nor sustainable to effectively finance the energy transformation of SIDS, and have consistently argued the need for more involvement and participation of the domestic private sector in the energy sector (Jafar, 2000; Dornan and Shah, 2016; SPC, 2017; Michalena et al., 2018). As a consequence, donors of climate finance to SIDS are now beginning to earmark investments that specifically target and strengthen the role of the domestic private sector in transforming energy use and generation with the hope of unlocking their potential of sustaining the resource flows to the achievement of SIDS energy targets as envisioned in their NDC (The New Zealand Government, 2016).For SIDS, the successful transformation of their energy sector is critical as it is intrinsically linked to their development aspirations as well as their 'moral position' in the global climate

change discourse (Dornan and Shah, 2016). Thus, given the uncertainty and difficulty of access of external climate finances on the international stage, SIDS have much to lose (i.e. economically and politically) if they are not successful in mobilizing their domestic private investments to complement and accelerate their national efforts in implementing the NDC.

Using the case of Fiji; a Pacific SIDS (PSIDS), this paper explores potential resource mobilization strategies that could be adopted to unlock the potential of the domestic private sector to finance the NDC. The NDC resourcing roadmap presented in this study serves as guidance to SIDS on how best to use external public finance to leverage their domestic private finance. The resourcing framework advanced by this study was developed through the use of the scenario analysis technique.

2. Scope of the Study

2.1 The Case of the Republic of the Fiji Islands

Fiji is an archipelago of more than 300 islands. Like other PSIDS, Fiji shares their special and unique challenges that increase their vulnerabilities to the impact of climate change (Briguglio, 1995). Fiji is very vulnerable to sea level rise and natural disasters made worse by climate change such as cyclones, flooding, and drought (Carrozza, 2015).

Fiji was selected for two primary reasons. Firstly, Fiji's expanding economy and active private sector makes it an ideal context of studying private sector financing. Fiji's economy is considered to be one of the largest, and most developed in the Pacific region (Hezel, 2012; The World Bank, 2017). Based on its strong economic performance and potential, Fiji has been identified as the only PSIDS that stands a better chance relative to other PSIDS, of reaching its full development potential (i.e. to be self-reliant) (Hezel, 2012). Fiji's economy has made a significant turnaround since 2010 under a government strongly committed to reform. That period saw Fiji experiencing one of the few episodes of sustained growth in its post-independence economic history, averaging 3.3% annually or nearly four times the average growth during 2000–2009(ADB, 2015a). Its national elections and return to democracy in 2014 have boosted investor sentiment, with future growth been forecasted because of the attractive financial levers being offered to investors, growing public investments, higher tourist arrivals, low interest rates and sound external financial position (ADB, 2017a).

While the performance of Fiji's private sector pales in comparison to global average (ADB, 2007; World Economic Forum, 2017), relative to other PSIDS, Fiji's private sector is considered to be more vibrant, stable and profitable (Sharma et al., 2014),and whose investments accounts for approximately 20% of GDP in 2017 (CIA, 2017). The private sector is the primary driver of the largest economic sector in Fiji which consists of the tourism sector, industries and the financial sector (Investment Fiji, 2017). Tourism is Fiji's highest performing sector which directly contributes 17% to Gross Domestic Product (GDP) (World Travel & Toursim Council, 2017). The direct GDP

contribution of the industry and the financial sector is estimated at 14% each (CIA, 2017). Fiji's financial sector is heavily bank-centric with six commercial banks, 5 of which are international (Sharma et al., 2014). Fiji has a national development bank i.e. the Fiji Development Bank (FDB), which has gained accreditation to the Green Climate Fund (GCF). Fiji is also one of the only two PSIDS that has a functioning stock market with an estimated market capitalization of FJD 1.3 billion (SPSE, 2016).

Efforts by the Government of Fiji (GoF) and most importantly its donors to shift and mobilize the domestic sector resources towards RE investment have witnessed limited success (IRENA, 2015a; The Government of Republic of Fiji, 2015; Michalena and Hills, 2018). Fiji's domestic private sector, despite its 'vibrant' status, is still largely absent from the national effort to transform the energy sector (Dornan, 2014; Dornan, 2015; IRENA, 2015a; The Government of Republic of Fiji, 2015; Prasad et al., 2017). *So why it then, that investments in RE are not easily forthcoming from Fiji's domestic private sector?* A study by the Asian Development Bank (ADB) highlighted that the key challenge for Fiji now is to create an investment environment conducive for greater domestic private sector activity so Fiji can not only sustain its growth momentum and but also to make its growth more inclusive (ADB, 2015a). In line with this argument, this study will explore strategies that will promote inclusive growth with the context of RE, by identifying the critical resourcing constraints that the GoF and its donors need to address to strengthen investor sentiment even further so that it can effectively contribute to the achievement of Fiji's energy targets.

The second justification for selecting Fiji as the case study relates generally to the lack of NDC specific studies on SIDS because the NDC phenomenon is still relatively new (Dornan and Shah, 2016; Oko, 2016; Michalena et al., 2018). Exploring such phenomena from the lens of countries that have negligible emission footprint can make a meaningful contribution to the current discussion on how global NDCs can be effectively implemented, as it offers a unique dimension of the challenges different Parties are confronted with in trying to comply with the new climate change regime. Moreover, in the light of growing uncertainty about the availability of international climate finance (Oxfam, 2015; OECD, 2016; Selin, 2016; UNEP, 2016; Markandya et al., 2017), shedding light on the situation of particularly vulnerable countries such as Fiji, is critical to ensure that scarce external public climate finance being mobilized for the purpose of transforming economies to a low carbon development pathway are strategically utilized to ensure that not only will the NDC objectives be achieved, but that the efforts of low carbon transformation are also sustainable in the long run.

2.2 Fiji's NDC: The Road to 2030

In its NDC Implementation Roadmap[30], Fiji has set an ambitious target of reducing the business as usual (BAU) emission trajectory of the electricity sector by 30%. It aims to achieve this by pursuing a two prong approach where 10% will be through economy

[30] Fiji NDC Implementation Roadmap 2017-2030 was launched during COP 23. It offers a more detailed and revised outlook of how Fiji plans to implement its NDC when compared to the original NDC submission.

wide investment in energy efficiency, and 20% will be achieved through a radical transformation of its current grid-based electricity sources to be 100% sourced from RE. Of the 30% BAU reduction, the GoF expects that 10% will be achieved unconditionally using domestic national resources, while 20% will be conditional on the receipt of significant means of implementation and support from other sources (Ministry of Economy, 2017).

2.3 Electricity: The Low Hanging Fruit

The electricity sector has been identified as the main target for de-carbonization in Fiji's NDC. Electricity is regarded as the low hanging fruit for low carbon transition in the Pacific (Goundar et al., 2017), and has been identified as a high economic priority in notable regional agreements and declarations[31] that the Fiji is party to prior to the Agreement. Fiji's current energy mix consists of 53% hydro, 45.5% diesel and heavy fuel, 0.39% wind, with the remaining 1.1% supplied by Independent Power Producers (IPPs) (FEA, 2016) and is concentrated on meeting grid-based electricity demand in urban areas (IRENA, 2015a; Betzold, 2016b). Fiji's is still highly dependent on imported fossil fuel to sufficiently meet its electricity and its overall energy need (IRENA, 2014; Dornan, 2015), and does not possess any established oil reserves. Evidence indicates that Fiji's fuel imports accounts to 14-17 % of GDP, relatively higher than other PSIDS (Dornan and Jotzo, 2012; Juswanto and Ali, 2016). Fiji's annual spending on fossil fuels is estimated to be USD 310 million per annum(IRENA, 2015a); of which 22% is dedicated to generating grid-based electricity (FEA, 2016).

The burdensome cost of imported oil threatens the successful achievement of Fiji's sustainable development and poverty eradication goals, as it diverts significant national resources needed for other critical development initiatives such as health, education and infrastructure (IRENA, 2013; Dornan, 2015; Mason, 2015; Timilsina and Shah, 2016). Unlike the NDC of other developing countries where RE is regarded as a primary mitigation initiative, investments in RE for Fiji is motivated by reasons that span economics, geopolitical, health and livelihood resilience, with energy security and poverty alleviation being highlighted as the two key objectives (Dornan and Jotzo, 2015; IRENA, 2015a; Michalena et al., 2018). In other words, investment in RE in Fiji is both a mitigation and a resilience building initiative that is not only critical in reducing its vulnerability to climate change but most importantly its vulnerability to external market shocks (Dornan and Jotzo, 2015).

Factors that impact the RE investment environment are well established in literature. While suggestions tend to vary according to study context and the nature of RE technology being studied (see Milčiuvienė and Paškevičius, 2014; GIZ, 2016; Keeley, 2017; Hu et al., 2018; Johansen and Emborg, 2018; Michalena and Hills, 2018), they could be broadly categorized under three underlying themes which are,1) financial and

[31] This include the 2005 Mauritius Strategy for the further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, the 2012 Barbados Declaration on Achieving Sustainable Energy for All in Small Island Developing States (SIDS) and the 2014 SIDS Accelerated Modalities of Action (SAMOA) Pathway.

regulatory frameworks, 2) institutional capacity and 3) fiscal policy levers (Venugopal and Srivastava, 2012; Climate Investment Funds, 2014). Financial policies and regulations are critical in removing barriers of investments, real and perceived risks, insufficient returns on investments, capacity and information gaps, competing development priorities as well as other institutional barriers (GIZ, 2016; Climate Transparency, 2017). Institutional capacity plays a critical role in providing clarity and transparency in RE information as well as technical support to deal with the complex issues surrounding RE technologies (Climate Investment Funds, 2014), while fiscal policy levers such as feed in tariffs, subsidies, tax credits, carbon taxes influences changes in investments decisions and consumer behaviors toward RE (Venugopal and Srivastava, 2012; Climate Transparency, 2017).

While the above factors are also recognized as relevant and critical to Fiji, the four main fundamental elements that have been consistently highlighted as particular to Fiji's RE investment environment relates to the unfavorable climate of investment for private sectors, the inadequacy of the feed in tariff rate offered by the state utility (i.e. Fiji Electricity Authority (FEA)now known as Energy Fiji Limited), the lack of a clear and transparent regulatory framework for private generation and supply services, and the lack of a coherent credible publically available data on RE investment opportunities (ECA and SMEC, 2013; ADB, 2015b; IRENA, 2015a; The Government of Republic of Fiji, 2015; Michalena and Hills, 2018). These context specific factors have been the main drivers for the negligent uptake of incentivized RE installation by domestic private sector suppliers as well as the initiation of RE technologies by the domestic private sector companies (Michalena and Hills, 2018).

2.4 Fiji's Current NDC Investment Strategy

To fully implement its NDC by 2030, Fiji will need an estimated USD 2.95 billion (Ministry of Economy, 2017). The enormity of the scale of investments required for the NDC, outpaces Fiji's current ability to finance the change envisioned. As a consequence, the GoF has conditioned the overall success of the NDC on the receipt of USD 1.67 billion of external support (Ministry of Economy, 2017). However, given the financing gap, the high uncertainties of climate finance availability post-2020, and the continuous challenge of accessing climate finance face by PSIDS like Fiji (Samuwai and Hills, 2018), the role of the domestic private finance in complementing and catalyzing the amount of limited external public finance that might be received in the future for the implementation of the NDC is important. Existing efforts that currently focus on strengthening and enhancing the development of the domestic private sector role in RE investments must be accelerated and re-invigorated as the GoF has explicitly acknowledged that its economy is not adequately equipped to pursue expensive financial instruments that will add to its current debt burden (Ministry of Economy, 2017). Domestic private finance has been specifically highlighted in Fiji's NDC Implementation Strategy as the main target for potential NDC resourcing with innovative financial instruments being proposed for implementation.

Fiji's, past financing trends indicate that the country is one of the largest recipients of RE related assistance in the PSIDS region because it is endowed with a wide source of

natural RE (Betzold, 2016b; Dornan and Shah, 2016; Keeley, 2017; Prasad et al., 2017).The RE investments portfolio in Fiji is largely geared towards hydro power generation. RE projects / infrastructure in the country, is largely financed by donors (IRENA, 2015a; Betzold, 2016b; Dornan and Shah, 2016; Michalena et al., 2018). Reasons for dependency in external assistance is due to the capital intensiveness nature of RE technologies as well as the inability of the GoF and the domestic private sector to fully fund large scale RE projects (IRENA, 2015a,b; Dornan and Shah, 2016; Michalena and Hills, 2018).

A critical assessment of Fiji's NDC Road Map indicates that the GoF is planning to pursue the same resourcing strategy (i.e. heavy emphasis on external public finance to be channeled to hard RE projects) to achieve its NDC target. The proposed set of actions advanced by the NDC Road Map strongly emphasis investments in concrete emission reductions projects through the installations of more solar photovoltaic systems, biomass, waste to energy plants and hydro plants. Investing in these initiatives is necessary as it is aligned with the general purpose of the NDC. However, questions as to whether pursuing the same resource strategy of utilizing limited public finance to fund RE projects will result in achievement of the NDC, as experts have continuously argued that such financing modality on its own is not sustainable and inadequate to cover the cost of investments needed (Jafar, 2000; Dornan and Shah, 2016; Taibi et al., 2016; Michalena et al., 2018).

Consequentially, the continued reliance on external donor finance processed through governmental channels to fund large scale RE projects tend to crowd out the domestic private sector from investing in RE because there are minimal financial incentives to seriously pursue such endeavors (The World Bank, 2015). Fiji's private sector is generally reluctant to invest in RE projects because of the perception that investments have been driven by external parties (Jafar, 2000; Michalena and Hills, 2018). There is therefore a danger that if the current RE financing prioritization persists, the uptake of RE in Fiji will lag further behind global trend, and as a consequence both its energy security aspirations as well as their NDC target may not be achieved (IRENA, 2015a; Taibi et al., 2016, Michalena and Hills, 2018).

Fiji has recognized the importance of domestic private sector financing in its energy sector (see for example the 2014 Draft Energy Policy, the 2014 Sustainable Energy For All (SE4All) report, the 2014 Green Growth Framework and the 2017 5 Year & 20 Year National Development Plan).These national policies have clearly recognized that to achieve sustainable economic growth, a critical pre-condition that needs to be fulfilled is the development and the strengthening of the investment environment to attract and stimulate domestic private sector investments in the energy sector. As such, the energy sector have undergone major reforms (Dornan, 2014; IRENA, 2015a; FEA, 2016). An ideal example of such reforms is the recent full corporatization of the FEA, which has now been rebranded as Energy Fiji Limited. Moreover, more financial levers have also been developed targeting both foreign and domestic investors (Table 2). Dornan and Shah (2016) argued that Fiji's RE investment environment is one the most subsidized in the world given the current level of incentives being given to interested investors.

Investment Opportunity	Incentives
7. IPP Tariff Rate	33.08 VEP
8. Bio-Fuel	• 10 year tax holiday for new activity but minimum level • Duty free importation of assets required to establish the factory • Duty free on chemicals for bio-fuel production **To qualify investors total investment must be FJD 1 million > and must employ 20 people >*
9. Renewable Energy Production & Power Cogeneration	• 5 years tax holidays for new activity
10. Energy Efficient Equipment's	• 5 years tax incentives (only VAT paid) for imported equipment
11. RE equipment	• 5 yeas tax incentives (only VAT paid) for imported equipment
12. Foreign Investment	• No minimum investment needed for investment in energy sector

Table 2. Business opportunities to investment in Fiji's Energy Sector. (Source: Investment Fiji (2017)).

In addition to the abovementioned regulatory/policy reforms and financial levers, financial policies have also been introduced targeting the use of instruments designed to attract domestic private investments in RE. Examples include the directive to all commercial banks in Fiji to ring-fence 2% of their lending portfolio to RE projects (RBF, 2012) and the setting up of the Sustainable Energy Development Facility by the FDB which provides ease of access and cheaper financing terms to domestic private investors who plan to adopt new RE technologies (FDB, 2017). In the build up to Conference of the Parties (COP) 23, Fiji also issued a sovereign green bond which has managed to raise USD50 million from private sources (The World Bank, 2017). Grants, loans and equity are the three main financial instruments being used to raise new finance in RE domestically, and it has been estimated that between 2014-2017, these instruments contributed to USD 119 million worth of investments in Fiji's energy sector (GGGI/MOE, 2017). Fiji plans to extent the use of these financial instruments to include new and innovative financial instruments in order to attract more domestic private investments in the electricity sector.

2.5 Donors roles in financing RE in Fiji

Donors have recently began to change the way they mobilize public finance to RE projects in the Pacific to also include those aspects that are targeted towards enabling domestic private sector investments (Betzold, 2016b; Dornan and Shah, 2016). Most of the external public finance committed to implementing 'hard' RE projects in PSIDS including Fiji, are now being delivered in the form of programs instead of the short-term project modality (Dornan and Shah, 2016). These funding programs now include

strengthening of the 'software' (i.e. capacity building, training, and policy making) (Betzold, 2016b) and the 'orgware' component (i.e. institutional set ups and coordination mechanism) (Taibi et al., 2016)of RE projects. In addition to these contributions of strengthening the governance of the energy sector, donors are also employing financial instruments as a means of directly intervening to unlock domestic private sector investments. These instruments usually take the form of short term loans and grants(Yu and Taplin, 1997; IRENA, 2015b).

While these initiatives act as a counteracting force to the poor investments levels in RE, the depth of their influence towards the domestic private sector has so far been limited (Dornan, 2014; Dornan and Shah, 2016; Michalena and Hills, 2018). Ever since 1995, Fiji have recognized the value of RE technologies to its economy and have rolled out various programs specially targeting its RE investment environment, and yet attracting the level of domestic private finance needed to initiate concrete transformations of the electricity sector (IRENA, 2015a; Dornan and Shah, 2016; Keeley, 2017). The major barriers for the domestic private sector participation in Fiji's energy sector is due to weak energy sector governance, unavailability of information and the general weakness in Fiji's business environment (ECA and SMEC, 2013). Recent studies like that of Michalena and Hills (2018) and Wolf et al. (2016) have extended the argument in stating that actions taken to redress these investment barriers have seen limited success because they have been mainly driven by the GoF and donors with little interphase with the domestic private sector.

The inclusion of domestic private sector stakeholders in the process of designing and implementing initiatives to strengthen the RE investment environment is critical (Timilsina and Shah, 2016; Yaqoot et al., 2016). The domestic private sector is not a mere consumer of RE technologies but is an agent that can amplify the penetration rate of RE technologies in an economy (Jafar, 2000; Betzold, 2016b). The need to enhance the role of the domestic private sector in RE remains an area that has not been adequately addressed by donors and the GoF (Wolf et al., 2016; Michalena et al., 2018). For Fiji to achieve its NDC, the domestic private sector must be encouraged to be included in the development of the domestic RE market (SPC, 2017; Michalena et al., 2018). The process of strengthening the domestic private sector however, must be locally driven, or in other words their *growth must be organic* (Michalena and Hills, 2018) so that the whole process leads to sustainable development of the country. Yaqoo et al. (2016) argued that facilitating an *organic* growth trajectory for the domestic private sector is important as it eliminates the negative perceptions associated with investing in RE because the domestic private sector would be in much better position to absorb financial and technical risks making them more willing to mobilize their resources. Recent RE studies in the PSIDS context like that of (Dornan, 2015; Wolf et al., 2016; Prasad et al., 2017, Michalena et al., 2018), have suggested policy initiatives on how to develop the domestic private sector role in the RE. However, none have actually explored how the *resourcing* process might entail in endogenously growing the domestic private sector investment in RE in PSIDS.

In line with this argument, this study attempts to trace a national resource mobilization pathway on how the domestic private sector of Fiji could be endogenously grown for the purpose of unlocking its potentials towards the implementation of the NDC, and

simultaneously leveraging and catalyzing public climate finance flows that will flow from external public sources. This study differs from existing approaches that have addressed the role of the domestic private sector in RE, as it specifically focuses on the resource mobilizing strategies that could be undertaken to develop the domestic private sector to the stage where it can confidently drive the direction of RE investments towards a sustainable future. There is a need to clarify how this resourcing pathway can be achieved. While Fiji is clear on what it envisioned for its domestic private sector within the context of RE; i.e. to play a more prominent role in terms of resourcing the transformation of the energy sector (Ministry of Economy, 2017a; Ministry of Economy, 2017b), a knowledge gap exists on the resource mobilization strategies that Fiji could pursue to contribute to the achievement of such objective. The assessment of a potential and a practical resourcing potential pathway to ultimately stimulate and unleash the domestic private sector investment towards the NDC is therefore critical.

3. Method and Results

3.1 The Methodology

The scenario technique is a strategic planning tool for improving decision making against the background of possible future environments (Blyth, 2005). Scenarios allow users to envision how possible futures might logically unfold by deciphering how current conditions in a specific environment might evolve (Schoemaker, 1995; Börjeson et al., 2006). They offer insights to alternative future on how decisions made today might unfold, and it could also be described as a roadmap linking the present to the future (Blyth, 2005). Scenarios are neither predictions of the future nor wishful thinking, but rather an insight into the future based on the understanding of the present and the factors that shaped the current conditions, attitude and trends (Blyth, 2005). Scenarios are most useful in situations where critical decisions about the future are to be made against an environment that is highly complex and dynamic (Blyth, 2005).Scenarios can result in better decision making for the future as they force users to consider unexpected issues in the operating environment allowing them to ‘think the unthinkable’ by exploring new horizons and consider alternative future by challenging existing assumptions (Blyth, 2005). The scenario analysis technique has been pervasively used and has been proven to be very successful in the area of strategic planning especially in the area of business and the military. The global dominance and competitiveness of Shell Oil Company has been attributed to the use of scenario planning (Schwartz, 1996).

Within the context of resource mobilization, Maack (2001) argued that scenarios tend to be very effective in developing robust strategies to guide investment decisions against uncertain future. Unlike other planning tools, scenarios focus on the area of ‘critical uncertainty’ in achieving an objective, and it systematically develops several plausible alternative environments in which the objective could be achieved (Maack, 2001). By focusing on issues of critical uncertainties, they allow users to examine issues that would not have be considered, and thus they tend to be more effective in dealing with ‘big picture issues’ and setting strategic directions, rather than short term

technical decisions (Maack, 2001). This structured approach to thinking about the future has enabled organizations to be strategic about where and how to direct resources in the mid and long term as they try to secure viable and long term success (Maack, 2001).

All above features make scenarios elaboration the best method for the specific case-study of Fiji and its particular country characteristics.

3.2 Applying the Method

The data that is used in this work for the scenario analysis emerged from a detailed literature review of RE literature in Fiji, coupled to a series of discussions with key RE and climate finance experts and private sector representatives in Fiji. The climate finance experts were from the Climate Change and International Cooperation Division of the GoF and the members of the donor/development partner community such the Global Green Growth Institute, Pacific Island Forum Secretariat, South Pacific Community, The University of the South Pacific, the ADB, GIZ and UNDP. A total of 15 climate finance experts were consulted. Interactions with the individuals were carried out when the Development Partners in Climate Change (DPCC) meetings convened. This setting provided the most ideal opportunity to carry out the research because not only did it bring national climate change experts together from the government and the donors, but the attendees to this meeting were consistent members as the participating organizations usually sent the same experts. Private sector experts, on the other hand, were drawn from financial institutions in Fiji. A total of 5 experts agreed to participate for this study. In total 20 experts participated in this study.

The methodology concerned a number of stages in the development, selection and detailing of the future scenario. This study adopted the 5 step scenario methodology as adopted by (Gray et al., 2016).

3.2.1. Identifying the Critical/Uncertain Barriers

The authors conducted a thorough review of the literature, which identified 50 common barriers that have been consistently highlighted as critical inhibiters of investments in RE. These barriers were drawn across the sphere of politics, environment, social, economic and technology (Dornan and Jotzo, 2012; Dornan, 2014; Dornan and Jotzo, 2015; IRENA, 2015a; The Government of Republic of Fiji, 2015; Dornan and Shah, 2016; ADB, 2017b; Michalena et al., 2017; Prasad et al., 2017; Michalena and Hills, 2018; Michalena et al., 2018).After conducting preliminary interviews with the experts, 25 were retained as the most prominent ones.

A Likert scale was then developed in which experts ranked the level of significance and uncertainty of the barriers identified from the range of zero (0) to five (5)[32]. Issues that are highly significant and uncertain have been identified as being unpredictable in nature and particularly important for Fiji. Barriers that fall inside the 'significant' and the 'certain' quadrant are classified as *significant trends* and these are the predetermined barriers whose influence are more predictable and are expected to have a significant impact on the topic (Blyth, 2005). Blyth (2005) cautioned that barriers classified as *significant trends* should not be dismissed and must be also monitored. Those barriers that fall in the 'low significant' and 'certain' quadrant are characterized as *context shapers* meaning that they are relatively certain, but tend to have an impact on the *broader* environment (Blyth, 2005), and those barriers that fall in the 'uncertainty' and 'low significant quadrant' are classified as *potential jokers* meaning that these are issues are highly uncertain but are not expected to have much impact on the topic (Blyth, 2005). The average scores were used to standardize differing scores across the different barriers.

3.2.2 Plotting the Barriers

The results of the Likert survey were then plotted onto axes of 'significance' and 'uncertainty' (Figure 1). As the barriers were plotted to their respective axes, experts where given a chance to view the graph and see where the barriers fall with respect to their significance and certainty level. This stage is critical as it distinguishes predetermined barriers (predictable) from those that are critical and uncertain.

[32] Zero (0) indicates No Opinion, (1) Not Important/Uncertain, (2) Somewhat Important/Uncertain, (3) Quite Important/Uncertain, (4) Very Important/Uncertain, (5) Extremely Important/Uncertain.

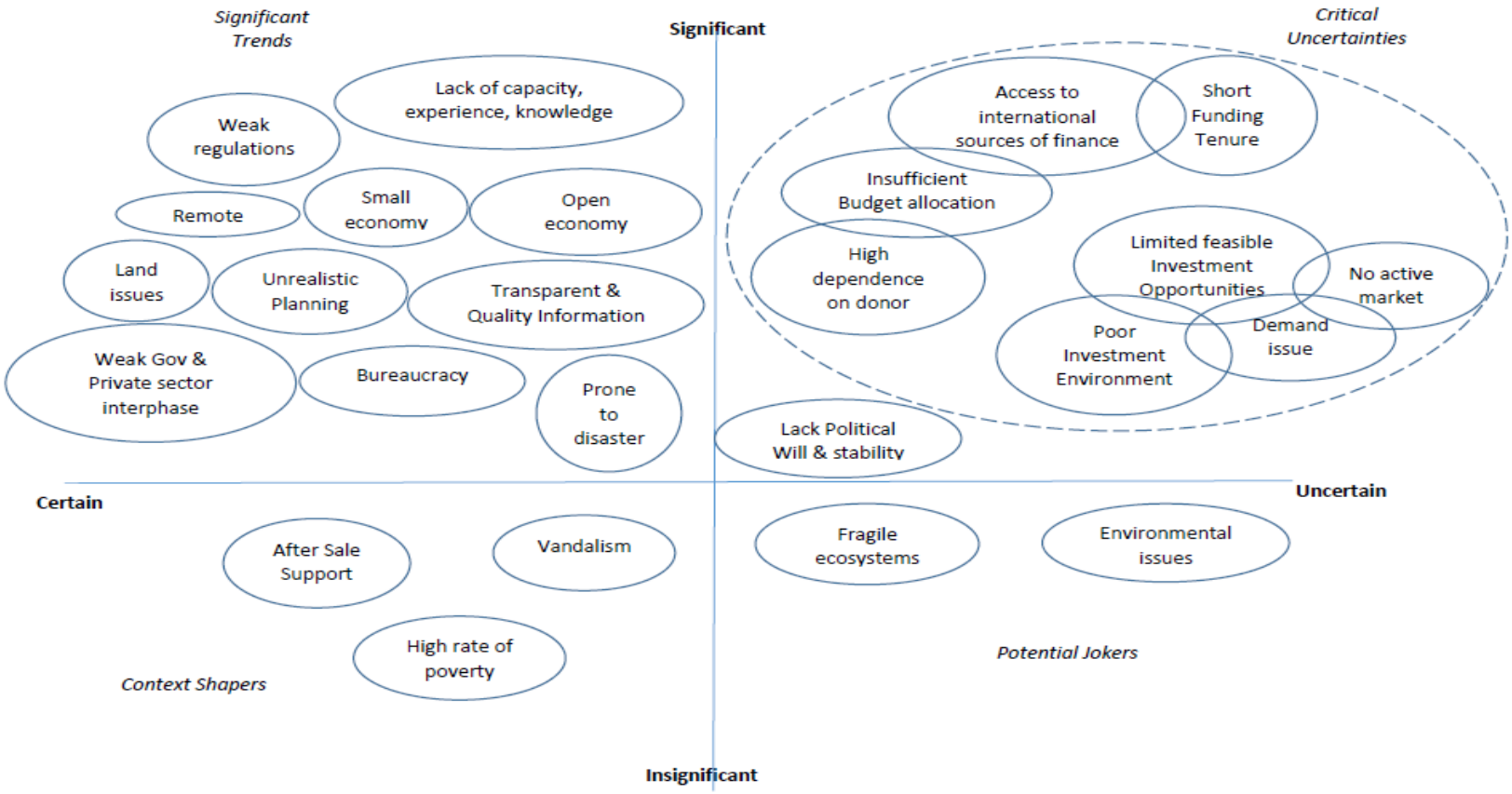

Figure 1. Barriers to RE Investments on axes of Significance and Uncertainty

3.2.3 Creating new emerging axes

This step primarily focused on barriers that fall in the high *significant* but *uncertain quadrant*. These barriers were then iteratively clustered together to form new axes of polarity around which the scenario will be developed. The emergent clusters, which provided the most logical consistency, were *Donor Dependence* and *Investment &Market Environment.* Only one barrier -*lack of political will and stability,* was not analyzed because it was an issue outside the control of the internal RE sector and is a fundamental prerequisite to any future progress in RE. The two emergent cluster areas were then extended into axes spanning low to high *Donor Dependence* and low to high quality of *Investment Environment& Market* (Figure 2).

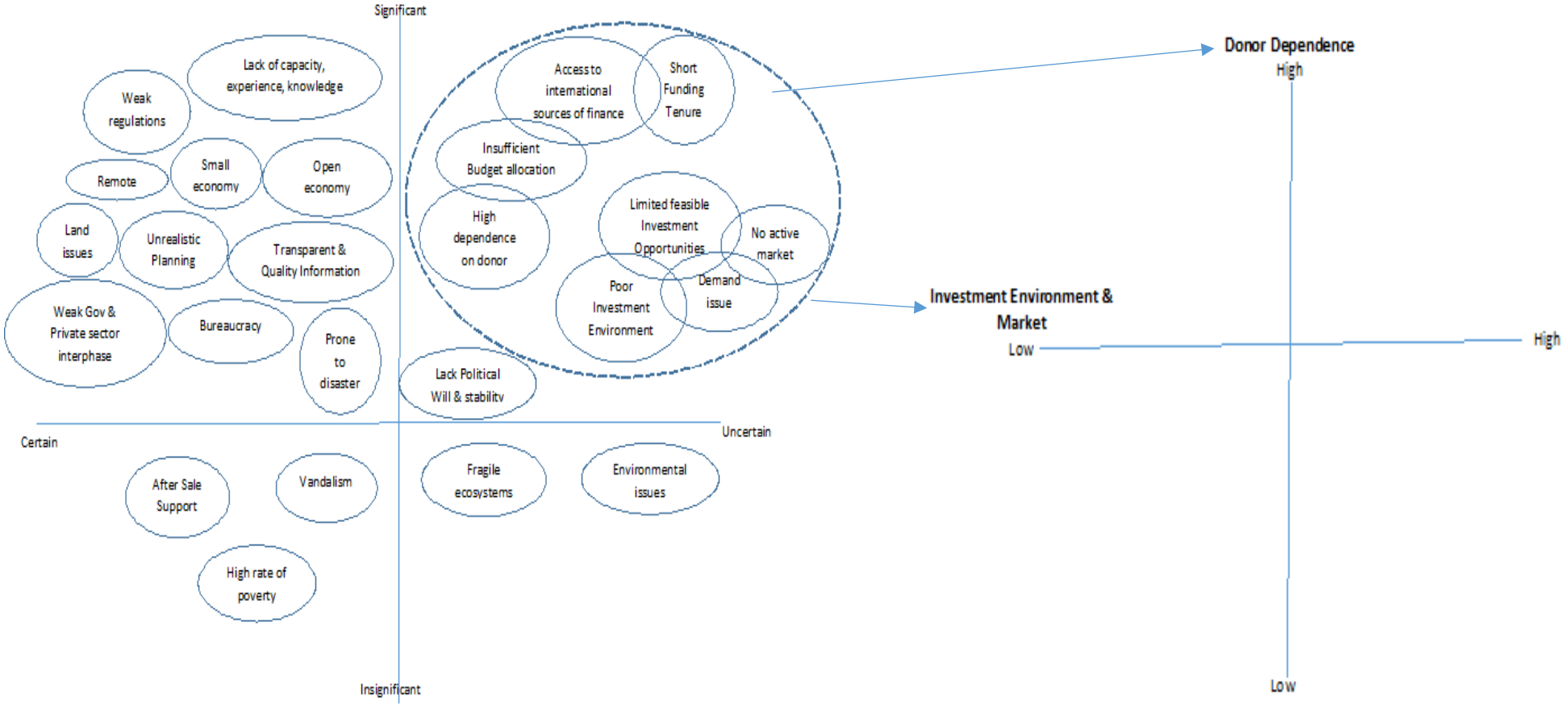

Figure 2. Creating new axes of polarity from the most critical uncertainties barriers of mobilizing resources.

3.2.4. Developing the scenarios

Detailed scenarios were then developed based on the two new axes (Figure 3). Following the method of Blyth (2005) and Gray et al.(2016), 4 scenarios were developed from the four quadrants of the emergent axes, each reflecting a different combination of *donor dependence* and *investment environment*.

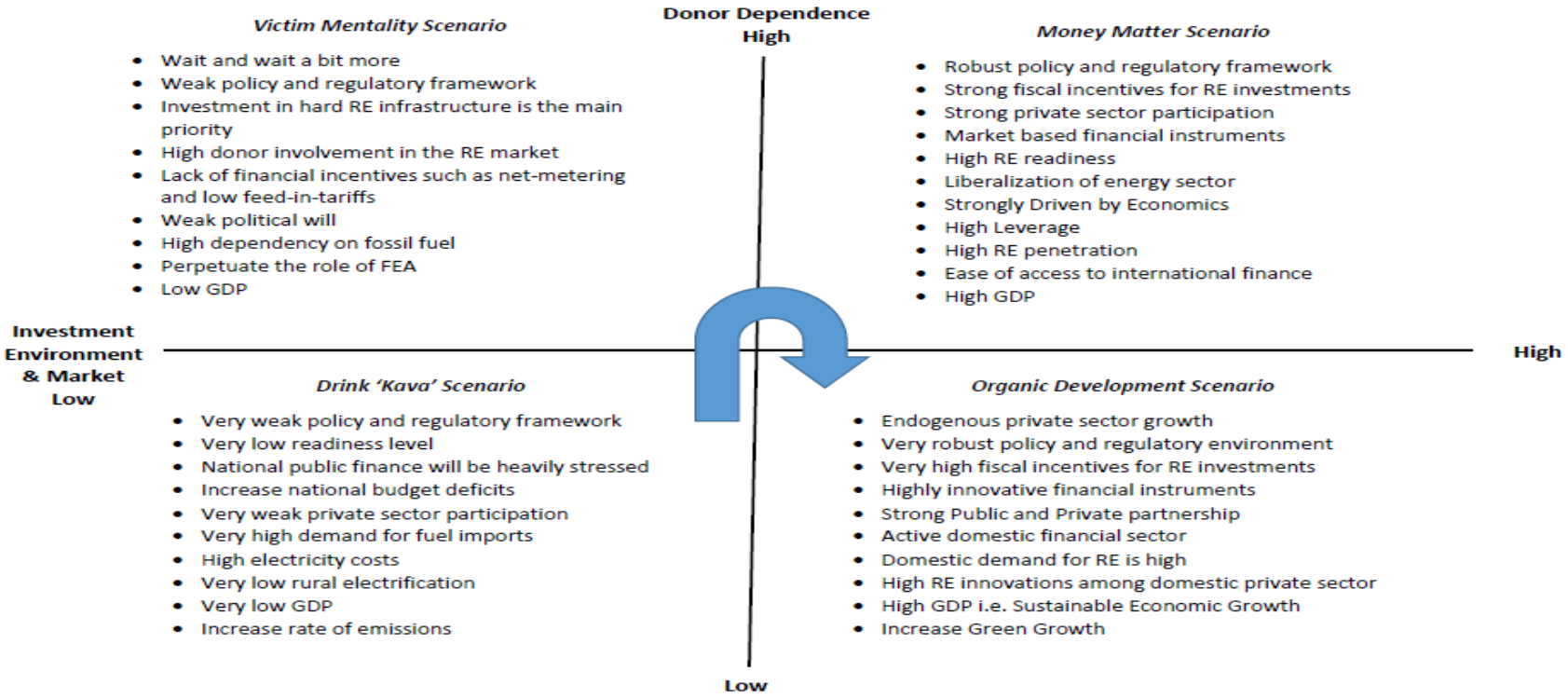

Figure 3. The four possible future scenarios regarding the resourcing of Fiji's NDC.[33]

[33] The central arrow in the graph demonstrates a proposed path of RE development as discussed in *Section 3.2.4.1.*

3.2.4.1 Overview of the Future Scenarios

The scenario's name "*drink kava scenario"* is derived from a social and leisure situation common in the Fijian culture and in most PSIDS, where a group of people will idly sit and drink *kava*– a narcotic sedative drink made from the crushed roots of a native shrub just to pass time. It is closely associated with a typical Fijian 'care free attitude' in relation to how it addresses uncertainty. This future scenario posits a situation where the availability of financial resources will be very limited due to decreasing support from donors and the domestic private sector. The burden of financing the NDC will ultimately fall on the GoF, and given the past trend of the GoF spending priorities, competing social and economic priorities like education, health and infrastructure are more likely to supersede those commitments to the NDC (The Fiji Government, 2015). Under the *drink kava scenario*, the likelihood of Fiji achieving its energy targets is very slim.

The *victim mentality scenario* presents a future situation that to a larger extent mirrors the current RE investment climate in Fiji. As per this scenario, there is both a general lack of appetite from the domestic private sector and the GoF to commit significant resources for investment in RE, shifting such investment responsibilities instead to donors. The unique and special circumstances of SIDS as well as their 'moral privilege' as being low emission contributors, and yet the front line victim of climate change are the main drivers for such posture. Emotional diplomacy– the strategic deployment of emotional behavior by state actors to shape the perception of others (Hall, 2015), will play a pervasive role in soliciting external public climate finance towards the implementation of the NDC, and there is an expectation that Fiji will exploit their moral standing in the climate change domain as well as their extreme vulnerability to convince donors to accelerate and upscale their investments in RE.

The *money matters scenario* represents a future situation where Fiji's private sector can effectively catalyze RE investments from external sources. A vibrant and robust 'RE investment environment' is essential for such a scenario to eventuate, and will be the main funding target from external public finance. The money matter scenario exemplifies a future where the domestic private sector is 'comfortable' with investment in RE; i.e. most investment barriers are eliminated and there is a high degree of certainty about the fiscal viability of RE as an investment option.

The *organic development scenario* depicts a future of where there is a very high degree of domestic private sector involvement in RE investment. This scenario represents a situation where a RE-based market actually exists in Fiji. The *organic development scenario* also represents a more advanced level of RE investment environment where the domestic private sector is empowered to drive the market for RE production and consumption. It also underscores a future where more of the RE value chain is driven by the domestic private sector. In this future scenario, the aim is more than just finding the right RE fit for Fiji, but where the domestic private sector is able to manufacture RE technologies and subsequently generate more green jobs in Fiji. It is important to note that in the context of Fiji, a good example of an industry that has managed to achieve this level of endogenous private sector growth is the tourism sector. Apart from foreign investors, domestic private sector investment in Fiji continues to play a

dominant role in growing the Fiji's Tourism sector to be the highest revenue income sector in Fiji (World Travel & Tourism Council, 2017).

At a glance, the scenario analysis presents the four (4) future scenarios as separate and independent on the basis of the 'quadrant' assumptions that they fall in. However, when closely examined, the four future scenario suggest a possible transition pathway which Fiji could pursue to endogenously grow domestic private sector investment in RE (Figure 3, see Blue arrow).

3.2.5 Scenario validation

Once the scenarios were developed, they were circulated again to the group of experts for reactions and comments. This step is critical as it ensures that the scenarios being presented gain sufficient level of acceptance from the expert community for the purpose of initiating a strategic conversation amongst the key stakeholders on how Fiji's NDC could be sustainably resourced. The buy-in from key stakeholders provides assurance that the results presented in this study can contribute to the overall discussion on how Fiji could successfully achieve its energy target.

4. Discussion

The outcome of the scenario analysis (i.e. Figure 3) only outlines a broader vision and the transition stages (future scenarios) that Fiji might go through in order to endogenously grow its domestic private sector. Missing however, from this broader picture are the resourcing 'specs', in what needs to be targeted to ensure that Fiji progress between the future scenarios, and finally achieve the desired future where the domestic private sector drives the investments in RE. Based on the scenario results (Figure 3), this study proposes a Resource Mobilization Framework (Figure 4) which traces what the funding /resourcing priorities should be in order for Fiji to reach the desired RE investment future being envisioned. The study's framework strongly argues the need for donors and the GoF to re-orient their current funding priorities and strategies for the NDC. More importantly, the resourcing specific priorities (which are elaborate more in the subsequent sections) must be approached with a long-term perspective. Illustrating this resourcing pathway is critical to both the GoF and its donors because it highlights the critical areas where they need to channel and concentrate their public climate finance in order to propel the Fijian private sector towards a future where it can create and sustain the market for RE.

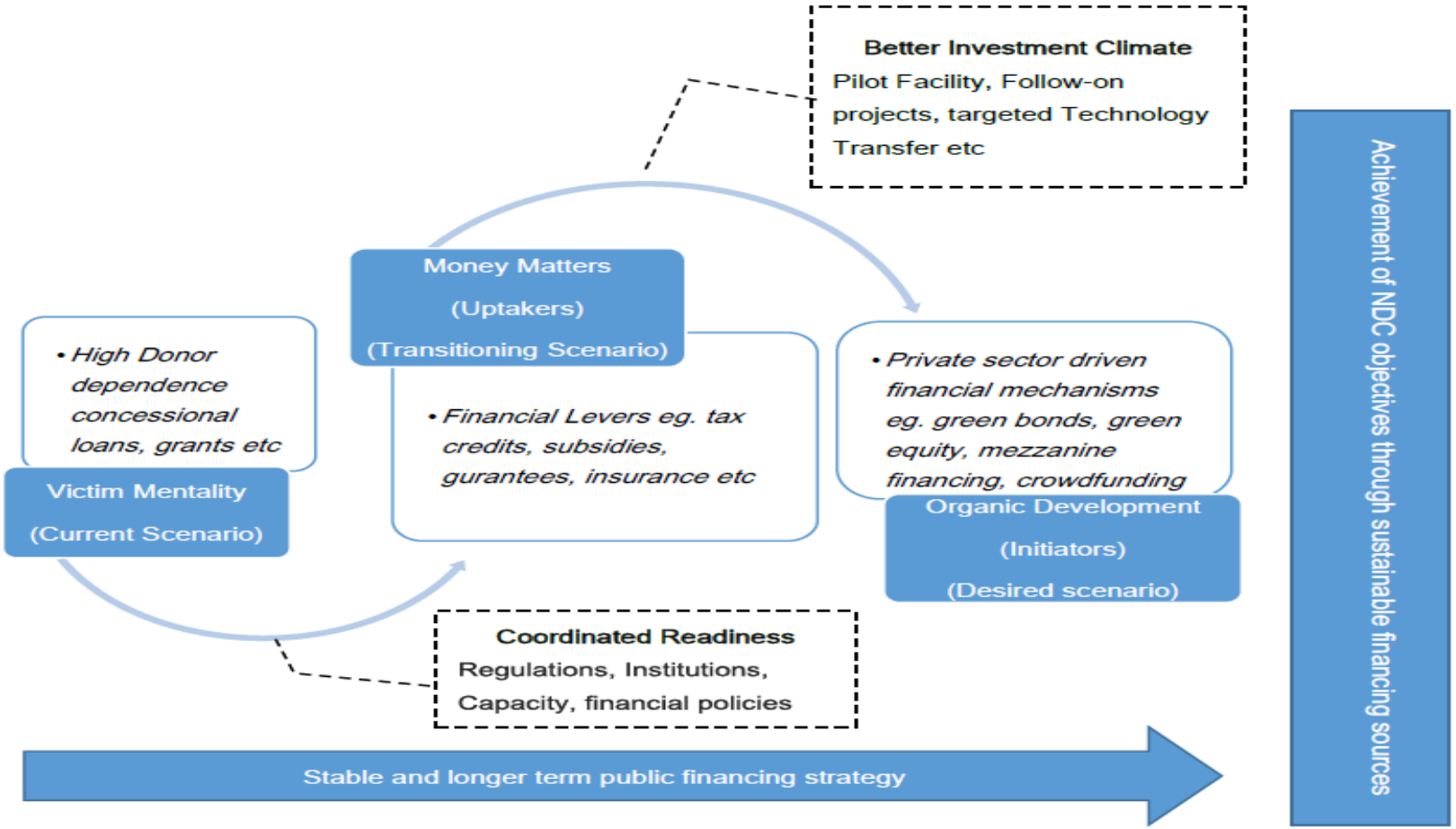

Figure 4: Proposed Fiji's NDC Resource Mobilization Framework for Endogenous Domestic Private Sector Growth in the RE Sector

As per the proposed Resource Mobilization Framework, the desired future RE investment scenario that Fiji should aspire to is the *organic development scenario*. The *organic development scenario* is directly aligned with the 2014 Fiji's Green Growth Framework and the 2017 National Development Plan which have envisioned the need for more domestic private sector participation in contributing to Fiji's sustainable development pathway. Expansion of the domestic private sector especially in the energy sector tends to create innovative green employment opportunities, build capacity for expansions into other green areas and can also provide co-benefits across the spectrum of the Sustainable Development Goal (SDGS) such as ending poverty, health and wellbeing, education, economic growth etc. More importantly the *organic development scenario* will contribute to the achievement of the SDG 7 and 13 which revolve around the aim of affordable and clean energy, and climate actions. Achieving this future RE investment state will require finance to be channeled in a targeted manner and with a long term perspective of strengthening specific areas in the RE investment environment.

The study's Framework suggests that Fiji's current NDC resourcing strategy is synonymous with the *victim mentality scenario*, in which the emphasis of financing largely rests with donors and the priority is the immediate implementation of concrete RE infrastructures. While this scenario might be effective when narrowly viewed within the context of reducing concrete emissions rate, this is not a sustainable resourcing model (Dornan and Shah, 2016; Taibi et al., 2016; Michalena et al., 2018), and can also be detrimental to the overall achievement of the NDC objectives because it hinders the RE penetration rate in Fiji. Currently the investment strategy being pursued by the donors and GoF places too much emphasis on the need for external public finance to be channeled towards hard RE projects such as the installation of wind farms, hydro powers and solar farms etc. This strategy tends to crowd out the domestic private sector from investing in RE (The World Bank, 2015).

To break from the *victim mentality scenario*, there must be a concerted effort by the GoF and donors to channel their resources (i.e. concessional and non-concessional finance) towards the *money matters scenario* where the underlying crux is the internal mobilization of domestic private finance. Readiness is the critical link between these two scenarios, and thus should be the main target of funding. Within the context of this study, readiness is specially understood as *the creation of the investment environment that will attract and stimulate domestic private sector investments*, rather than the narrow definition advanced by the GCF, the Global Environment Fund and the Adaptation Fund, which are the major multilateral climate funds of the UNFCCC as they tend to emphasise the direct access of climate finance from specific sources (Samuwai and Hills, 2018). To attract private finance in the energy sector, donors and the GoF should re-orient the funding priorities from investment in technically establishing RE projects to supporting and strengthening initiatives that removes barriers for domestic private investments in the energy sector.

The enhancement of the energy sector governance arrangements through the strengthening of the regulatory/policy frameworks, institutions capabilities, capacity building and financial policies are readiness activities are critical in removing investment barriers in the energy sector (IRENA, 2015a; GIZ, 2016; Prasad et al.,

2017; Michalena et al., 2018). Efforts to strengthen Fiji's RE investment environment have been actively pursued by the government. Dornan (2014) has argued that Fiji's current approach in strengthening its RE investment environment specifically the regulatory reform carried out in the energy sector serves as an ideal model for PSIDS because it has been domestically driven rather than as a result of pressure from donors. As a consequence of the energy reforms being largely domestic in nature, Fiji has been able to make significant gains in strengthening its RE investment environment through the establishment of an effective independent regulator that has managed to increase electricity tariffs, opening the opportunity for the much needed domestic private sector investment to flow into the sector (Dornan, 2014). Thus, the current efforts being pursued by the GoF and its donors to 'ready' the RE investment environment for domestic private investments signals that the shift from the *victim mentality scenario* towards that of a *money matter scenario* is currently underway and is being pursued to a certain extent.

However, the continuous lack of domestic private sector investment in RE despite Fiji's 'advanced' readiness progress (Dornan, 2015; Samuwai and Hills, 2018) is indicative that there are still major gaps on how the current readiness approach is being pursued by donors and the GoF. Jafar (2000) argued that the major reason for which RE continues to fail to become a viable investment option in Fiji is because donors prefer to fund RE technical initiatives on the short term, rather than providing stable funding for domestic private sector development in RE. While Dornan and Shah (2016) have observed that donors in the Pacific are slowly moving towards program-based RE assistance and away from the project-based modality, Betzold (2016b) argued that investment in the 'hardware' component' (i.e. equipment, infrastructure and distribution) still accounts for the bulk of finance of such programs. The continuous emphasis on investment in hard RE projects rather than the strengthening of the domestic private sector role, tend to negate the gains made in readying Fiji's RE investment environment because it crowds out the domestic private sector from the RE 'investment space'. In other words, increased donor involvement in investing in hard RE projects will sustainably affect the growth of the RE market as it weakens the ability of the domestic private sector to build the necessary capacity as well as experience in RE.

The crowding out effect argued above is best reflected in the high level of uncertainty and perception of risk Fiji domestic private sector associate with RE investments. Such unfavorable outlook of RE investments, despite the market maturity of some RE technologies, is specifically common among domestic financial institutions (IRENA, 2015a). The domestic financial institution in Fiji is made up of commercial banks, pension fund, credit institutions, and insurance companies. The high liquidity of Fiji's domestic financial system (Naigulevu, 2017) is indicative of the potential large pool of domestic capital that could be channeled towards RE investments. Thus, there is a need to extend Fiji's current readiness from just focusing on the reforms of the energy sector but to also consider the strengthening the domestic financial institutions. Efforts to strengthen the participation of Fiji's financial institutions in RE investments has largely been ad hoc and have been relative limited to short term workshops. There is a need for donors to support more long-term program that specifically targets the domestic financial institution role in RE investments. The Sustainable Energy

Financing Project(SEFP) which is supported by the World Bank in partnership with the Australia & New Zealand Banking Group (ANZ) and the FDB, which was designed to increase the uptake of RE in Fiji by guaranteeing 50% of participating banks' RE related lending through the World Bank's risk-mitigation facility, provides the ideal example of such program. Apart from reducing the risk of financial institutions in RE investments, the SEFP program also strengthens institutional capacity through communication and technical assistance such as the training of loan officers (IRENA, 2015a). The SEFP is a 10 year program closing in 2018, and so far 69 loans (i.e. 44 business, 2 communities and 23 individuals) have been approved (The World Bank, 2017). The lessons learnet from the SEFP are invaluable, and should be used by donors as the basis of mobilizing resources to support and design similar initiatives, and target the remaining private sector participants who did not benefit from the SEFP.

Therefore, the readiness approach in Fiji must not only focus on attracting domestic private investments, it must also involve long term support for initiatives that strengthen the domestic private sector's capacity and experience in the RE sector. In other words, Fiji's readiness initiatives must not only *attract* but should also *empower* the domestic private sector to invest in RE. For donors this would suggest that there is a need to provide stable and long term funding to initiatives that allow the domestic private sector to better absorb financial and technical risks associated with RE, making them more willing to mobilize resources towards meeting those risks(GIZ, 2016). Examples of readiness initiatives that can allow the domestic private sector to gain first-hand experience with RE, range from sustained demonstration projects, to financial schemes such as partial guarantees for RE lending (like that of the SEFP), concessional credit lines and staff secondment with international institutions such as the International Finance Corporation. These initiatives have been proven to be successful with the domestic private sector of other developing countries (GIZ, 2016).

While being 'ready' is important, it is just a transition state towards unlocking the full potential of Fiji's domestic private finance towards RE investments. Readiness as envisioned in the *money matter scenario* represents a future where Fiji's domestic private sector has become comfortable and confident with the idea of RE as a mainstream investment option, and are more willing to mobilize finance towards the *uptake* in RE in the economy. However, for private finance to become a sustainable source of RE investments, the domestic private sector should be transformed from being mere 'up-takers' to 'initiators' of RE technologies. In other words, the private sector must play a dominant role in RE development in Fiji, and this process must be 'organically' driven (i.e. *organic development scenario*) (Michalena and Hills, 2018). Attaining the desired future scenario will therefore require a *much better, stable, and well-managed investment climate*. Facilitating such an enhanced level of investment environment will require a significant up-scaling on the current level of investments directed towards strengthening the domestic private sector. For donors, the underlying message is that they will need to pursue a long term view of channeling resources beyond just *readying* the domestic private sector to catalyze public finance, towards empowering the domestic private sector to be 'drivers of RE investments' (i.e. inward investments to create an RE market).

Innovation is a critical ingredient for endogenous domestic private sector growth. While there are realistic limitations on the ability of Fiji's private sector to be serious innovators in terms of RE technologies due to their small economies (IRENA, 2015a; Michalena and Hills, 2018), the right amount of support could potentially lead to developing new financing modalities and financial packages designed to support sustainable RE development (ADB, 2017c). A very good example of such financial innovation in PSIDS is the Secured Transaction Framework, a financing mechanism that makes it easier for lenders to accept movable assets such as vehicles, inventory, account receivables and even crops as collateral for loans(ADB, 2017c). To date more than 50,000 new loans under this scheme have been granted by financial institutions (ADB, 2017c) and this could be easily translated into investments for RE.

Pilot RE projects have also been argued to be an essential enabler for innovation in the domestic private sector (IRENA, 2015b). Pilot projects when successful not only enhance market familiarity with new technologies but also advance RE towards commercialization (i.e. up-scaling). While the success of pilot RE projects in Fiji have been a mix bag (Weisser, 2004; Dornan, 2011; Urmee and Harries, 2012), it has also been observed that there is a lack of uptake in cases where RE projects have been successful (Chand, 2013).The lack of RE technology adoption by the domestic private sector despite cases of success can be attributed to the ad hoc nature of how follow-up projects are being resourced. Financing of successful pilot projects in Fiji are largely 'one off' in nature (Jafar, 2000), with little commitments from donors to channel long term resources towards replicating such success in other local communities. The channeling of resources towards follow-up projects is a critical initiative in the process of creating a *much better RE investment environment* as it not only contributes to the growth of RE investments by making it an attractive investment option for the domestic private sector (IRENA, 2017), more importantly it promotes the endogenous growth of RE through the generation of social and financial benefits for communities, creating demand for RE in the process. Long term resources should therefore be channeled towards strengthening the capacity to the domestic private sector to replicate successful pilot RE projects because it is essential in the development of the domestic RE market (i.e. it facilitate will facilitate both the supply as well as the demand of the RE technologies).

Targeted technology transfer is also a critical instigator of endogenously growing the domestic private sector because it promotes innovation in the domestic environment (De La Tour et al., 2011; Taibi et al., 2016).The main issues that Fiji's donors need to focus on within the context of technology transfer is the need to support the domestic private sector's ability to understand which RE technologies can be effectively used as well as the coordination with suppliers of RE technologies who are able to provide after-sale support and maintain quality assurance (Betzold, 2016b). In fact, the EBRD (2015) argued that initiatives that strengthen targeted technology transfers in developing countries can lead to the development of new business areas that also involve the introduction of innovative technologies that are relevant to the local context. Donors are therefore reminded that RE in Fiji should not be treated as mere equipment to be sold without facilitating a robust "after sales mechanism" as this is a very critical success factor for RE acceptance from the domestic private sector (Jafar, 2000; Betzold, 2016b).

In addition, the focus on a targeted approach to technology transfer as the strategy for promoting endogenous domestic private sector growth, is also very relevant to the concept of the proposed Pacific NDC Hub currently in the pipeline. Targeted technology transfer can accelerate the adoption of RE in Fiji, however, the general lack of technical knowledge in the country will mean that external experts will need to be recruited as a short term strategy to provide technical support as Fiji builds its own capacity (Yu and Taplin, 1997). The proposed NDC Hub provides the ideal opportunity in which Fiji and PSIDS can consolidate their technical know-how (i.e. local and international) and act as clearing house for their RE technical issues. Taibi et al. (2016) have also argued that the ability to locally create knowledge on RE technologies is essential in promoting a 'paradigm shift' in the investment behavior for domestic private sectors; shifting away from assistance base toward self-sustaining large scale deployment of RE in-country.

The resourcing framework advanced by this study complements Fiji's NDC Implementation Roadmap. While Fiji's NDC Implementation Roadmap clearly indicates that it will actively pursue extending and exploring new and significant financial instruments to bridge the financing gap(Ministry of Economy, 2017), this study adds a critical resourcing dimension by highlighting possible initiatives that will promote inward investment necessary for the domestic private sector's endogenous growth in the energy sector. It is only when the domestic private sector has endogenously gained the depth, exposure and confidence in RE will they then mobilized and unlock the full potential of their investments Such confidence will not only manifest in the new RE technologies that will be introduced in the market, but also through the willingness to adopt the innovative financial instruments that are currently earmarked for implementation in Fiji's NDC Implementation Roadmap. The domestic private sector needs to drive these innovative financial mechanisms to transform the electricity sector in Fiji and also to ensure a sustainable resourcing pathway for Fiji's transition to a low carbon economy in the long run.

Finally, this study creating a NDC Resource Mobilization Framework, while depicted in a sequential manner does not necessary mean that it should be pursued that way. In fact, the Framework can be pursued in a complementary manner. While Fiji has adopted innovative financial instruments that create the picture of Fiji leap-frogging scenarios (e.g. the issuing of a sovereign Green Bond in 2017), the underlying emphasis here is that as long as the domestic private sector in Fiji are not the one driving RE investments, attempts to incentivize them to participate in RE investments will still have limited effect. The GoF and donors must focus on empowering the domestic private sector beyond just adopting RE, and towards a future where they initiate investments in RE.

5. Conclusion

Fiji's NDC has outlined an ambitious target to transform its energy sector by 2030. While many have hailed such ambition as courageous in light of Fiji's circumstances and historical contributions to climate change, the resourcing of such initiatives is a cause of concern. Fiji requires investments worth USD 2.97 billion of which 54% is conditional on Fiji receiving significant mean of implementation and support.

Considering the major climate finance windfall and the high degree of uncertainty of climate finance availability that currently exists in the international climate finance architecture, *the billion-dollar question* therefore relates to how Fiji would attract sustainable funding to implement its NDC. With private finance having been identified as the recourse for such a shortfall, to fully unlock its potential there is a need for the GoF and its donors to strategically channel limited public finance in a sustained manner that will mobilize domestic private finance in the long run.

Despite Fiji's donors consistently prioritizing investments in RE infrastructures, there are indications that they are starting to move towards funding incentives designed to attract domestic private sector investments in RE (Betzold, 2016b; Dornan and Shah, 2016). Donors are now supporting the strengthening of the investment environment by helping developing countries like Fiji implement an array of readiness initiatives. While readiness is critical in removing investment barriers in RE, it is not sufficient to facilitate long term domestic private sector investments in RE. Readiness initiatives are mainly designed to enable domestic private sector to adopt RE technologies. For the domestic private sector to be agents of achieving the envisioned change in the NDC, they must become RE 'initiators'. Initiators require innovations, and for the domestic private sectors to assume this status, they must be allowed to endogenously grow, and develop Fiji's RE market.

Using the scenario analysis technique, this paper formulated a Resource Mobilization Framework, which outlined important initiatives that donors and the GoF should target in order to endogenously grow the private sector. Sustained financing for follow-on projects from successful pilot projects, and targeted technology transfers are the two main initiatives that are critical to the growth of the domestic private sector. This study argues that donors and the GoF should significantly re-orient their NDC funding priorities, and commit long-term resources towards these two initiatives to transform the role of the domestic private sectors as drivers of RE technologies in Fiji.

In the absence of a refocus on priorities on how Fiji's NDC is to be resourced, there is a risk that not only will the energy targets be missed, but that the overall sustainable development path currently being pursued might be unattainable. Leveraging the full potential of domestic private investment is critical in accelerating and sustaining climate change efforts in the long run, and provides many co-benefits in terms of "green" jobs and securing wellbeing. Without genuine efforts to channel external public climate finance towards endogenously growing the domestic private sector, the NDC runs the risk of joining a growing list of "feel good" international initiatives that have bear very little real benefits to local vulnerable communities.

Acknowledgements
Authors would like to thank Dr. Mathew Dornan for his critical insights in the first draft of this study.

Author Contributions

Jale Samuwai wrote, compiled the paper, established the methodology, collected the data, conducted the analysis, and prepared the figures. Jeremy Hills and Evanthie Michalena co-authored the paper, assisted with the compilation, application of the method, data analysis, and the editing of the paper. This paper is part of Jale Samuwai's Ph.D Thesis of which Jeremy Hills is a co-supervisor.

Declaration of Interest

None

Funding

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

References

Acemoglu, D., Robinson, J. A., 2012. The origins of power, prosperity, and poverty: Why Nations Fail.Crown Business, New York, USA.

ADB, 2007. Measuring Performance in Private Sector Development. ADB, Phillipines, 1-57. ISBN: 971-561-600-973.

ADB, 2015a. Fiji: Building Inclusive Institutions for Sustained Growth. ADB, Phillipines: 1-163.

ADB, 2015b. Pacific Energy Update. ADB, Phillipines, 1-24.

ADB, 2017a. Asian Development Outlook 2017 Update: Sustaining Development Through Public-Private Partnership. <https://www.adb.org/sites/default/files/publication/365701/ado2017-update.pdf> (accessed 01 January 2018).

ADB, 2017b. Pacific Energy Update 2017. <https://www.adb.org/documents/pacific-energy-update-2017> (accessed 01 January 2018).

ADB, 2017c. Pacific Private Sector Development Initiative a Decade of Reform Annual progress report 2015–2016. <https://www.adb.org/documents/psdi-progress-report-2015-2016> (accessed 01 January 2018).

Atteridge, A., Canales, N., 2017. Climate finance in the Pacific: An overview of flows to the region's Small Island Developing States. Working Pap. No. 2017-04. Stockholm Environ. Inst. Stockholm, 1-74.

Betzold, C., 2016a. Aid and adaptation to climate change in Pacific island countries. Development Policy Center. Discussion Pap. No. 46. The Australian National University, Canberra, 1-26.

Betzold, C., 2016b. Fuelling the Pacific: Aid for renewable energy across Pacific Island countries. Renew. and Sustain. Energy Rev. 58, 311-318. <https://doi.org/10.1016/j.rser.2015.12.156>

Blyth, M., 2005. Learning from the future through scenario planning. <https://www.researchgate.net/profile/Michael_Blyth2/publication/267386135_Learning_from_the_future_through_scenario_planning/links/5865c0d408ae8fce490c2960.pdf> (accessed 10 October 2017).

Börjeson, L., Höjer, M., Dreborg, K. H., Ekvall, T., Finnveden, G., 2006. Scenario types and techniques: Towards a user's guide. Futures, 38 (7), 723-739. <https://doi.org/10.1016/j.futures.2005.12.002>.

Bowen, A., 2011. Raising climate finance to support developing country action: some economic considerations. Climat. Policy, 11(3), 1020-1036. <https://doi.org/10.1080/14693062.2011.582388>.
Briguglio, L., 1995. Small island developing states and their economic vulnerabilities. World Dev., 23(9), 1615-1632.
Buchner, B., Oliver, P., Wang, X., Carswell, C., Meattle, C., Mazza, F., 2017. Global Landscape of Climate Finance 2017, CPI, 1-20.
Carrozza, I., 2015. Climate Finance in the Asia-Pacific: Trends and Innovative Approaches. MPDD. UNESCAP, Thailand, 1-43.
Center for Global Development, 2015. Developing Countries Are Responsible for 63 Percent of Current Carbon Emissions. <https://www.cgdev.org/media/developing-countries-are-responsible-63-percent-current-carbon-emissions> (accessed 22 February 2018)
Chand, D., 2013. Promoting Sustainability of Renewable Energy Technologies and Renewable Energy Service Companies in the Fiji Islands. Energy Procedia 32, 55-63. <https://doi.org/10.1016/j.egypro.2013.05.008>.
CIA, 2017. The World Fact Book: Fiji. <https://www.cia.gov/library/publications/the-world-factbook/geos/fj.html.> (accessed 02 March 2018).
Climate Investment Funds, 2014. Knowledge Note: Enabling Renewable Energy Investments in Low Income Countries, Climate Investment Funds,1-2.
Climate Transparency, 2017. Financing the Transition from Brown to Green: How to track country performance towards low carbon, climate-resilient economies, ODI & HVGP, Germany, 1-30.
Cooke, K., Gogoi, E., Petrarulo., L., 2017. Overcoming the NDC Implementation Gap: Lessons from Experience, Policy Br., Oxf. Policy Management, 1-16.
De La Tour, A., Glachant, M., Me´niere, Y., 2011. Innovation and international technology transfer: The case of the Chinese photovoltaic industry. Energy Policy, 39(2), 761-770. < https://doi.org/10.1016/j.enpol.2010.10.050>
Dornan, M., Jotzo, F., 2012. Fiji can't function without Oil: cheap renewables could reduce the risk. <https://theconversation.com/fiji-cant-function-without-oil-cheap-renewables-could-reduce-the-risk-5354> (accessed 20 September 2017).
Dornan, M., 2011. Solar-based rural electrification policy design: The Renewable Energy Service Company (RESCO) model in Fiji. Renew. Energy, 36(2), 797-803. <https://doi.org/10.1016/j.renene.2010.07.015>.
Dornan, M., 2014. Access to electricity in Small Island Developing States of the Pacific: Issues and challenges. Renew and Sustain. Energy Rev., 31, 726-735. <https://doi.org/10.1016/j.rser.2013.12.037>.
Dornan, M., 2014. Reform despite politics? The political economy of power sector reform in Fiji, 1996–2013. Energy Policy, 67, 703-712. <https://doi.org/10.1016/j.enpol.2013.11.070>.
Dornan, M., 2015. Renewable Energy Development in Small Island Developing States of the Pacific. Resour., 4(3), 490-506. < doi:10.3390/resources4030490>.

Dornan, M., Jotzo, F., 2015. Renewable technologies and risk mitigation in small island developing states: Fiji's electricity sector. Renew. and Sustain. Energy Rev., 48, 35-48. <https://doi.org/10.1016/j.rser.2015.03.059>.

Dornan, M., Shah, K. U., 2016. Energy policy, aid, and the development of renewable energy resources in Small Island Developing States. Energy Policy, 98, 759-767. <https://doi.org/10.1016/j.enpol.2016.05.035>

EBRD, 2015. Green Economy Transition Approach, EBRD. , http://www.ebrd.com/cs/Satellite?c=Content&cid=1395250237163&d=Mobile&pagename=EBRD%2FContent%2FContentLayout> (accessed 12 February 2018).

ECA, SMEC, 2013. Review of the Fiji National Energy Policy: Draft Energy Policy, Economic Consulting Associates**,**1-38.

EIA, 2016. Projected growth in CO2 emissions driven by countries outside the OECD. <https://www.eia.gov/todayinenergy/detail.php?id=26252.> (accessed 22 February, 2018).

FDB, 2017. Sustainable Energy Financing Facility.<http://www.fdb.com.fj/sustainable-energy-financing-facility/.> (accessed 05 January 2018).

FEA, 2016. Annual Report. Fiji, FEA: 1-35. <http://www.fea.com.fj/about-us/company-information/company-reports/> (accessed 05 January 2018)

GCF, 2016. Readiness and Preparatory Support Proposal, Green Climate Fund.<https://www.greenclimate.fund/home> (accessed 05 January 2018).

GGGI/MOE, 2017. Fundamental Assessment Report for the Development of Fiji's NDC Energy Sector Implementation Roadmap. Suva, GGGI/MOE.

GIZ, 2016. Financing Green Growth: A review of green financial sector policies in emerging and developing countries. GIZ, Germany, 1-112.

Goundar, A.,Newell, A.,Nuttall, P., Rojon, I., Samuwai, J., 2017. King Canute muses in the South Seas: Why aren't Pacific Islands transitioning to low carbon sea transport futures? Marine Policy 81, 80-90.<https://doi.org/10.1016/j.marpol.2017.02.012>.

Gray, S., O'Mahony, C., Hills, J., O'Dwyer, B., Devoy, R., J. Gault, J., 2016. Strengthening coastal adaptation planning through scenario analysis: A beneficial but incomplete solution. Marine Policy. <https://doi.org/10.1016/j.marpol.2016.04.031>

Hall, T. H., 2015. Emotional diplomacy: official emotion on the international stage, Cornell University Press.

Hezel, F. X., 2012. Pacific Island Nations: How viable are their economies? Honolulu, HI: East-West Center, 1-44.

Hu, J., Harmsen, R., Grijns-Graus, W., Worrell, E, 2018. Barriers to investment in utility-scale variable renewable electricity (VRE) generation projects. Renew. Energy 121: 730-744.

Investment Fiji, 2017. Fiji. <http://www.investmentfiji.org.fj/pages.cfm/for-exporters/export-opportunities-in-fiji/fastest-growing-exports-1.html.> (accessed 15 February 2018).

IRENA, 2013. Pacific Lighthouses Report Renewable Energy Roadmapping for Islands. IRENA, Abu Dhabi, 1-55.

IRENA, 2014. Renewable Islands: Settings for Success. IRENA, UAE. 1-28.
IRENA, 2015a. Fiji Renewables Readiness Assessment: IRENA,UAE, 1-60.
IRENA, 2015b. A Path to Prosperity: Renewable energy for islands: Second Edition. IRENA, UAE, 1-84.
IRENA, 2017. Untapped Potential for Climate Action Renewable Energy in Nationally Determined contributions. IRENA, Abu Dhabi, 1-36.
Jafar, M. 2000. Renewable energy in the South Pacific—options and constraints. Renew. Energy, 19(1): 305-309. <https://doi.org/10.1016/S0960-1481(99)00045-2>.
Johansen, K., Emborg, J, 2018. Wind farm acceptance for sale? Evidence from the Danish wind farm co-ownership scheme. Energy Policy 117, 413-422.
Juswanto, W., Ali, Z., 2016. Renewable Energy and Sustainable Development in Pacific Island Countries. Asian Development Bank Institute, Tokyo, 1-6.
Kalu, C. U., Onyinye, M.O, 2015. Domestic Private Investment and Economic Growth in Nigeria: Issues and Further Consideration. Int. J. of Acad. Res. in Bus. and Soc. Sci. 5(2), 302-313.
Keeley, A. R., 2017. Renewable Energy in Pacific Small Island Developing States: the role of international aid and the enabling environment from donor's perspectives. J. of Clean. Product. 146, 29-36. <https://doi.org/10.1016/j.jclepro.2016.05.011>
Lin, J., Streck, C., 2009. Mobilising finance for climate change mitigation: private sector involvement in international carbon finance mechanisms. Melb. J. Int'l Law, 10.
Luong, P. J., Weinthal. E, 2010. Oil Is Not a Curse: Ownership Structure and Institutions in Soviet Successor States, Cambridge University Press.
Maack, J. N., 2001. Scenario analysis: a tool for task managers. <http://siteresources.worldbank.org/INTPSIA/Resources/490023-1121114603600/13053_scenarioanalysis.pdf> (accessed 05 December 2017).
Maclean, J. Tan, J., Tirpak, D., Sonntag-O'Brien, V., Usher, E., 2008. Public Finance Mechanisms to Mobilize Investment in Climate Change Mitigation: An Overview of Mechanisms being used today to help scale up the climate mitigation markets, with a particular focus on clean energy sector. UNEP, Nairobi, 1-40.
Marchal, V., Dellink, R., van Vuuren, D., Clapp, C., Château, J., Lanzi, E., Magné, B., van Vliet, J., 2011. OECD Environmental Outlook to 2050: Chapter 3: Climate Change Pre-release Version, OECD, 1-91.
Markandya, A., Galarraga, I., Rübbelke, D., 2017. Climate finance: Theory and Practice. World Scientific Publ. Co. Pte. Ltd.
Mason, C. H. J., 2015. Financial Mechanism for Clean Energy in Small Island Developing States. World Bank, Washington DC, 1-52.
Mathews, J. A., Kidney, S., Mallon, K., Hughes, M., 2010. Mobilizing private finance to drive an energy industrial revolution. Energy Policy, 38(7), 3263-3265. <https://doi.org/10.1016/j.enpol.2010.02.030>.

Michalena, E., Hills, J. M., 2018. Paths of renewable energy development in small island developing states of the South Pacific. Renew. and Sustain. Energy Rev., 82, 343-352. <https://doi.org/10.1016/j.rser.2017.09.017>.

Michalena, E., Kouloumpis, V., Hills, J.M., 2018. Challenges for Pacific Small Island Developing States in achieving their Nationally Determined Contributions (NDC). Energy Policy 114, 508-518, <https://doi.org/10.1016/j.enpol.2017.12.022>.

Milčiuvienė, S., Paškevičius, J, 2014. The Investment Environment for Renewable Energy Development in Lithuania: The Electricity Sector. Baltic J. of Law & Politics **7**(1), 29-48.

Ministry of Economy, 2017. Fiji NDC Implementation Roadmap 2017-2030 Setting a pathway for emissions reduction target under the Paris Agreement, Ministry of Economy, 1-62.

OECD, 2015. Small island developing states (SIDS): Financing the 2030 Agenda for Sustainable Development, OECD, 1-6.

OECD, 2016. 2020 projections of Climate Finance towards the USD 100 billion goal: Technical Note,1-44.

Oko, M., 2016. NDC Partnership Rocks Marrakech, World Resource Institute. <http://www.wri.org/blog/2016/11/ndc-partnership-rocks-marrakech> (24 September 2017).

Oxfam, 2015. Oxfam's Initial Analysis Of The Paris Agreement: What Will The Paris Agreement Be Remembered For? https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/post_cop21_analysis_final_181215.pdf (accessed14 February 2018).

Patel, S., 2011. Climate Finance: Engaging the Private Sector A background paper for Mobilizing Climate Finance, A report prepared at the request of G20 Finance Ministers, World Bank, 1-32.

Pauw, W., 2015. Not a panacea: private-sector engagement in adaptation and adaptation finance in developing countries. Climat. Policy, 15(5), 583-603. <http://dx.doi.org/10.1080/14693062.2014.953906>

Pauw, W., Klein, R.J.T., Vellinga, P., Biermann, F., 2016. Private finance for adaptation: do private realities meet public ambitions? Climat. Change 134(4), 489-503. < doi: 10.1007/s10584-015-1539-3>.

Polzin, F., 2017. Mobilizing private finance for low-carbon innovation–A systematic review of barriers and solutions. Renew. and Sustain. Energy Rev., 77, 525-535. <https://doi.org/10.1016/j.rser.2017.04.007>

Prasad, R. D., Bansal, R.C., Raturi, A., 2017. A review of Fiji's energy situation: Challenges and strategies as a small island developing state. Renew. and Sustain. Energy Rev. 75, 278-292. <https://doi.org/10.1016/j.rser.2016.10.070>

Puah, C.-H., Jayaraman, T., 2007. Macroeconomic activities and stock prices in a South Pacific Island economy. Int. J. of Econ. and Management, 1(2), 229-244.

RBF, 2012. Reserve Bank Introduces Agriculture And Renewable Energy Loans Ratio. Press Release No. 06/2012. RBF, Suva,1-2.

Samuwai, J., Hills, J, 2018. Assessing Climate Finance Readiness in the Asia-Pacific Region. Sustain. 10(4), 1-18. DOI: 10.3390/su10041192

Schoemaker, P. J., 1995. Scenario planning: a tool for strategic thinking. Sloan Management Rev., 36(2), 25-40.

Schwartz, P, 1996. The Art of the Long View: Planning for the Future in an Uncertain World, Currency. New York.

Selin, H., 2016. Climate Finance and Developing Countries: The Need for Regime Development. Boston University, Global Economic Governance Initiative. GEGI Working Pap. No 009, 1-14.

Sharma, P. Rocaa, E., , Dakai, V., Manoa, S., 2014. An Assessment of Fiji's Banking Sector on a Global Scale: 2000–2011. Reserve Bank of Fiji Policy Research Working Pap., 1, 1-31.

SPC, 2017. Private Investment is the way to go. <http://www.spc.int/blog/private-sector-investment-is-the-way-to-go/.> (accessed 21 February 2018).

SPSE, 2016. South Pacific Stock Exchange Annual Report. Suva, SPSE, 1-62.

Stewart, R. B., Kingsbury, B., Rudyk, B., 2009. Climate finance: Regulatory and funding strategies for climate change and global development, NYU Press.

Syngellakis, K., 2017. Sustainable Finance Roadmaps: Creating an enabling environment for green investment. <http://www.rbf.gov.fj/getattachment/Left-Menu/Financial-Inclusion/Events/Workshop-on-Sustainable-Finance-Initiatives/Session-2-Fiji-Sustainable-Finance.pdf?lang=en-US. > (accessed 24 January, 2018).

Taibi, E., Gualberti, G., Bazilian, M.,Gielen, D., 2016. A framework for technology cooperation to accelerate the deployment of renewable energy in Pacific Island Countries. Energy Policy 98, 778-790. <https://doi.org/10.1016/j.enpol.2016.03.009>

The Government of the Republic of Fiji, 2015. Sustainable Energy For all (SE4ALL): Rapid Assessment and Gap Analysis. Department of Energy, Suva, 1-68.

The World Bank, 2015. Financing renewable energy Options for Developing Financing Instruments Using Public Funds, The World Bank, 1-60.

The World Bank, 2017. Fiji Issues First Developing Country Green Bond, Raising $50 Million for Climate Resilience. <http://www.worldbank.org/en/news/press-release/2017/10/17/fiji-issues-first-developing-country-green-bond-raising-50-million-for-climate-resilience>. (accessed 17 November 2017).

The World Bank, 2017. Sustainable Energy Finance Project. http://projects.worldbank.org/P098423/sustainable-energy-finance-project?lang=en&tab=documents&subTab=projectDocuments. (accessed 07 March, 2018).

The World Bank, 2017. The World Bank In Pacific Islands. http://www.worldbank.org/en/country/pacificislands/overview (accessed 03 October 2017).

Timilsina, G. R., Shah, K., 2016. Filling the gaps: Policy supports and interventions for scaling up renewable energy development in Small Island Developing States. Energy Policy, 98, 653-662. <https://doi.org/10.1016/j.enpol.2016.02.028>.

UNEP, 2014. Financial institutions taking action on climate change: a report on how climate leadership is emerging in the finance sector - and on how public and private actors need to work together to grow leadership into a new normal. UNEP, Nairobi, 1-36.

UNEP, 2016. The Emission Gap Report 2016. A UNEP Synthesis Report. UNEP. Nairobi, 1-86.

UNFCCC, 2015. The Paris Agreement. FCCC/CP/2015/L.9/Rev.1. UNFCCC. Paris, 1-32.

Urmee, T., Harries, D., 2012. The solar home PV program in Fiji – A successful RESCO approach? Renew. Energy, 48, 499-506. <https://doi.org/10.1016/j.renene.2012.06.017>.

Venugopal, S., Srivastava, A, 2012. A Primer on Public Climate Financing Instruments used to Leverage Private Capital. WRI Working Paper, World Resource Institute.

Weischer, L., Warland, L., Eckstein, D., Hoch, S., Michaelowa, A., Koehler, M., Wehner, S.,

2016. Investing in ambition–Analysis of the financial aspects in (Intended) nationally determined contributions. Germanwatch and Perspectives Briefing Pap., 1-28.

Weisser, D., 2004. Power sector reform in small island developing states: what role for renewable energy technologies? Renew. and Sustain. Energy Rev., 8(2), 101-127. <https://doi.org/10.1016/j.rser.2003.10.002>.

Wolf, F., Surroop, D., Singh, A.,Leal, W., 2016. Energy access and security strategies in Small Island Developing States. Energy Policy, 98, 663-673. <https://doi.org/10.1016/j.enpol.2016.04.020>.

World Economic Forum, 2017. The Global Competitiveness Report 2017–2018.World Economic Forum, Swizerland**,**1-393.

World Economic Forum, 2016. Green Investment. <http://reports.weforum.org/green-investing-2013/introduction/.> (accessed 20 March 2018).

World Travel & Tourism Council, 2017. Travel & Tourism Economic Impact 2017 Fiji, World Travel & Tourism Council, 1-24.

Yaqoot, M., Diwan, P., Kandpal, T. C., 2016. Review of barriers to the dissemination of decentralized renewable energy systems. Renew. and Sustain. Energy Rev., 58, 477-490. <https://doi.org/10.1016/j.rser.2015.12.224>.

Yu, X., Taplin, R., 1997. A survey: international aid for renewable energy in the Pacific Islands since the 1970s. Energy Policy, 25(5), 501-516.

Zhang, H.-B., Dai. H-C., Lai, H-X., Wang, W-T., 2017. US withdrawal from the Paris Agreement: Reasons, impacts, and China's response. Advances in Climat. Change Res., 8(4), 220-225. <https://doi.org/10.1016/j.accre.2017.09.002>.

Zhang, Z., Maruyama, A., 2001. Towards a private–public synergy in financing climate change mitigation projects. Energy Policy, 29(15), 1363-1378. <https://doi.org/10.1016/S0301-4215(01)00038-6>.

APPENDIX B

Countries	USD (Millions)			Grants (%)	Debt Instrument (%)
	Lower Bound	Upper Bound	Average		
Fiji	6.97	22.45	14.71	100	0
Nauru	0.141	2.67	1.4055	100	0
RMI	0.12	11.83	5.975	100	0
Samoa	9.14	67.17	38.155	99	1
Tonga	3.04	10.31	6.675	48	52
Vanuatu	35.4	77.23	56.315	55	45
Vietnam	1441	1081	1261	9	90
Cambodia	78.4	161.8	120.1	28	72
Thailand	7	1377	692	1	99
Bangladesh	897	1634	1265.5	13	87
Nepal	66.4	67.9	67.15	77	23
Pakistan	108	1071	589.5	11	89

Table 2.3. Climate Finance Accessed in 2016 (Sourced from OECD (2016))

			Change Statistics		
Model	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change
1	0.865	166.70143	0.902	24.425	0.000
2	0.922	126.50826	0.049	6.891	0.034

Table 2.4a. Model summary results.

Model		Sum of Squares	Mean Square	F	Sig.
1	Regression	2,036,234.120	678,744.707	24.425	0.000 [b]
	Residual	222,314.930	27,789.366		

	Total	2,258,549.050			
	Regression	2,146,518.663	536,629.666	33.530	0.000 [c]
2	Residual	112,030.387	16,004.341		
	Total	2,258,549.050			

Table 2.4b. ANOVA Results.

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	***t***	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	−106.652	101.086		−1.055	0.322
	Population	3.145×10^{-6}	0.000	0.468	1.919	0.091
	GDP_pc	−333.058	165.896	−0.244	−2.008	0.080
	Govern_quality	0.352	0.177	0.487	1.989	0.082
2	(Constant)	−349.370	120.142		−2.908	0.023
	Population	4.002×10^{-6}	0.000	0.596	3.112	0.017
	GDP_pc	−370.269	126.693	−0.271	−2.923	0.022
	Govern_quality	0.218	0.144	0.301	1.514	0.174
	Readiness	24.492	9.330	0.247	2.625	0.034

Table 2.4c. Coefficients Results

No.	Countries	Category
1.	Antigua & Barbuda	SIDS
2.	Bahamas	SIDS
3.	Bahrain	SIDS
4.	Barbados	SIDS
5.	Belize	SIDS
6.	Cape Verde	SIDS/Africa
7.	Comoros	SIDS/Africa/LDC
8.	Cook islands	SIDS
9.	Cuba	SIDS
10.	Cyprus	SIDS
11.	Dominican Republic	SIDS
12.	Dominica	SIDS
13.	Federate States of .Micronesia	SIDS
14.	Fiji	SIDS
15.	Grenada	SIDS
16.	Guinea-Bissau	SIDS/Africa/LDC
17.	Guyana	SIDS
18.	Haiti	SIDS/LDC
19.	Jamaica	SIDS
20.	Kiribati	SIDS/LDC
21.	Maldives	SIDS
22.	Malta	SIDS
23.	Marshall	SIDS
24.	Mauritius	SIDS/Africa
25.	Nauru	SIDS
26.	Niue	SIDS
27.	Palau	SIDS
28.	Papua New Guinea	SIDS
29.	Saint Kitts & Nevis	SIDS
30.	Saint Lucia	SIDS
31.	Saint Vincent & Grenadines	SIDS
32.	Samoa	SIDS
33.	Sao Tome and Principe	SIDS/LDC
34.	Singapore	SIDS
35.	Solomon	SIDS/LDC
36.	Suriname	SIDS
37.	Seychelles	SIDS
38.	Timor Leste	SIDS/LDC
39.	Tonga	SIDS
40.	Trinidad & Tobago	SIDS
41.	Tuvalu	SIDS/LDC
42.	Vanuatu	SIDS/LDC
43.	Afghanistan	LDC

44.	Angola	LDC/Africa
45.	Bangladesh	LDC
46.	Benin	LDC/Africa
47.	Bhutan	LDC
48.	Burkina Faso	LDC/Africa
49.	Burundi	LDC/Africa
50.	Cambodia	LDC
51.	Central African Republic	LDC/Africa
52.	Chad	LDC/Africa
53.	Democratic Republic of the Congo	LDC/Africa
54.	Djibouti	LDC/Africa
55.	Equatorial Guinea	LDC/Africa
56.	Eritrea	LDC/Africa
57.	Ethiopia	LDC/Africa
58.	Gambia	LDC/Africa
59.	Guinea	LDC/Africa
60.	Lao People's Democratic Republic	LDC
61.	Lesotho	LDC/Africa
62.	Liberia	LDC/Africa
63.	Madagascar	LDC/Africa
64.	Malawi	LDC/Africa
65.	Mali	LDC/Africa
66.	Mauritania	LDC/Africa
67.	Mozambique	LDC/Africa
68.	Myanmar	LDC
69.	Nepal	LDC
70.	Niger	LDC/Africa
71.	Rwanda	LDC/Africa
72.	Senegal	LDC/Africa
73.	Sierra Leone	LDC/Africa
74.	Somalia	LDC/Africa
75.	South Sudan	LDC/Africa
76.	Sudan	LDC/Africa
77.	Togo	LDC/Africa
78.	Uganda	LDC/Africa
79.	United Republic of Tanzania	LDC/Africa
80	Yemen	LDC
81.	Zambia	LDC/Africa
82.	Algeria	Africa
83.	Botswana	Africa
84.	Cameroon	Africa
85.	Congo	Africa
86.	Côte d’Ivoire	Africa
87.	Egypt	Africa

88.	Gabon	Africa
89.	Ghana	Africa
90.	Kenya	Africa
91.	Libya	Africa
92.	Morocco	Africa
93.	Namibia	Africa
94.	Nigeria	Africa
95.	South Africa	Africa
96.	Tunisia	Africa
97.	Zimbabwe	Africa

Table 3.2 Particularly Country Listing as per GCF.

END OF THE THESIS.